

Cosmetic Product Safety Report

Dark Brown Hair Dye Shampoo

This safety assessment relates to the formulation described below. If the information below is incorrect, please amend and resubmit for reassessment.

Shenzhen Langmi Technology Co., Ltd.
303, No. 36, Tian'an Road, Bantian Comm Bantian Street,
Longgang District Shenzhen, Guangdong, CHINA 518129

Formulation Ref: N/A
Buyer/Final Retailer: N/A
Manufacturer: N/A

PRODUCT FORMULATION

The chemical names shown below refer to the raw materials used to formulate this product. The identity of the raw materials is not necessarily based on the International Nomenclature of Cosmetic Ingredients (INCI) and does not represent the INCI listing that must be shown on the product label and is for assessment purposes only. An outline INCI label can be prepared on request.

Chemical Name	Max Conc %	% Max Active	% Max Active in Product	CAS No	Einecs No
AQUA	80.15	100	80.15	7732-18-5	231-791-2
HYDROXYETHYLCELLULOSE	1.5	100	1.5	9004-62-0	-
PROPYLENE GLYCOL	4	100	4	57-55-6	200-338-0
DISODIUM EDTA	0.2	100	0.2	139-33-3 / 6381-92-6	205-358-3
ETHANOLAMINE	7	100	7	141-43-5	205-483-3
SODIUM ERYTHORBATE	0.8	100	0.8	6381-77-7	228-973-9
PEG-75 LANOLIN	0.5	100	0.5	61790-81-6 8039-09-6	POLYMER
SODIUM HYDROSULFITE	0.2	100	0.2	7775-14-6	231-890-0
THIOGLYCOLIC ACID	0.1	100	0.1	68-11-1	200-677-4
ETIDRONIC ACID	0.4	100	0.4	2809-21-4	220-552-8
PETROLATUM	1	100	1	8009-03-8 / 8063-27-2	232-373-2
AROMA	0.5	100	0.5	PREPARATION	PREPARATION
4-AMINO-2-HYDROXYTOLUENE	0.25	100	0.25	2835-95-2	220-618-6
M-AMINOPHENOL	0.5	100	0.5	591-27-5	209-711-2
P-PHENYLENEDIAMINE	1.5	100	1.5	106-50-3	203-404-7
RESORCINOL	0.3	100	0.3	108-46-3	203-585-2
P-AMINOPHENOL	0.3	100	0.3	123-30-8	204-616-2
BIOTA ORIENTALIS LEAF EXTRACT	0.1	100	0.1	/	/
ZINGIBER OFFICINALE (GINGER) ROOT EXTRACT	0.1	100	0.1	84696-15-1	283-634-2
POLYGONUM MULTIFLORUM ROOT EXTRACT	0.1	100	0.1	/	/
ALOE BARBADENSIS EXTRACT	0.1	100	0.1	85507-69-3 / 8001-97-6 & 7732-18-5	287-390-8 / - & 231-791-2
MORUS NIGRA LEAF EXTRACT	0.1	100	0.1	90064-11-2	290-072-1
ARTEMISIA ARGYI LEAF EXTRACT	0.1	100	0.1	/	/
PANAX GINSENG ROOT EXTRACT	0.1	100	0.1	7732-18-5 & 57-55-6 & 90045-38-8	231-791-2 & 200-338-0 & 289-898-5
HYDROLYZED KERATIN	0.1	100	0.1	69430-36-0	274-001-1

Chemical Name	Max Conc %	% Max Active	% Max Active in Product	CAS No	Einecs No
AQUA	73.43	100	73.43	7732-18-5	231-791-2
GUAR HYDROXYPROPYLTRIMONIUM CHLORIDE	0.05	100	0.05	65497-29-2 / 71329-50-5	NOT LISTED
SODIUM LAURETH SULFATE	8	100	8	1335-72-4/3088-31-1/9004-82-4/68585-34-2 / 68585-34-2 / 68891-38-3 / 91648-56-5 / 96130-61-9	500-223-8 / - / 221-416-0 / 500-234-8
OXYQUINOLINE SULFATE	0.1	100	0.1	134-31-6	205-137-1
COCAMIDOPROPYL BETAINE	4	100	4	61789-40-0	263-058-8/931-296-8
PALM KERNELAMIDE DEA	3	100	3	73807-15-5	277-612-1
ETIDRONIC ACID	0.52	100	0.52	2809-21-4	220-552-8
DISODIUM PHOSPHATE	0.4	100	0.4	7558-79-4/7782-85-6/10028-24-7	231-448-7
AROMA	0.3	100	0.3	PREPARATION	PREPARATION
HYDROGEN PEROXIDE	9	100	9	7722-84-1	231-765-0
SODIUM CHLORIDE	1.2	100	1.2	7647-14-5	231-598-3

Substance toxicological summary was listed in this report and detailed data are stored in Intertek owned in house database, could provide on specific request. MSDS/SDS, TDS/COA were listed in the Appendix 1

LABELLED WARNINGS & INSTRUCTIONS OF USE

Conditions of use: Avoid contact with eyes. Rinse eyes immediately if product comes into contact with them. Wear suitable gloves.

Contains hydrogen peroxide, resorcinol, phenylenediamines, thioglycolate.

Rinse hair well after application.

Do not use to dye eyelashes or eyebrows.

Follow the instructions, Keep out of reach of children.

The mixing ratio(1:1).

⚠ Hair colourants can cause severe allergic reactions.

Read and follow instructions.

This product is not intended for use on persons under the age of 16.

Temporary "black henna" tattoos may increase your risk of allergy.



Do not colour your hair if:

- you have a rash on your face or sensitive, irritated and damaged scalp,
- you have ever experienced any reaction after colouring your hair,
- you have experienced a reaction to a temporary “black henna” tattoo in the past.

CONSUMER EXPOSURE

Hair dyes are not intended to be applied on a daily basis. However, the MoS is calculated by dividing the PoD for daily application by the SED for a single application. Although this approach can be debated, this is used as a conservative approach. Thus, the daily dose should not be averaged over the whole year (ECHA, 2012a).

Product Class: Hair colourant

IFRA Product type: Rinse-off Hair permanent and other hair chemical treatments

IFRA Category: Category 7A

Targeted Population: Adult Female & Adult Males Mean value 60kg

Amount per application/g:	100	Number of applications per day:	10 times per year
Skin Surface Area of Application/cm ² :	580	Physical form:	Liquid
Total Amount applied per day/g:	100.00	Part of body exposed to undiluted product:	Applied directly on to the hair with little chance of contact with the scalp, hands, eyes.
Estimated Daily Exposure mg/kg/day:	-	Dilution Factor	Diluted 1 to 25 with water
Amount Per Unit Area of Skin per day mg/cm ² /day:	6.03	Part of body exposed to diluted	Applied directly on to the hair with little chance of contact with the scalp, hands,
Retention factor:	0.10		
Exposure Time Neat:	40 min Perm lotion); 15 min (Fixing lotion)		
Exposure Time Dilute:	Not Applicable		
Exposure time Solvent Inhalation:	Not Applicable		
Exposure time Aerosol Inhalation:	Not Applicable		

This product is intended for adult use only.

MICROBIOLOGICAL QUALITY

To comply with "Guidelines on Microbiological Quality of the Finished Cosmetic Product" under SCCS's Notes of Guidance, the following limits apply to this product:

Category 2: Other cosmetic products. Total Aerobic Mesophilic Microorganisms (Bacteria plus yeast and mould) should not exceed 1000 cfu/g or ml in the product. *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Candida albicans* must not be detectable in 1 g or ml of the cosmetic. Microbiological specifications for the product have been supplied and meet the requirements specified therein for this type of product.

Microbiological specification test report or data was listed in the Appendix 2-1

Preservative challenge test results for this product have been supplied and meet the industry requirements specified therein for this type of product.

Preservative challenge test report or data was provided and listed in the Appendix 2-2

STABILITY OF COSMETIC PRODUCT

It is assumed that the responsible person has selected all pertinent criteria required to evaluate the stability of this cosmetic product during reasonable foreseeable conditions of storage. The stability report provided by the supplier and based upon the conclusions made therein, this cosmetic product appears to be stable under reasonably foreseeable storage conditions.

Stability Test Report or Data of Cosmetic Product was listed in the Appendix 3

PACKAGING COMPATIBILITY

It is assumed that the responsible person has identified the most applicable testing required to determine the packaging stability and its interaction with the cosmetic product contained within it. Taking into consideration the information supplied to the assessor, there appears to be no immediate health concern due to the characteristics of packaging materials in direct contact with the final product.

Package Compatibility Test Report and/or data was listed in the Appendix 4

SERIOUS / UNDESIRABLE EFFECTS

The supplier has confirmed that no undesirable effects or serious undesirable effects of this cosmetic product have been reported or, where relevant, cosmetic products with a similar formulation.

Serious/ Undesirable Effects of Cosmetic Product Declaration was listed in Appendix 5

FRAGRANCE COMPOSITIONS

The supplier has provided an IFRA certificate or similar which confirms that the fragrance has been safety assessed by the fragrance manufacturer and meets the requirements of the most recent amendments to the IFRA Code of Practice.

IFRA Certificate, MSDS/SDS and Allergen declaration were listed in the Appendix 6

According to Cosmetic Regulation (EC) No. 1223/2009, a complete cosmetic product safety report shall, at a minimum, contain cosmetic product safety information and cosmetic product safety assessment. The former includes raw materials and packaging material specifications, toxicological profile of substance (taking into account of purity of substance) contained in the cosmetic product and any known undesirable effects of the cosmetic product.



TOXICOLOGICAL & REGULATORY REVIEW

The hair dye shampoo is used by mixing two doses in a 1:1 ratio, containing solvent, thickener, chelating agent, pH adjuster, antioxidant, hair conditioner, reducing agent, softener, perfuming, hair colorant, surface active agent, oxidant, viscosity-controlling agent. It is used to dye the hair and give your hair a silky and shiny look. None of the ingredients is on the prohibition list of the Cosmetic Regulation (EC) No.1223/ 2009. Production according to Good Manufacturing Practices is considered appropriate to minimize the risk of microbiological hazard, and the absence of preservatives could be accepted.

Most of the ingredients are commonly used in cosmetic products and reviewed by CIR Panel. The MoS of the most ingredients with available NOAEL are more than 100, indicating their high safety. Although the MoS of sodium laureth sulfate is lower than 100, it has been reviewed by the CIR panel. Ingredients sodium laureth sulfate, sodium erythorbate, PEG-75 lanolin, zingiber officinale (ginger) root extract, panax ginseng root extract, hydrolyzed keratin are lack of NOAEL, while they have been reviewed by the CIR panel confirmed safe for use at the current level.

Hydrogen peroxide, ethanolamine, palm kernelamide DEA, etidronic acid, resorcinol, p-aminophenol, p-phenylenediamine, thioglycolic acid, oxyquinoline sulfate, m-aminophenol, 4-amino-2-hydroxytoluene are regulated under the Annex III of Cosmetic Regulation (EC) No. 1223/2009, According to the provided report and information, they were in permitted concentrations and conditions of use specified in the Regulation. It is expected that there will be no safety risks when used in accordance with the labeling requirements of regulations.

These extracts, such as artemisia argyi leaf extract, biota orientalis leaf extract, morus nigra leaf extract, polygonum multiflorum root extract, are derived from plants such as mugwort leaves, cypress leaves, black mulberry leaves, and Polygonum multiflorum roots. These plants, as traditional Chinese medicinal materials, have a history of safe use and are not expected to pose any safety risks.

The parfum (LK-5769DMS) used in the formulation complies to IFRA Code of Practice and standards, and the allergen declaration indicated that no allergens need to be declared on the product label.

Most of the ingredients used to formulate this product are well known ingredients. It would not be expected to pose a significant risk of adverse effects in a majority of individuals and would be expected to provide consumers with the level of safety they might reasonably expect.

Limits of heavy metals were satisfied legal requirements and testing report was listed in the Appendix 7

No existing studies from human volunteers were provided.

Provided the product is rinsed well off the skin after use, this product should be well received.

Effects of the product as supplied on the skin

The formulation as supplied may cause skin irritation especially if exposure is prolonged and/or repeated. However, under normal conditions of use exposure time will be short and the likelihood of causing skin irritation will be very low.

Exposure to the formulation as supplied may produce allergy by skin contact especially after prolonged and/or repeated skin exposure. However, under normal conditions of use the exposure time will be short and the likelihood of causing skin sensitisation will be small. Professional users who may use the product repeatedly must minimise skin contact.

Exposure to this product is unlikely to result in phototoxic effects.

Unlikely to cause damage to internal organs following absorption through the skin.

Effects on the skin, of the product as diluted for use

Contact with the dilute solution may cause slight skin irritation especially if contact is prolonged and/or repeated. However, if rinsed well from the skin, irritation is most unlikely.

Effects of the product as supplied on the eye

Accidental exposure of the eye to the formulation as supplied may result in eye irritation.

Effects on the eye, of the product as diluted for use

Accidental exposure of the eye to the diluted product may result in slight eye irritation.

Effects following ingestion of the product as supplied

The formulation as supplied if swallowed is likely to cause irritation to the mouth and upper digestive tract.

Effects on ingestion, of the product as diluted for use

The diluted product if swallowed may cause slight irritation to the mouth and upper digestive tract.

Effects of inhaling the product

Inhalation is an unlikely route of exposure

Overall Assessment Conclusion

The ingredients are legally permitted as per Cosmetic Regulation (EC) No 1223/2009 and its amendments and the safety assessment has been carried out in accordance to this regulation. They must comply with the relevant purity standards for cosmetic ingredients. It is assumed that these ingredients do not contain any undisclosed impurities/contaminants that would affect the conclusions reached. The product must be manufactured in accordance with EU Guidance on Good



Manufacturing Practice.

Conditions of use: Avoid contact with eyes. Rinse eyes immediately if product comes into contact with them. Wear suitable gloves.

Contains hydrogen peroxide, resorcinol, phenylenediamines, thioglycolate.

Rinse hair well after application.

Do not use to dye eyelashes or eyebrows.

Follow the instructions, Keep out of reach of children.

The mixing ratio(1:1).

 Hair colourants can cause severe allergic reactions.

Read and follow instructions.

This product is not intended for use on persons under the age of 16.

Temporary "black henna" tattoos may increase your risk of allergy.

Do not colour your hair if:

- you have a rash on your face or sensitive, irritated and damaged scalp,
- you have ever experienced any reaction after colouring your hair,
- you have experienced a reaction to a temporary "black henna" tattoo in the past.

Under normal or reasonably foreseeable conditions of use, product made to this formulation is unlikely to produce an abnormally high number of adverse reactions. The product will give users the level of safety they can reasonably expect.

Cosmetic Regulations Product Safety Assessor

Leshuai Zhang, Professor, PhD, DABT, ERT, UKRT

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Date: 14 Feb 2025



SUMMARY OF TOXICOLOGICAL INFORMATION OF SUBSTANCES

Remark: Substance toxicological summary was listed in this section and used only for MoS calculation, please refer to Toxicological Profiles of Substances for full information.

Chemical Substance: AQUA

EU INCI NAME:AQUA

CAS: 7732-18-5

EINECS: 231-791-2

Appearance: Liquid

Function:Solvent

Melting Point: 0°C

Boiling Point: 100°C

Water Solubility: highly soluble

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 127.983333333333 No NOAEL Available

SED Child mg/kg bw/day: 459.8203592814 No NOAEL Available

SED Baby mg/kg bw/day: 1301.5254237288 No NOAEL Available

Toxicological Summary:

Cosmetic function : Solvent. Simply water unlikely to cause irritation, allergy or harm. Used in many cosmetic products as a solvent and necessary to sustain biological life. The source of water should be known, monitored to GMP and either a deionised or high purity grade free from toxins, pollutants and bacteriological contamination should be used in cosmetic products.

Chemical Substance: HYDROGEN PEROXIDE

EU INCI NAME:HYDROGEN PEROXIDE

CAS: 7722-84-1

EINECS: 231-765-0

Function:oxidising agents

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled

Regulatory Summary:

EU DSD/DPD Classification> R8-34

EU CLP Harmonised Classification> Eye Dam. 1-H318: 8 % ≤ C < 50 %;Eye Irrit. 2-H319: 5 % ≤ C < 8 %;STOT SE 3-H335: C ≥ 35 %;Skin Corr. 1A-H314: C ≥ 70 %; Skin Corr. 1B-H314: 50 % ≤ C < 70 %;Skin Irrit. 2-H315: 35 % ≤ C < 50 % (Harmonised classification)

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 7.5000000000 No NOAEL Available

SED Child mg/kg bw/day: 26.9461077844 No NOAEL Available

SED Baby mg/kg bw/day: 76.2711864406 No NOAEL Available

Toxicological Summary:

As supplied classified as corrosive to skin - will burn the skin following prolonged (up to 4 hours) contact. When diluted to 10% in a formulation will cause significant skin irritation if left in contact with the skin for a prolonged period and will be irritating to eyes.

EC 1223-2009 restrictions:

(a) Hair products: 12% of H₂O₂ (40 volumes) present or released; (b) Skin products: 4% of H₂O₂ present or released; (c) Nail hardening products: 2% of H₂O₂ present or released; (d) Oral products, including mouth rinse, tooth paste and tooth whitening or bleaching products: less than or equal to 0.1% of H₂O₂ present or released; (e) Tooth whitening or bleaching products: >0.1% less than or equal to 6% of H₂O₂, present or released; (f) Products intended for eyelashes: 2% of H₂O₂, present or released

Wording – Warnings/Cautionary:

For(a) and (f): Wear suitable gloves.

For (a)(b)(c) and (e)Contains hydrogen peroxide.

Avoid contact with eyes. Rinse eyes immediately if product comes into contact with them.

(e) Concentration of H₂O₂ present or released indicated in percentage.

Not to be used on a person under 18 years of age.

To be sold only to dental practitioners. For each cycle of use, the first use to be only done by dental practitioners or under their direct supervision if an equivalent level of safety is ensured. Afterwards to be provided to the consumer to complete the cycle of use.

(f) To be printed on the label:

*For professional use only. Avoid contact with eyes. Rinse eyes immediately if product comes into contact with them.

Contains hydrogen peroxide."

Chemical Substance: SODIUM LAURETH SULFATE

EU INCI NAME:SODIUM LAURETH SULFATE

CAS: 1335-72-4/3088-31-1/9004-82-4/68585-34-2 / 68585-34-2 / 68891-38-3 /

91648-56-5 / 96130-61-9

EINECS: 500-223-8/-/221-416-0/500-234-8

Function:Surfactant

Appearance: solid

Log Kow: 1.14

Water Solubility: 9757m g/L

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 6.66666666666666 MoS - Adult 60kg: 33.7

SED Child mg/kg bw/day: 23.9520958083 MoS - Child 16.7kg: 9.3

SED Baby mg/kg bw/day: 67.7966101694 MoS - Baby 5.9kg: 3.3

NOAEL mg/kg bw day: 225

NOAEL test method: GLP OECD 408 -90-day repeated oral

Toxicological Summary:

The ingredient is not acutely toxic via oral, dermal or inhalation route. It is not a skin sensitizer, mutagenic, carcinogenic or a reproductive toxicant. It has no bioaccumulation potential and non-phototoxic, but it cause slightly irritating at low concentration, severely irritating at high concentrations to skin and eyes. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics when formulated to be non-irritating.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: ETHANOLAMINE

EU INCI NAME:ETHANOLAMINE

CAS: 141-43-5

EINECS: 205-483-3

Appearance: Viscous liquid

Log Kow: -1.3

Water Solubility: Soluble in cold and hot water

Function:buffering agents

Boiling Point: 170.8

Vapour Pressure: 0.1 kPa (@ 20°C)

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled

Regulatory Summary:

EU DSD/DPD Classification> R20/21/22, R34; R65

EU CLP Harmonised Classification> H332,H312,H302,H314

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.0647500000

MoS - Adult 60kg: 1853.2

SED Child mg/kg bw/day: 0.2326347305

MoS - Child 16.7kg: 515.8

SED Baby mg/kg bw/day: 0.6584745762

MoS - Baby 5.9kg: 182.2

NOAEL mg/kg bw day: 120

NOAEL test method: Oral developmental study; rat; sub-acute

Toxicological Summary:

GHS Classified: H332,H312,H302,H314-Acute Tox. 4 *Acute Tox. 4 * Acute Tox. 4 * Skin Corr. 1B.

Used in cosmetic formulations as emulsifiers, thickeners, wetting agents, detergents, and alkalizing agents. This buffering agent as supplied is irritating to the skin and eyes. One of a class of organic compounds called ethanolamines. Combine the properties of amines and alcohols. The following conditions applies when used in formulating cosmetics: Maximum secondary amine content of 0.5 %. Not to be used with nitrosating systems (e.g. bronopol). The most probable exposure route is skin contact with products that contain small amounts of this material with some potential for exposure by inhalation of vapor and mists. Monoethanolamine (MEA) has moderate toxicity in single exposure studies (oral LD50 :1720 mg/kg (rat), 700 mg/kg (mouse); dermal LD50: 1000 mg/kg); harmful and corrosive if ingested. It is also harmful if inhaled or absorbed through the skin and may cause lung damage if aspirated. Highly irritating to the eyes, skin and respiratory tract and can cause burns to the skin and eyes. 30% MEA was corrosive to rabbit skin when applied semi-occluded and 10% in open patch test. Monoethanolamine did not show skin sensitisation potential in standard animal tests, and human patch testing has not shown monoethanolamine to be a significant allergic dermal sensitizer. Ethanolamines are neither mutagenic nor genotoxic in standard assays. In tests conducted with 20% triethanolamine (TEA), no photo-sensitisation or toxicity effects were observed. Prolonged or widespread skin contact may result in the absorption of potentially harmful amounts. Ethanolamines have been shown in repeated dose studies to cause damage to the kidneys and liver when administered orally or on dermal application. In a 90-day study of sub-acute oral toxicity, rats exposed to a maximum daily dose of 320 mg/kg MEA showed no effects. At 640 mg/kg, altered kidney and liver weights were noted, and at 1,200 mg/kg, microscopic pathological changes were noted in the liver and kidneys [Clayton and Clayton 1982]. In an old study (Wernick et al., 1975), no adverse effects were seen in dogs administered a composite hair dye containing primarily ethanolamine in the diet for two years at up to 22 mg/kg/day. Repeated inhalation of severely irritating levels of MEA vapours have been reported to result in possible effects upon the nervous and reproductive systems. Four (of 6) guinea pigs exposed to 233 ppm for 1 hour died. Among animals exposed to approximately 100 ppm, respiratory distress, lethargy, and mild degenerative changes in the liver and kidneys were noted [Hathaway et al. 1991; Gosselin 1984; Clayton and Clayton 1982]. Skin irritation, lethargy, and temporary weight loss have been reported in animals exposed to 12 ppm or less [ACGIH 1991]. No developmental toxicity effects have been reported in a standard guideline-compliant repeated oral dose study with maternally toxic dose of MEA (450 mg/kg bw/d) when administered pre-, peri-, and post-natally to rats; the NOEL for maternal effects was determined to be 120 mg/kg bw/d (Hellwig J., and Liberacki, A.B. (1997); Fundam. Appl. Toxicol. 40, 158-162). In a dermal developmental study with MEA, dermal irritation and body weight decreases were noted but no adverse fetal effects or evidence of teratogenicity at exposure levels up to 75 mg/kg bw/d in rabbits and 250 mg/kg bw/d in rats; doses of 25 mg/kg bw/d to rabbits produced only minor irritation (Liberacki et al., (1996); Fundam. Appl. Toxicol. 31(1):117-23). Embryotoxicity including increases in in-utero deaths and number of malformed fetuses has, however, been reported in gavage studies not conducted to the standard guidelines in mouse (850 mg <MEA/kg bw/d) and rat (50, 300, 500 mg MEA/kg/d). The overall weight of evidence suggest that MEA is not teratogenic at maternally non-toxic dose levels and has low developmental toxicity potential. MEA not reported to be carcinogenic. 24.79% of aqueous ethanolamine was absorbed through mouse skin while 1.11% was absorbed through human skin (CIR, 2012). Human data: No controlled-exposure or epidemiologic studies with ethanolamine have been reported. MEA has been observed to be irritating to the skin. Workers exposed to MEA at concentrations of greater than 1 mg/m3 (~0.4 ppm) has reportedly suffer from chronic bronchitis, disorders of the liver, asthenic syndrome, and dystonia. EU Occupational Exposure Limits (recommended by SCOEL): 1 ppm (2.5 mg/m3; 8-hour TWA) and 3 ppm (7.6 mg/m3; STEL for 15 mins).

The estimated No-Observed-Adverse-Effect Level (NOAEL) for ethanolamine through oral route for 90-day was 320 mg/kg/day (Scientific expert group, 1996). The CIR Expert Panel advised against the use of MEA in leave on products but found it suitable for use in rinse-off cosmetics in their review conducted in 2008.

Chemical Substance: PROPYLENE GLYCOL

EU INCI NAME:PROPYLENE GLYCOL

CAS: 57-55-6

EINECS: 200-338-0

Appearance: liquid

Log Kow: -0.78

Water Solubility: miscible

Function:Humectant/Solvent

Skin Conditioning/Viscosity Controlling

Melting Point: -60°C

Boiling Point: 187°C

Vapour Pressure: 0.07 mm/Hg

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification> unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 1.9033333333

MoS - Adult 60kg: 893.1

SED Child mg/kg bw/day: 6.8383233532

MoS - Child 16.7kg: 248.5

SED Baby mg/kg bw/day: 19.3559322033

MoS - Baby 5.9kg: 87.8

NOAEL mg/kg bw day: 1700

NOAEL test method: Chronic oral Toxicity to rat

Toxicological Summary:

The ingredient is not acutely toxic, mutagenic, a reproductive toxicant, and is not carcinogenic. It is not a dermal irritant based on in vivo animal tests and clinical trials with human subjects. It causes minimal eye irritation according to OECD 405 test. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics when formulated to be non-irritating.

Chemical Substance: COCAMIDOPROPYL BETAINE

EU INCI NAME:COCAMIDOPROPYL BETAINE

CAS: 61789-40-0

EINECS: 263-058-8/931-296-8

Appearance: Liquid (CIR, 2010)

Log Kow: -1.28 to 3.63 (IUCLID, 2000)

Water Solubility: miscible (IUCLID, 2000)

Function:Surfactant/viscosity controlling/skin conditioning

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.3333333333

MoS - Adult 60kg: 285.2

SED Child mg/kg bw/day: 1.1976047904

MoS - Child 16.7kg: 79.3

SED Baby mg/kg bw/day: 3.3898305084

MoS - Baby 5.9kg: 28.0

NOAEL mg/kg bw day: 95

NOAEL test method: developmental toxicity study in CD rats (active substance)

Toxicological Summary:

The ingredient is not acutely toxic via oral and dermal routes. It is not a skin irritant or a skin sensitizer via weight of evidence. It is not a mutagenic, a carcinogenic, a reproductive toxicant or a phototoxic, but it is slightly irritating to eyes at low concentrations and highly irritating at high concentrations. It has low bioaccumulation potential. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics when formulated to be non-irritating.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: PALM KERNELAMIDE DEA

EU INCI NAME: PALM KERNELAMIDE DEA

CAS: 73807-15-5

EINECS: 277-612-1

Function: emulsifying agents / emulsion stabilisers / surfactants / viscosity controlling agents

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> R36

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 2.5000000000 No NOAEL Available

SED Child mg/kg bw/day: 8.9820359281 No NOAEL Available

SED Baby mg/kg bw/day: 25.4237288135 No NOAEL Available

Toxicological Summary:

Classified as R38/36 irritating to skin and eyes. Prolonged skin contact to the undiluted may cause defatting. Will interact with other surfactants to reduce overall irritation. Not reported to be a skin sensitizer. Ingestion of the undiluted material may induce gastric irritation. At in use levels of up to 3% unlikely to have any adverse effect if swallowed.

Chemical Substance: P-PHENYLENEDIAMINE

EU INCI NAME: P-PHENYLENEDIAMINE

CAS: 106-50-3

EINECS: 203-404-7

Function: hair dyes

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> R23/24/25-, R36, R43, R50

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 1.2500000000 No NOAEL Available

SED Child mg/kg bw/day: 4.4910179640 No NOAEL Available

SED Baby mg/kg bw/day: 12.7118644067 No NOAEL Available

Toxicological Summary:

This dye is classified as toxic if swallowed, by skin contact and by inhalation, and may cause sensitisation by skin contact. Thus high standards of hygiene should be practised in the work place and adequate personal protective equipment to reduce the potential exposure. If this dye is used at less than 1% in a hair dye product, it is unlikely to contribute to the irritation potential of the formulation but will cause a reaction in those who are already sensitised to the chemical. Max legal limit: Limitations: After mixing under oxidative conditions the maximum concentration applied to hair must not exceed 2 % calculated as free base (2009/130/EC). Combination Rule applies: These substances may be used singly or in combination provided that the sum of the ratios of the levels of each of them in the cosmetic product expressed with reference to the maximum level authorised for each of them does not exceed 1. Further mandatory labelling requirements must be followed as stated in 76/768/EEC.

Chemical Substance: HYDROXYETHYLCELLULOSE

EU INCI NAME: HYDROXYETHYLCELLULOSE

CAS: 9004-62-0

EINECS: -

Function: Binders / Emulsion Stabilisers / Film Formers / Viscosity Controlling Agents

Appearance: White, odorless, tasteless powder

Water Solubility: Soluble in water

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 1.2500000000 MoS - Adult 60kg: 4000.0

SED Child mg/kg bw/day: 4.4910179640 MoS - Child 16.7kg: 1113.3

SED Baby mg/kg bw/day: 12.7118644067 MoS - Baby 5.9kg: 393.3

NOAEL mg/kg bw day: 5000

NOAEL test method: 90-day study

Toxicological Summary:

The ingredient is not acutely toxic via oral, dermal and inhalation routes. It is neither a skin irritant at less than 2% HEC, 2% HPC, 2% MC, 10% CG in rabbits nor an eye irritant at less than 100% HEC, 2% HPC, 2% MC, 10% CG, 10% HPMC in rabbits. It is also not a skin sensitizer, mutagenic, carcinogenic, phototoxic, reproductive toxic. Low bioaccumulation potential based on study results. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics when formulated to be non-irritating.

Chemical Substance: SODIUM CHLORIDE

EU INCI NAME: SODIUM CHLORIDE

CAS: 7647-14-5

EINECS: 231-598-3

Function: Bulking/Masking/Oral Care/Viscosity controlling

Appearance: Colourless and odourless crystalline inorganic solid

Water Solubility: 317

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification> unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 1.0000000000 MoS - Adult 60kg: 1330.0

SED Child mg/kg bw/day: 3.5928143712 MoS - Child 16.7kg: 370.1

SED Baby mg/kg bw/day: 10.1694915254 MoS - Baby 5.9kg: 130.7

NOAEL mg/kg bw day: 1330

NOAEL test method: 91 days repeated oral

Toxicological Summary:

The ingredient is not acutely toxic by oral, dermal and inhalation routes. It is not a skin irritant or sensitizer. It causes no signs of eye irritation at 5% or less. Although there are conflicting results in carcinogenicity, mutagenicity and reproductive toxicity studies, FDA has classified this ingredient into GRAS. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: PETROLATUM

EU INCI NAME:PETROLATUM

CAS: 8009-03-8 / 8063-27-2

EINECS: 232-373-2

Function:Moisturiser

Appearance: Solid or semisolid

Log Kow: 12.0 – 13.1 (estimated; US EPA HPC Program)

Water Solubility: 1.1 ×10⁻⁷ to 9.1×10⁻⁹ mg/L at 25°C in water (estimated)**Cosmetic Regulatory Summary:**

EU Cosmetics Status: Controlled

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification> unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 MoS - Adult 60kg: 30000.1

SED Child mg/kg bw/day: 0.2994011976 MoS - Child 16.7kg: 8350.5

SED Baby mg/kg bw/day: 0.8474576271 MoS - Baby 5.9kg: 2949.9

NOAEL mg/kg bw day: 2500

Toxicological Summary:

Cosmetic Functions : Antistatic / Emollient / Hair & Skin Conditioning Agent / Skin Protectant.

Acute Toxicity: Oral LD 50 for rats is >5000 mg/kg; dermal LD 50 for rabbits is >2000 mg/kg.

Irritation and Corrosivity:petrolatum is not irritating to skin and eyes by read-across.

Skin Sensitisation: In a dermal sensitization study using white petrolatum USP, young adult Hartley (albino) guinea pigs (5/sex) were tested using a modified Beuhler method (similar to OECD Guideline 406) in a guinea pig dermal sensitisation assay. The test material was not sensitizing (REACH Dossier). Conclusion: petrolatum is not sensitizing.

Dermal/Percutaneous Absorption: No data available. A default value of 10% absorption is assumed based on the physical-chemical properties and low oral absorption rate via weight of evidence.

Repeated Dose Toxicity: Since petrolatum consists of refined wax plus higher viscosity white mineral oil, the repeated dose toxicity of petrolatum has been assessed from studies with equivalent waxes and mineral oils in addition to the chronic study. These studies indicate that the repeated dose toxicity of petrolatum is very low with a NOAEL >1000 mg/kg/day (US EPA HPV Program, 2011).

Mutagenicity/Genotoxicity:petrolatum is not mutagenic or genotoxic via weight of evidence.

Carcinogenicity: A two years study in FDRL rats at concentrations of 5% in the diet (calculated by EPA to be ~ 2500 mg/kg-bw/day), no treatment- related effects were noted. The experts set the value of NOAEL to be ~ 2500 mg/kg-bw/day (US EPA, 2011). Conclusion: refined grades of petrolatum are not carcinogenic.

Reproductive and Developmental Toxicity: petrolatum is not reproductive or developmental toxic.

Toxicokinetics: In a basic toxicokinetics study, the overall oral absorption (based on percent of the total dose) was 9% cycloparaffins, about 2.6% isoparaffins, and less than 0.2% n-paraffins. Results represent the amount absorbed over a 72 hour period. The remainder of the material (based on radioactivity) was recovered in the GI tract or faeces, representing a good quantitative recovery. In a basic toxicokinetics study, female Sprague-Dawley and F-344 rats were administered either a high dose of 1.8 g/kg or a low dose of 0.18 g/kg of [1 -14C] 1-eicosanycyclohexane ([14C] EICO) in olive oil by oral gavage. The test materials showed low absorption in both rat strains, faecal excretion was the major route of elimination, total recovery in faeces and urine ranged from 97 to 103%. The major urinary metabolite identified in both rat strains was 12-cyclohexyldodecanoic acid (REACH Dossier).

Photo-Induced Toxicity: No photo toxicity was reported.

Human Data: Only isolated cases of allergy to petrolatum have been reported despite widespread use of petrolatum for many years by dermatologists as a vehicle in human patch testing (US EPA HPV Program, 2011).

No-Observed-Adverse Effect Level (NOAEL) and Rationale:

The repeated dose toxicity of petrolatum is very low with a NOAEL >1000 mg/kg/day (US EPA HPV Program, 2011). The experts set the NOAEL for carcinogenicity to be ~ 2500 mg/kg-bw/day (US EPA, 2011).

References:

Faust, H. R., Casserly, E. W., Petrolatum and Regulatory Requirements, NPRA Publication LW-03-132, 2003.

High Production Volume (HPV) Chemical Challenge Program; Waxes and Related Materials; Category Analysis And Hazard Characterization; Submitted to the US EPA by The Petroleum HPV Testing Group, 2011.

Screening- Level Hazard Characterization; Waxes and Related Materials Category; U.S. Environmental Protection Agency Hazard Characterization Document, 2011.

REACH Dossier

Chemical Substance: ETIDRONIC ACID

EU INCI NAME:ETIDRONIC ACID

CAS: 2809-21-4

EINECS: 220-552-8

Function:chelating agents

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled:Annexes III List of substances with restrictions

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.7666666666 No NOAEL Available

SED Child mg/kg bw/day: 2.7544910179 No NOAEL Available

SED Baby mg/kg bw/day: 7.7966101694 No NOAEL Available

Toxicological Summary:

A useful chelating buffering agent used at low levels especially in rinse off formulation. Unlikely to cause irritancy or allergy at typical in use levels (up to 1%). Permitted for use up to 0.2% in soaps.

Chemical Substance: SODIUM ERYTHORBATE

EU INCI NAME:SODIUM ERYTHORBATE

CAS: 6381-77-7

EINECS: 228-973-9

Function:antioxidants

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Not classified

EU CLP Harmonised Classification> Not classified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.6666666666 No NOAEL Available

SED Child mg/kg bw/day: 2.3952095808 No NOAEL Available

SED Baby mg/kg bw/day: 6.7796610169 No NOAEL Available

Toxicological Summary:

The sodium salt of isoascorbic acid (vitamin C) an heterocyclic polyol and an essential part of the diet with antioxidant properties. Used as a food additive. At concentrations present in cosmetic products it is unlikely to have any adverse health effects.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: AROMA

EU INCI NAME: AROMA

CAS: Preparation

EINECS: preparation

Appearance: liquid (usually)

Function: Perfume

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled

Regulatory Summary:

EU DSD/DPD Classification> Refer to MSDS

EU CLP Harmonised Classification> Refer to MSDS

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.6666666666 No NOAEL Available

SED Child mg/kg bw/day: 2.3952095808 No NOAEL Available

SED Baby mg/kg bw/day: 6.7796610169 No NOAEL Available

Toxicological Summary:

The composition of this flavor/aroma has not been declared at the date of this assessment. In the absence of compositional information the assessment of the product containing this flavor has not taken into account any specific toxic properties this perfume may have. The flavor complies to the IFRA code of practice and its amendment, and the concentration levels is less than the maximum dosages allowed in this IFRA category.

Chemical Substance: PEG-75 LANOLIN

EU INCI NAME: PEG-75 LANOLIN

CAS: 61790-81-6 8039-09-6

EINECS: polymer

Function: emollients / emulsifying agents / surfactants

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.4166666666 No NOAEL Available

SED Child mg/kg bw/day: 1.4970059880 No NOAEL Available

SED Baby mg/kg bw/day: 4.2372881355 No NOAEL Available

Toxicological Summary:

Cosmetic Function: emollient, emulsifier and a surfactant.
Unlikely to cause skin or eye irritation and with its high molecular weight should have low potential to cause skin sensitisation. Reviewed in CIR 1982. Acute oral toxicity LD50 (rat) >21.3 g/kg
Acute inhalation toxicity LC50 (rat) > 200 mg/l/ 1 h;
Acute dermal toxicity LD50 (rabbit) >10 ml/kg;
Skin irritation Draize Test (rabbit)- No skin irritation. Patch test on human volunteers did not demonstrate irritating properties ;Eye irritation Draize Test (rabbit) Mild eye irritation;
Sensitization (guinea pig) Did not cause sensitization; Patch test on human volunteers did not demonstrate sensitization properties.
Sources of key data used to compile the datasheet[1] The Expert Panel of the Cosmetic Ingredient Review, (1981), Final Report of the Safety Assessment of PEG-20, -27, -30, -40, -50, -60, -75 and -85 Lanolin, CIR, 1101 17th St. N.W.Suite 310, Washington DC 20036-4702, USA

Chemical Substance: M-AMINOPHENOL

EU INCI NAME: M-AMINOPHENOL

CAS: 591-27-5

EINECS: 209-711-2

Function: hair dyes

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> R20/21/22

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.4166666666 No NOAEL Available

SED Child mg/kg bw/day: 1.4970059880 No NOAEL Available

SED Baby mg/kg bw/day: 4.2372881355 No NOAEL Available

Toxicological Summary:

Function: Hair dye; Listed in Annex III/II/217 as of 13 May 2011 as an approved hair dye in oxidative hair products only. Member states shall apply those provisions from 3 January 2012. As supplied harmful by ingestion but with low potential to irritate the skin. Has weak allergenic potential. Irritating to eyes at concentrations exceeding 2.5%. Although mutagenic in some systems, long term skin painting studies in mice have not induced cancer. The metabolism is dependent upon ample supplies of glutathione within the body. Typical use in a hair dye is unlikely to cause depletion in body glutathione levels and it is unlikely to cause harm in normal use. CIR expert opinion stated m-aminophenol is safe for use in cosmetic products at current levels of use. SCCP Opinion: 0867/05: Conclusion: Insufficient evidence to assess the safe use of this substance. The Conditions of use and warnings which must be printed on the label (Directive 76/768/EEC as amended, 1st March 2010) are as indicated below along with the EU Exclamation Mark symbol. "Hair colorants can cause severe allergic reactions. Read and follow instructions. This product is not intended or use on persons under the age of 16. Temporary 'black henna' tattoos may increase your risk of allergy. Do not colour your hair if:
— you have a rash on your face or sensitive, irritated and damaged scalp,
— you have ever experienced any reaction after colouring your hair,
— you have experienced a reaction to a temporary 'black henna' tattoo in the past.

Chemical Substance: DISODIUM PHOSPHATE

EU INCI NAME: DISODIUM PHOSPHATE

CAS: 7558-79-4/7782-85-6/10028-24-7

EINECS: 231-448-7

Function: Buffering/Masking/Anticorrosive

Appearance: Solid

Melting Point: > 723 K

Water Solubility: > 10000 mg/L

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification> unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.3333333333 MoS - Adult 60kg: 968.4

SED Child mg/kg bw/day: 1.1976047904 MoS - Child 16.7kg: 269.5

SED Baby mg/kg bw/day: 3.3898305084 MoS - Baby 5.9kg: 95.2

NOAEL mg/kg bw day: 322.8
NOAEL test method: 90-day oral in rats**Toxicological Summary:**

The ingredient is not acutely toxic, a skin irritant, an eye irritant, a skin sensitizer, mutagenic, a reproductive toxicant and bioaccumulative. No information available for phototoxic. Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics when formulated to be non-irritating and non-sensitizing.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: RESORCINOL

EU INCI NAME: RESORCINOL

CAS: 108-46-3

Function: hair dyes

EINECS: 203-585-2

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> R22-36/38, R50

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.2500000000 No NOAEL Available

SED Child mg/kg bw/day: 0.8982035928 No NOAEL Available

SED Baby mg/kg bw/day: 2.5423728813 No NOAEL Available

Toxicological Summary:

As supplied classified as "Harmful by ingestion and Irritating to Skin and Eye". Capable of being absorbed through the skin but when used in a hair dye the concentration present is small and the amounts likely to be absorbed through the skin in normal use should be negligible. Not permitted in cosmetic except subject to the restrictions laid down in Annex III of the Cosmetics Regulations.

Chemical Substance: P-AMINOPHENOL

EU INCI NAME: P-AMINOPHENOL

CAS: 123-30-8

Function: hair dyes

EINECS: 204-616-2

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> R20/21/22

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.0196000000 MoS - Adult 60kg: 510.2

SED Child mg/kg bw/day: 0.0704191616 MoS - Child 16.7kg: 142.0

SED Baby mg/kg bw/day: 0.1993220338 MoS - Baby 5.9kg: 50.1

NOAEL mg/kg bw day: 10

NOAEL test method: 90 day rat study

Toxicological Summary:

As supplied harmful by ingestion but with low potential to irritate the skin. Has weak allergenic potential. Irritating to eyes at concentrations exceeding 2.5%. Although mutagenic in some systems, long term skin painting studies in mice have not induced cancer. The metabolism is dependent upon ample supplies of glutathione within the body. Typical use in a hair dye is unlikely to cause depletion in body glutathione levels and it is unlikely to cause harm in normal use. CIR expert opinion stated p-aminophenol is safe for use in cosmetic products at current levels of use.

General toxicity: Low acute toxicity. In subchronic and chronic experiments the target organs were the kidneys and the liver.

The dose of 10 mg/kg bw/day was considered as the NOAEL.

An irritant at 2.5% (aq) on rabbit skin when applied neat under semi-occlusion and was also irritating to the mucous membranes and when applied to rabbits eyes.

Sensitization: Strong sensitizer.

Dermal absorption, 7.84%

No evidence of carcinogenicity and not expected to be teratogenic except at maternal doses.

Under oxidative conditions, a margin of safety (NOAEL / SED) = 150 was calculated.

The SCCS has published a recent review of p-Aminophenol and concluded that the use of p-aminophenol with a maximum on-head concentration of 0.9% in oxidative hair dye formulations does not pose a risk to the health of the consumer, apart from its sensitising potential.

Reference:

SCCS/1409/11

Chemical Substance: 4-AMINO-2-HYDROXYTOLUENE

EU INCI NAME: 4-AMINO-2-HYDROXYTOLUENE

CAS: 2835-95-2

Function: hair dye

EINECS: 220-618-6

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled: Annexes III List of substances with restrictions

Regulatory Summary:

EU DSD/DPD Classification> Not classified

EU CLP Harmonised Classification> Not classified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.2083333333 No NOAEL Available

SED Child mg/kg bw/day: 0.7485029940 No NOAEL Available

SED Baby mg/kg bw/day: 2.1186440677 No NOAEL Available

Toxicological Summary:

4-Amino-2-Hydroxytoluene is a component in oxidative hair dyes used in 960 hair-coloring products in 1986, based on voluntary reports submitted to the Food and Drug Administration (FDA) by industry. The Expert Panel recognizes that 4-Amino-2-Hydroxytoluene is used as a hair dye ingredient and may be a sensitizer. SCCP/1001/06 opinion: Based on the information provided, the SCCP is of the opinion that the use of 4-amino-2-hydroxytoluene itself as an oxidative hair dye substance at a maximum concentration of 1.5% in the finished cosmetic product (after mixing with hydrogen peroxide) does not pose a risk to the health of the consumer, apart from its sensitising potential. Listed in Annex III of Cosmetic Regulation (EC) No. 1223/2009 with restrictions of concentrations, conditions of use and warning. A literature review was completed to identify contact allergens newly reported in 2008 to 2015 (Dermatitis 26(5): 199-215). 4-Amino-2-Hydroxytoluene is among the 119 new contact allergens (associated with allergic contact dermatitis/systemic dermatitis) identified.

Chemical Substance: SODIUM HYDROSULFITE

EU INCI NAME: SODIUM HYDROSULFITE

CAS: 7775-14-6

Function: reducing agents / viscosity controlling agents

EINECS: 231-890-0

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> R7-22-31

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.1666666666 MoS - Adult 60kg: 5099.9

SED Child mg/kg bw/day: 0.5988023952 MoS - Child 16.7kg: 1419.5

SED Baby mg/kg bw/day: 1.6949152542 MoS - Baby 5.9kg: 501.5

NOAEL mg/kg bw day: 850

Toxicological Summary:

May spontaneously ignite though unlikely on a small scale. Used as a reducing agent for aromatic nitro functionality to convert to anilines. Releases sulphur dioxide on contact with acid. A useful preservative which when used at up to 0.2% especially in a slightly alkaline, rinse off product is unlikely to cause irritancy.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: DISODIUM EDTA

EU INCI NAME:DISODIUM EDTA

CAS: 139-33-3 / 6381-92-6

EINECS: 205-358-3

Appearance: powder

Function:Chelating/ Viscosity Controlling

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Xi R36-52/53

EU CLP Harmonised Classification> Unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.1666666666 MoS - Adult 60kg: 4151.9

SED Child mg/kg bw/day: 0.5988023952 MoS - Child 16.7kg: 1155.6

SED Baby mg/kg bw/day: 1.6949152542 MoS - Baby 5.9kg: 408.2

NOAEL mg/kg bw day: 692

NOAEL test method: orally in diet

Toxicological Summary:

The ingredient is not acutely toxic by the oral route based on 5 acute oral toxicity studies in rats. However, it was acutely harmful in one acute oral toxicity study using mice. No information is readily available on its acute toxicity by dermal or inhalation routes. It is non skin or eye irritating and non skin sensitizing. EDTA and its salts including Disodium EDTA are classified as weak mutagens. In a variety of studies using bacteria, mammalian cells lines, and mammals, Disodium EDTA gave both positive and negative results. It has the potential to cause reproductive and developmental toxicity via zinc depletion. It is not carcinogenic and has no bioaccumulation potential. No information is readily available on the ingredient's phototoxicity. Any of the hazard effects of Disodium EDTA are related to metal deficiency and therefore would only be considered relevant human hazards where there is significant exposure (SIAP, 2012). Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics.

Chemical Substance: ZINGIBER OFFICINALE (GINGER) ROOT EXTRACT

EU INCI NAME:ZINGIBER OFFICINALE ROOT EXTRACT

CAS: 84696-15-1

EINECS: 283-634-2

Appearance: Yellowish tan colored powder with a characteristic and aromatic aroma and hot aromatic flavor

Function:Botanical

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not Controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Not controlled

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.0833333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Cosmetic function: masking, tonic, skin conditioning, perfuming. Ginger is a plant widely used as a food flavouring agent and for medicinal use. The extract contains essential oil and small quantities of phenols (gingerol shogal, zingerone) which give it its acrid burning taste. This is a dilute extract of ginger when used at up to 5% in a rinse off cosmetic is unlikely to cause allergy or irritancy in normal use.

Chemical Substance: THIOGLYCOLIC ACID

EU INCI NAME:THIOGLYCOLIC ACID

CAS: 68-11-1

EINECS: 200-677-4

Function:depilating agents / reducing agents

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled:Annexes III List of substances with restrictions

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.0833333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Function: Antioxidant, depilatory, hair waving or straightening and reducing agents. As supplied corrosive to skin but when used used in a rinse off product at up to the approved concentrations unlikely to cause irritancy or allergy. Functions in cosmetic hair care products by weakening (permanent hair waving / straightening) or destroying (depilatory) the disulphide bonds in hair keratin structure. Must be well rinsed out of the hair. Product directions must state:- Avoid contact with eyes. In the event of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves (not necessary for depilatories) Packaging must state:- Contains thioglycolate. Follow the instructions. Keep out of reach of children. Plus, as appropriate. For professional use only. Max. permitted concentrations as acid. Hair waving or straightening products for general use 8%(pH 7 to 9.5), for professional use 11%(pH 7 to 9.5). Depilatories 5%(pH 7 to 12.7). Other hair care removed after application 2%(pH 7 to 9.5). Products intended for eyelash waving 11 %(pH 7 to 9.5).

Chemical Substance: POLYGONUM MULTIFLORUM ROOT EXTRACT

EU INCI NAME:POLYGONUM MULTIFLORUM ROOT EXTRACT

CAS: /

EINECS: /

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.0833333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Polygonum Multiflorum Root Extract is the extract of the roots of Polygonum multiflorum. Polygonum multiflorum Thunb. (PM), a kind of perennial plant, belongs to the genus Polygonum of the family polygonaceae.The dry root of PM (also called Heshouwu), is a traditional Chinese medicine, which has a series of functions and is widely used in clinic for hair lossing, aging, and insomnia.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: PANAX GINSENG ROOT EXTRACT

EU INCI NAME: PANAX GINSENG ROOT EXTRACT

CAS: 7732-18-5 & 57-55-6 & 90045-38-8

EINECS: 231-791-2 & 200-338-0 & 289-898-5

Function: Emollient/Hair Conditioning/Skin Protecting/Tonic

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Panax Ginseng Root Extract is an extract of the roots of the Ginseng, Panax ginseng, Araliaceae, a well known plant extract widely used in alternative medicine. At the level of use in a rinse off cosmetic (up to 0.3%) unlikely to cause allergy or irritation.

Chemical Substance: OXYQUINOLINE SULFATE

EU INCI NAME: OXYQUINOLINE SULFATE

CAS: 134-31-6

EINECS: 205-137-1

Function: antimicrobials / emulsion stabilisers

Cosmetic Regulatory Summary:

EU Cosmetics Status: Controlled

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Stabilizer for hydrogen peroxide in rinse-off hair care preparations 0.03% max calculated as base.
Stabilizer for hydrogen peroxide in non rinse-off hair care preparations 0.03% max calculated as base.

Not permitted in any other cosmetic product other than hair care.

Chemical Substance: MORUS NIGRA LEAF EXTRACT

EU INCI NAME: MORUS NIGRA LEAF EXTRACT

CAS: 90064-11-2

EINECS: 290-072-1

Function: botanicals/SKIN CONDITIONING

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Morus nigra leaf extract is the extract of the leaves of morus nigra, and used as skin conditioning in cosmetics and personal care products. Mulberry leaves are a well-known traditional Chinese medicine herb, and it has been observed since ancient times that leaves collected after frost have superior medicinal properties. Leaves of mulberry have been used as tea and powder juice. In some Asian countries they are used as nourishment. In Korea mulberry leaves are one of the ice-cream ingredients, while in India they are a good nutritious, non-toxic and low cost food compound for paratha, the traditional meal item of breakfast and dinner of the Indian diet.

Conclusion: Use of this ingredient in this product is considered safe under normal or foreseeable conditions.

Chemical Substance: HYDROLYZED KERATIN

EU INCI NAME: HYDROLYZED KERATIN

CAS: 69430-36-0

EINECS: 274-001-1

Function: antistatic agents

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Keratin is described as the main constituent of hair. It belongs to a family of fibrous proteins with a high sulphur content. Keratin comprises amino acids particularly Cysteine, which is rich in disulphide (disulfide) and hydrogen bonds. Disulfide bonds play an important role in the folding and stability of some proteins. Physical properties of hair such as weak, thin and slightly keratinized have been attributed to denaturation of disulphide bonds resulting in loss of structure and tonicity. Use of keratin in hair products may restore some of these changes. Toxicologically, Hydrolyzed keratin has low acute oral toxicity (LD50: (rat) 10,000 mg/kg; mild to moderately irritating to eyes (rabbit) and not irritating to eyes. Use in cosmetic products is not expected to pose a risk of irritation or allergy. Cashmilian Keratin LS 9604 is a partially hydrolyzed cashmere keratin (active concentration of approximately 20%); its recommended concentration for use is 2 - 5% at a pH of 3 and 7 (Manufacturer's information). As supplied minimally irritating to skin and eye. Being hydrolysed less likely than the original protein to have allergenic potential.

Chemical Substance: BIOTA ORIENTALIS LEAF EXTRACT

EU INCI NAME: BIOTA ORIENTALIS LEAF EXTRACT

CAS: /

EINECS: /

Function: HUMECTANT

Appearance: solid/Liquid

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

EU DSD/DPD Classification>

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Biota orientalis leaf extract is the extract of the leaves of biota orientalis, and used as humectant in cosmetics and personal care products. Biota orientalis L. leaf extract (BOLE) is used medically to improve strength and arrest hemorrhage. In China, BOLE has been used in traditional medicine for its antibacterial properties and for hair restoration. The leaves of Platycodon grandiflorus are included in the 2020 edition of the Chinese Pharmacopoeia, and can be used as medicinal materials with a dosage of 6-12g, applied topically in moderation.

Conclusion: Use of this ingredient in this product is considered safe under normal or foreseeable conditions.



Issued: 14 Feb 2025

Report: SHAH01764995

Chemical Substance: ARTEMISIA ARGYI LEAF EXTRACT

EU INCI NAME:ARTEMISIA ARGYI LEAF EXTRACT

CAS: /

EINECS: /

Function:HAIR CONDITIONING/SKIN CONDITIONING

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> not classification

EU CLP Harmonised Classification>

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 No NOAEL Available

SED Child mg/kg bw/day: 0.2994011976 No NOAEL Available

SED Baby mg/kg bw/day: 0.8474576271 No NOAEL Available

Toxicological Summary:

Artemisia argyi leaf extract is the extract of the leaves of artemisia argyi. It is usually used as hair conditioning and skin conditioning in cosmetics and personal care products.

Artemisia argyi Lévl. et Vant. (A. argyi) leaf is edible and used in culinary for aroma enhancement or food pigment in Asia. Artemisia argyi leaf could have the robust benefits for improving healthy aging as well as preventing aging-related diseases in the human body. The FDA includes the Artemisia spp on the list of substances considered Generally Recognized as Safe (GRAS) for use as flavor in human food. Conclusion: Use of this ingredient in this product is considered safe under normal or foreseeable conditions.

Chemical Substance: ALOE BARBADENSIS EXTRACT

EU INCI NAME:ALOE BARBADENSIS EXTRACT

CAS: 85507-69-3 / 8001-97-6 & 7732-18-5

EINECS: 287-390-8 / - & 231-791-2

Function:emollients

Appearance: White - Light Tan

Melting Point: N/A

Boiling Point: Not determined

Vapour Pressure: Not determined

Water Solubility: Soluble

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> Unclassified

EU CLP Harmonised Classification> Not controlled

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.08333333333 MoS - Adult 60kg: 24000.9

SED Child mg/kg bw/day: 0.2994011976 MoS - Child 16.7kg: 6680.4

SED Baby mg/kg bw/day: 0.8474576271 MoS - Baby 5.9kg: 2359.9

NOAEL mg/kg bw day: 2000

Toxicological Summary:

Cosmetic functions : Skin Conditioning. A widely used cosmetics ingredient. Low potential to cause skin or eye irritancy. Purified to removed possible allergenic materials. Aloe-derived material has fungicidal, antimicrobial, and antiviral activity, and has been effective in wound healing and infection treatment in animals. Aloe barbadensis (aka Aloe vera) derived ingredients were not toxic in acute oral studies using mice and rats. LD50 (mice) >200 mg/kg, LD50 (rat) >50 mg/kg, LD50 (dog) >50 mg/kg. In intravenous studies the LD50 using mice was >80 mg/kg, rats was >15 mg/kg, and dogs was >10 mg/kg. CIR concluded Aloe derived ingredients are safe if the anthraquinone levels in the ingredients do not exceed 50 ppm. Case reports include acute eczema, contact urticaria, and dermatitis in individuals who applied Aloe-derived ingredients topically. Aloe inner extract (gel) is not genotoxic in vitro or in vivo and; has an oral NOAEL greater than 2000 mg/kg bw/day following 90 days of oral exposure. (Regul Toxicol Pharmacol. 2010 Jun;57(1):90-8. Epub 2010 Jan 22). Ingestion of excessive amounts may cause diarrhea (MSDS of Aloe Corp de Mexico). Described as suitable for use in cosmetic, hair care, personal care, pharmaceutical, beverage, flavoring, food, functional food, nutraceutical and dietary supplement formulations (ACTIValue® Product Specifications, 10/2010). This ingredient is biodegradable.

Chemical Substance: GUAR HYDROXYPROPYLTRIMONIUM CHLORIDE

EU INCI NAME:GUAR HYDROXYPROPYLTRIMONIUM CHLORIDE

CAS: 65497-29-2 / 71329-50-5

EINECS: not listed

Function:Viscosity Controlling

Appearance: liquid

Water Solubility: Very slightly soluble in water

Cosmetic Regulatory Summary:

EU Cosmetics Status: Not controlled

Regulatory Summary:

EU DSD/DPD Classification> unclassified

EU CLP Harmonised Classification> unclassified

Systemic Exposure Dosage / Margin of Safety:

SED Adult mg/kg bw/day: 0.04166666666 MoS - Adult 60kg: 7999.1

SED Child mg/kg bw/day: 0.1497005988 MoS - Child 16.7kg: 2226.4

SED Baby mg/kg bw/day: 0.4237288135 MoS - Baby 5.9kg: 786.5

NOAEL mg/kg bw day: 333.3

NOAEL test method: rats, 30 days with 3 as safety factor

Toxicological Summary:

Cosmetic Functions : Antistatic / Film Forming / Skin Conditioning / Hair Conditioning / Viscosity Controlling. Prolonged exposure to the dust from the material as supplied may cause eye and upper respiratory tract irritation. When used at typical levels in cosmetic products, this material will not significantly contribute to the irritancy of the product.

The ingredient is not acutely toxic, mutagenic, carcinogenic, a reproductive toxicant, it may cause minimal skin and eye irritation. It is questionable for skin sensitization since key study on this substance is not available. The information on the photo-toxicity and accumulation was not available. The CIR panel concluded that Guar Hydroxypropyltrimonium Chloride was safe in the present practices of use and concentration; it has been used in foot powders and sprays at a maximum concentration of 0.05% and used in other cosmetics up to 2% (CIR, 2015). Based on this information and other scientific literature on this ingredient, safety concerns are not expected with this ingredient for use in cosmetics.



Note: In the absence of NOAEL data, the Margin of Safety (MoS) has not been calculated.

Unless otherwise determined and in the absence of literature or other experimental data, a Dermal Absorption (DAp) of 100% is taken as the worst case scenario.

NOAEL: No Observed Adverse Effect Level; MoS: Margin of Safety; SED Systemic Exposure Dosage

Calculation of Margin of Safety: $MoS = NOAEL / SED$

Reference for skin surface area, exposures and application quantities are derived from:

1. RIVM Report 320104001/2006
2. References cited in Dermal Sensitization Quantitative Risk Assessment (QRA) For Fragrance Ingredients, 2006 revision
3. Exposure factors handbook 2009 Update
4. The SCCS's Notes of Guidance for the Testing of Cosmetic Ingredients and their Safety Evaluation 12th Revision SCCS/1647/22
5. Colipa Data SCCNFP/0321/02
6. McNamara et al, Food Chem. Tox; 2007, 45, 2086
7. Loretz et al, Food Chem. Tox; 2008, 46, 1516
- N.B. Exposure times have been taken from RIVM Report 320104001/2006
8. Body weights taken from Exposure factors handbook 2009 Update and mean values have been used unless specified otherwise
9. ConsExpo database
10. New default values for the spray model, RIVM, March 2010

This formulation has been safety assessed by Intertek with reference to Articles 3 and 10 of Cosmetic Regulation (EC) No. 1223/2009. The safety assessment is based on the chemical specification and toxicological profile of the ingredients as supplied at the time of assessment.

The supplier to this safety assessment is advised to ask for a new safety evaluation if any change in formulation occurs, change in raw materials used, abnormally high number of adverse events are recorded, changes in recommended uses or other circumstances that may affect the safety of this product.

The REACH dossier, IUCLID Datasheet, OECD SIDS and EU RAR often include unpublished data, not otherwise available; however, it must be noted that the authorities have issued legal disclaimers for the databases. The disclaimer, among other cautions, stressed that the data in the dossier, datasheet, data set or report are not necessarily comprehensive, complete, accurate or up-to-date. Use of the data may also be subject to copyright laws. Therefore, data from the such resource are used as supporting information.

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action.

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Appendixes of Cosmetic Product Safety Report

For

Dark Brown Hair Dye Shampoo

The testing report, declaration letter, SDS/MSDS, TDS, CoA, IFRA Certificate and other supportive document listed in this appendix were provided from client and delivered to risk assessor to conduct the CPSR, it is supplier' s responsibility to make sure the accuracy of the documents.

Appendix 1- Toxicological Profiles of Substances

1. *Toxicity summary*
2. *MSDS/SDS*
3. *TDS/CoA*

Appendix 2- Microbiological Quality Test Report of Cosmetic Product

1. *Microbiological specification test report or data*
2. *Preservative challenge test report or data*

Appendix 3- Stability Test Report or Data of Cosmetic Product

Appendix 4- Packaging Compatibility Test Report and/or data

1. *Container data*
2. *Outer Packaging material*

Appendix 5- Serious/ Undesirable Effects of Cosmetic Product Declaration or Report

Appendix 6- Fragrance

1. *IFRA Certificate*
2. *MSDS/SDS*
3. *Allergen declaration*

Appendix 7- Heavy Metal Test Report of Cosmetic Product

Appendix 8- Human Volunteers Studies

1. *Human volunteers' study for the cosmetic product*
2. *Human volunteers' study for raw material*

Appendix 9- Assessor's credentials

Appendix 1- Toxicological Profiles of Substances

1. Toxicity summary

A summary of a toxicological summary was listed in this report and detailed data are stored in Intertek owned in house database, could provide on specific request.

2. MSDS/SDS

See below report(s) if available.

3. TDS/CoA

See below report(s) if available.

**SAFETY DATA SHEET**

Revision Date: 09/18/2019

Print Date: 08.31.2020

SDS Number: 000000290901

Version: 1.3

Natrosol™ 250HHR PC Hydroxyethylcellulose
™ Trademark, Ashland or its subsidiaries, registered
in various countries
762750

1. PRODUCT AND COMPANY IDENTIFICATION**Product identifier**

Trade name : Natrosol™ 250HHR PC
Hydroxyethylcellulose
™ Trademark, Ashland or its subsidiaries, registered in
various countries

Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Personal care

Details of the supplier of the safety data sheet

Ashland (China) Holdings Co., Ltd
1089 Zhongshan No.2 rd(s.)18th Floor
Xuhuiyuan Building
Shanghai 200030
China

亚什兰（中国）投资有限公司
邮政编码：200030
上海 200030
中国

EHSProductSafety@ashland.com

Emergency telephone number

0532 8388 9090

Product Information

021 2402 4883

2. HAZARDS IDENTIFICATION**GHS Classification**

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Precautionary statements : **Prevention:**
Keep dust/air mixtures away from ignition sources.

Other hazards which do not result in classification

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance / Mixture : Mixture

Hazardous components

No hazardous ingredients

4. FIRST AID MEASURES

- General advice : No hazards which require special first aid measures.
- If inhaled : If breathed in, move person into fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Remove contact lenses.
Protect unharmed eye.
- If swallowed : Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see Section 2.2) and/or Section 11.
- Notes to physician : No hazards which require special first aid measures.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Foam
- Specific hazards during firefighting : Organic dusts at sufficient concentration can form explosive mixtures in air.
Do not allow run-off from fire fighting to enter drains or water courses.



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Hazardous combustion products : Carbon dioxide (CO₂)
 Carbon monoxide
 Nitrogen oxides (NO_x)
 Oxides of phosphorus
 Sodium oxides

Specific extinguishing methods : Standard procedure for chemical fires.

Product is compatible with standard fire-fighting agents.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
 Avoid breathing dust.
 Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
 Comply with all applicable federal, state, and local regulations.

Environmental precautions : Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
 Keep in suitable, closed containers for disposal.

Prevention of secondary hazards : Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Advice on protection against fire and explosion : Take measures to prevent the build up of electrostatic charge.
 Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling : Avoid dust formation.
 Smoking, eating and drinking should be prohibited in the application area.
 For personal protection see section 8.

Avoidance of contact : Acids
 Bases
 Oxidizing agents



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strong bases

Storage

Conditions for safe storage : No smoking.

Materials to avoid : No materials to be especially mentioned.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : Provide appropriate exhaust ventilation at places where dust is formed.
 General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter within the capabilities of the respirator/filter combination.
 Where concentrations are above recommended limits or are unknown, or a cartridge type respirator is not adequate, wear a positive-pressure supplied-air respirator.

Hand protection

Material : butyl-rubber
Break through time : 480 min
Glove thickness : > 0.5 mm

Remarks : The exact break through time can be obtained from the protective glove producer and this has to be observed. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Safety glasses

Skin and body protection : Wear as appropriate:
 Safety shoes

Hygiene measures : Avoid breathing dust.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: powder
Physical state	: solid
Colour	: off-white
Odour	: odourless
Odour Threshold	: No data available
pH	: 6.0 - 8.5 Concentration: 1 % (as aqueous solution)
Melting point/freezing point	: No data available
Boiling point/boiling range	: No data available
Flash point	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: 30 g/m3
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 1.38 g/cm3
Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: 460 °C



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Thermal decomposition : No data available

Viscosity
 Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : No data available

10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Product will not undergo hazardous polymerization.

Conditions to avoid : UV light.
 Exposure to sunlight.
 Exposure to moisture
 Keep away from heat, flame, sparks and other ignition sources.

Incompatible materials : Acids
 Bases
 Oxidizing agents
 strong bases

Hazardous decomposition products : Carbon monoxide
 Carbon dioxide (CO₂)
 Nitrogen oxides (NO_x)
 Oxides of phosphorus
 Sodium oxides

11. TOXICOLOGICAL INFORMATION

Exposure routes : Inhalation, Skin contact, Eye Contact, Ingestion

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

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Serious eye damage/eye irritation

Not classified based on available information.

Product:

Remarks: Unlikely to cause eye irritation or injury., Product dust may be irritating to eyes, skin and respiratory system.

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information**Product:**

Remarks: No data available

12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:Additional ecological : No data available
information

13. DISPOSAL CONSIDERATIONS**Disposal methods**

Contaminated packaging : Empty remaining contents.

**SAFETY DATA SHEET**

Revision Date: 09/18/2019

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Natrosol™ 250HHR PC Hydroxyethylcellulose
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14. TRANSPORT INFORMATION**International transport regulations****REGULATION**

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
-----------	----------------------	---------------	--------------------	---------------	------------------------------

CN_DG

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Marine pollutant	no
------------------	----

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION**National regulatory information**

Regulations on the Control over Safety of Dangerous Chemicals (Decree No. 591 of the State Council of the People's Republic of China)

List of dangerous goods (GB12268-2012)**Classification and code of dangerous goods (GB6944-2012)****Safety Data Sheet for chemical products – Content and order of sections (GB16483-2008)****General rule for classification and hazard communication of chemicals (GB13690-2009)**

**SAFETY DATA SHEET**

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The components of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

AICS : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : On TSCA Inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)
- On or in compliance with the active portion of the TSCA inventory

16. OTHER INFORMATION**Further information**

Revision Date: 09/18/2019

Full text of H-Statements

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Ashland's Environmental Health and Safety Department.

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SAFETY DATA SHEET	Revision Date: 09/18/2019
	Print Date: 08.31.2020
	SDS Number: 000000290901
Natrosol™ 250HHR PC Hydroxyethylcellulose ™ Trademark, Ashland or its subsidiaries, registered in various countries 762750	Version: 1.3

Sources of key data used to compile the Safety Data Sheet

Ashland internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Material Safety Data Sheet (MSDS)

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1. Chemical Product and Manufacturer

- A. Product Name: Propylene Glycol USP (PG USP).
- B. Recommended Use and Restrictions on Use
- Recommended Use: Medicines, cosmetics, food additives, essence/flavor.
 - Restrictions on use: Prohibited for uses other than those specified above.
- C. Manufacturer/Supplier/Distributor
- Supplier: SK picglobal Co.,Ltd.
 - Address: 255, Yongjam-ro, Nam-gu, Ulsan 44782, Korea
 - Information Service or Emergency Contact Number: +82-52-278-5511~6
 - Department in Charge: Safety Environment Team

2. Hazards Risks

- A. Classification of Hazards Risks
- PG USP is not a dangerous material per the OSHA Hazard Communication Definition.
- B. Warning Sign, Including Caution
- Pictograph: No pictograph.
 - Signal words: No signal words.
 - Hazard Risk Words: No hazard/signal words.
 - Precaution Words: No precaution words.
- C. Other Hazards and Risks Not Included in the Hazard and Risk Classification (NFPA)
- Public Health: 0, Fire: 1, Reactivity: 0

3. Name and Contents of Ingredients

Substance Name	Propylene Glycol	Dipropylene Glycol, Others
Nickname (Usual Name)	1,2-Propanediol	-
CAS No.	57-55-6	-
Contents (%)	Over 99.8	Under 0.2

4. First Aid Measures

- A. Eye
- Irrigate eyes with a heavy stream of water for over 15 minutes.
- B. Skin
- Wash clothing or shoes contaminated with a chemical substance before reuse.
 - Take off clothing or shoes contaminated with a chemical substance, wash out the affected area with soap for over 15 minutes.
 - Immediately wash with soapy water for over 15 minutes to remove chemical

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substances.

C. Inhalation

- If effects of exposure appear move the patient to a non-polluted area.
- If chemical is inhaled, consult with medical personnel immediately.

D. Ingestion

- If chemicals are ingested, consult with medical personnel.

E. First Aid and Doctor's Caution: No data.

5. Fire Fighting and Explosion Measures

A. Suitable (Unsuitable) Fire Extinguishing Agents

- Suitable Fire Extinguishing Agents: CO₂, powder fire extinguishing agent, carbon dioxide, water, ordinary foam, alcohol resistant foam.
- Unsuitable Fire Extinguishing Agents: No data.
- For Big Fires: Use alcohol resistant foam and a fine water spray.

B. Specific Hazards from Chemical Substances

- Pyrolysis Products: Carbon dioxide, carbon monoxide.
- Fire and Explosion risk: Slight risk of fire.

C. Protective Devices to Wear for Fire Extinguishing and Preventive Actions

- Move the case from near the fire if work can be done without risk.
- Spray high-pressure water on the leaked substance to prevent scattering.
- Construct a bank for further processing.
- Use a fire extinguisher that has been used and found effective for nearby fire.
- Avoid inhalation of substances or their fumes.
- Stand facing the wind and avoid low areas.

6. Measures for Accidental Spillages

A. Actions and Protective Devices Required Protecting the Body

- Workers should only stop a chemical spill if it is not dangerous to do so.

B. Actions for the Protection of the Environment

- Air: No data.
- Soil: No data.
- Water: No data.

C. Purification or Removal Method

- Small Spills
 - For further disposal, move the leaked substance to a suitable case and dispose.
 - Absorb using nonflammable substances.
 - Quarantine the exposed area and restrict access to the area except for the related personnel.
- Big Spills: No data.

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7. Handling and Storage

A. Tips for Safe Handling

- Store in an enclosed case.
- Ventilate using an overall or local air exhauster.
- Wash the body and clothing after using chemicals.

B. Safe Storage

- Store in an enclosed case.
- Store in a cool and dry place.
- Avoid contact with moisture.
- Avoid contact with halogens and intermediate halogens.
- Store and use in accordance with the laws and regulations of the relevant government department and local self-governing bodies.
- Store in well-ventilated areas.

8. Prevention of Exposure and Personal Protective Devices

A. Exposure Standard of Chemicals, Biological Exposure Criteria

- Domestic Regulations: No data.
- ACGIH Regulations: No data.
- Biological Exposure Criteria: No data.

B. Suitable Engineering Management

- Check whether the work process complies with the allowable standards and exposure standards of the Ministry of Labor.
- Install a ventilation device, such as a local exhauster, to ensure a suitable control wind speed.

C. Personal Protective Devices

- Protection of Respiratory Organs
 - Make sure to wear protection devices certified by KOSHA.
- Eye Protection
 - Install an emergency shower and basins for easy use by workers.
 - Wear protective glasses to protect the eyes from scattering substances.
- Eye Protection
 - Wear chemical resistant gloves to avoid the direct contact of water and chemicals.
- Body Protection
 - Wear chemical resistant protective wear to protect the skin.

9. Physical/Chemical Characteristics

A. Appearance

Physical Properties: Liquid.
Color: Achromatic.

B. Smell: Odorless.

C. Detection Threshold: No data.

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- D. Melting Point/Freezing Point : -60 °C.
- E. Initial Boiling Point and Range of Boiling Point: 186 ~ 189 °C.
- F. Steam Pressure: 0.08 mm Hg (at 25 °C).
- G. Solubility: 1,000 g/ml.
- H. Steam Density: 2.6-2.62.
- I. Specific Gravity: 1.0361.
- J. n-Octanol/Water Partition Coefficient: -1.4.
- K. Viscosity: 58.1 cP (20°C).
- L. Molecular Weight: 76.09

10. Stability and Reactivity

- A. Chemical Stability: Stable at room temperature and normal pressure.
- B. Possibility of hazardous reaction: No polymerization.
- C. Conditions to Avoid
- Avoid heat, flames, sparks and other sources of ignition. Avoid contact with substances that are prohibited for mixing.
- D. Substances to Avoid
- Acids, bases, combustible substances, halogen carbon chemicals, metals, metallic salts, oxidizers, reducers.
- E. Hazardous Substances Created at the Time of Decomposition
- Pyrolysis products or burning products: Carbon oxide.

11. Information on Toxicity

- A. Information on Route of Highly Likely Exposure
- Respiratory Organ: No data.
 - Oral: No data.
 - Skin Contact: No data.
 - Eye Contact: No data.
- B. Delay by Short-term and Long-term Exposure, Acute Effects and Chronic Effects
- Acute Toxicity
 - Oral: LD50 2000 mg/kg rat (Classification 4 by the Ministry of Labor).
 - Percutaneous: LD50 > 16000 mg/kg rabbit.
 - Inhalation: No data.
 - Skin Corrosion or Stimulation
 - Rabbit/OECD Guide-line 404: No irritation.
 - Human/Skin (104 mg/2D): Moderate irritation.
 - Male/Skin (10%/2D): Moderate irritation.
 - Children/Skin (30%/96H): Moderate irritation.
 - Severe Eye Damage or Irritation
 - Human/Eye: Weak irritation.
 - Rabbit/Eye(100 mg): Minor irritation.

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- Hypersensitivity of Respiratory Organ: No data.
- Skin Hypersensitivity: Human/Draize Test: No hypersensitivity.
- Carcinogenicity
 - IARC: No data.
 - NTP: No data.
 - OSHA: No data.
 - WISHA: No data.
 - ACGIH: No data.
- Mutagenesis of reproductive cells
 - In vitro - Salmonella typhimurium/TA 98, TA100, TA1535, TA1537 (Reverse Mutation Test; Ames Test): Negative; Human/sister chromatid exchange test: Negative.
- Reproductive Toxicity
 - If 1230 mg/kg is administered to a pregnant rabbit for 10 days as food, no effect on fertilization rate is observed together with no effect on the survival rate of the embryo or mother.
 - Skeletal system and teratogenesis are the biggest index for toxicity in the embryo and none in the mother. It is observed in mouse ≥ 500 mg/kg/day and rat $\geq 1,000$ mg/kg/day. Effects on the weight and survival rate of the embryo occur at the higher densities.
- Target Organ: Whole Body Poisonous Substance (One Exposure)
 - Non-toxicity symptom is the restriction of central nerve if anesthetized. No organ to target.
- Target Organ: Whole Body Poisonous Substance (Repeated Exposure)
 - If exposed to rats for 90 days, weight and feed intake decreases, but no change is seen in the clinical-chemical and blood values. No toxic effects on organs (liver, kidney, pancreas and lung).
- Inhalation Toxicity: No data.

12. Effects on Environment

A. Aquatic: Terrestrial Ecological Toxicity

- Fish: LC50 710 mg/l 96 hr Oncorhynchus mykiss.
- Crustacean: EC50 > 1000 mg/l 48 hr Daphnia magna.
- Birds: EC50 > 1000 mg/l 72 hr Selenastrum capricornutum.

B. Residual Tendency and Resolvability

- Residual Tendency: log Kow -1.4.
- Resolvability: No data.

C. Biological Condensability

- Condensability: BCF < 1.
- Biological Condensability: > 60 (%) 10 days.

D. Soil Mobility: No data.

E. Other Hazardous Effects: No data.

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13. Cautions for Disposal

A. Disposal Method

- Discard the contents and case according to the regulations if it is regulated in the Waste Management Act.

B. Caution for Disposal

- Consider the caution indicated in the regulations if it is regulated in the Waste Management Act.

14. Information on Transportation

A. UN No.: No information on the classification of the UN Transport of Hazardous Substances.

B. Suitable Ship Name: N/A.

C. Class of Risk at Transportation: N/A.

D. Case Grade: N/A.

E. Marine Pollutants: No data.

F. Special Measures That a User Should Know with Regard to Transportation or Means of Transportation

- Emergency Measures for Fire: N/A.
- Emergency Measures for Leakage: N/A.

15. Legal Regulation Status

A. Regulations of the Occupational Safety and Health Acts: No data.

B. Regulations of Chemical Management Law

- Existing chemicals to be registered : No data
- New chemical substances : No data
- toxic substances : No data
- Restricted material : No data
- prohibited substances : No data
- Accident preparation material : No data

C. Regulations of the Hazardous Chemical Management Act: No data.

D. Regulations by the Hazardous Substance Safety Management Act: 4 Class 3 Petroleum (Soluble Liquid) 4000ℓ.

E. Regulations by the Waste Management Act: No data.

F. Regulations by Other Domestic and Foreign Acts

- Domestic Regulations
 - Residue-Prone Organic Pollutant Management Act: N/A.
- International Regulations
 - America Management Information (OSHA Regulations): N/A.
 - America Management Information (CERCLA Regulations): N/A.
 - America Management Information (EPCRA 302 Regulations): N/A.
 - America Management Information (EPCRA 304 Regulations): N/A.

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- America Management Information (EPCRA 313 Regulations): N/A.
- America Management Information (Rotterdam Convention): N/A.
- America Management Information (Stockholm Convention): N/A.
- America Management Information (Montreal Protocol): N/A.
- EU Classification Information (Fixed Classification): N/A.
- EU Classification Information (Risk Words): N/A.
- EU Classification Information (Safety Words): N/A.

16. Other References

A. Source of Data

- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (Physical Properties)
- o International Program on Chemical Safety (IPCS INCHEM) (<http://www.inchem.org/>) (Color)
- o The Chemical Database, The Department of Chemistry at the University of Akron (<http://ull.chemistry.uakron.edu/erd>) (B. Smell)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (E. Melting Point/Freezing Point)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (G. Flashing Point)
- o National Institute of Technology and Evaluation (NITE) (http://www.safe.nite.go.jp/ghs/h18_bunrui.html) (H. Upper/Lower Limit of Ignition or Exposure Range)
- o National Institute of Technology and Evaluation (NITE) (http://www.safe.nite.go.jp/ghs/h18_bunrui.html) (I. Steam Pressure)
- o National Institute of Technology and Evaluation (NITE) (http://www.safe.nite.go.jp/ghs/h18_bunrui.html) (J. Solubility)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (a. n-Octanol/Water Partition Coefficient)
- o The Chemical Database, The Department of Chemistry at the University of Akron (<http://ull.chemistry.uakron.edu/erd>) (c. Decomposition Temperature)
- o International Program on Chemical Safety (IPCS INCHEM) (<http://www.inchem.org/>) (d. Molecular Weight)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (Oral)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (Injectant)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (Skin Corrosion or Irritation)
- o Corporate Solution From Thomson Micromedex (<http://csi.micromedex.com>) (Skin Corrosion or Irritation)
- o International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>) (Severe Eye Damage or Irritation)
- o Corporate Solution From Thomson Micromedex

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(<http://csi.micromedex.com>) (Severe Eye Damage or Irritation)

- o International Program on Chemical Safety (IPCS INCHEM)
(<http://www.inchem.org/>) (Skin Irritation)
- o National Library of Medicine/genetic toxicology (NLM/GENETOX)
(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?GENETOX>) (Reproductive Cell Mutagenicity)
- o National Library of Medicine/Chemical Carcinogenesis Research Information System (NLM/CCRIS) (<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CCRIS>) (Reproductive Cell Mutagenicity)
- o National Library of Medicine/Agency for Toxic Substances and Disease Registry (NLM/ATSDR) (<http://www.atsdr.cdc.gov/MHMI/mmg111.html>)(reproductive toxicity)
- o International Uniform Chemical Information Database(IUCLID)
(<http://ecb.jrc.it/esis>) (Target Organ· Whole Body Poisonous Substance (One Exposure))
- o International Uniform Chemical Information Database (IUCLID)
(<http://ecb.jrc.it/esis>) (Target Organ· Whole Body Poisonous Substance (Repeated Exposure))
- o ECOTOX (Fish)
- o ECOTOX (Crustaceans)
- o National Institute of Technology and Evaluation (NITE)
(http://www.safe.nite.go.jp/ghs/h18_bunrui.html) (Birds)
- o International Uniform Chemical Information Database (IUCLID)
(<http://ecb.jrc.it/esis>) (Residual Tendency)
- o SIDS (Condensability)
- o SIDS (Bio-degradability)

B. Date of Initial Creation: Mar. 1, 1996

C. Number of Revision and Final Date of Revision

- Number of Revision : 8 times
- Final Revision Date : Jan 31. 2020

D. Others

- The above Material Safety Data Sheet (MSDS) was created with some modifications in reference to the MSDS provided by the Korea Occupational Safety & Health Agency (KOSHA).

EDTA 2Na

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Date of issue: 15/07/2019 Revision date: 15/07/2022 Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Trade name : EDTA 2Na
CAS No. : 6381-92-6
REACH registration number : 01-2119486775-20-0004

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Manufacture of cosmetic products, cleaning and maintenance products.
For detailed information please refer to CSR.

1.2.2. Uses advised against

Restrictions on use : No information available

1.3. Details of the supplier of the safety data sheet

Only representative: REACH24H Consulting Group
Address: Paramount Court, Corrig Road, Sandyford, Dublin 18, Ireland
Email: reach@reach24h.com
Supplier: Shijiazhuang Jackchem Co., Ltd.
Address: Douyu Industrial Park, Luancheng County, Shijiazhuang City, Hebei Province, P. R. China
Postal Code: summer.rong@hebeichengxin.com
Phone: +86-311-84632634

1.4. Emergency telephone number

Emergency number :

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (inhal.), Category 4 H332
Specific target organ toxicity — Repeated exposure, Category 2 H373
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) : Warning
Hazard statements (CLP) : H332 - Harmful if inhaled.
H373 - May cause damage to organs through prolonged or repeated exposure.
Precautionary statements (CLP) : P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P271 - Use only outdoors or in a well-ventilated area.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
EUH-statements :None.

2.3. Other hazards

Other hazards which do not result in classification : No information available.

disodium dihydrogen ethylenediaminetetraacetate

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Adverse effects on the environment caused by endocrine disrupting properties

: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
EDTA 2Na	(CAS-No.) 6381-92-6 (EC-No.) 613-386-6	99.2	Acute Tox. 4 H332 STOT RE 2 H373

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: Wash off immediately with soap and plenty of water removing at the same time all contaminated clothes. Wash contaminated clothing before reuse. Get medical advice if skin irritation persists.
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice and attention.
First-aid measures after ingestion	: Rinse mouth out with water. Call a poison center or a doctor if you feel unwell. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure.
------------------	--

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: No information available.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Thermal decomposition generates toxic vapours.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
--------------------------------	--

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapours/spray. Evacuate personnel to a safe area. Avoid contact with skin and eyes.
----------------------	--

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
----------------------	---

6.2. Environmental precautions

Avoid release to the environment. Do not allow into drains or water courses.

disodium dihydrogen ethylenediaminetetraacetate

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Collect spillage. Sweep or shovel spills into appropriate container for disposal. Avoid dust formation.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid dust formation.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

EDTA 2Na	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	3 mg/m ³
Long-term - local effects, inhalation	1.5 mg/m ³
DNEL/DMEL (General population)	
Acute - local effects, inhalation	1.2 mg/m ³
Long-term - systemic effects, oral	25 mg/kg bodyweight/day
Long-term - local effects, inhalation	0.6 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	2.2 mg/l
PNEC aqua (marine water)	0.22 mg/l
PNEC aqua (intermittent, freshwater)	1.2 mg/l
PNEC (Soil)	
PNEC soil	0.72 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	43 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:

PPE18 - Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Eye protection:

Wear safety glasses with side shields (or goggles).

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Thermal hazard protection:

Wear suitable protective clothing.

disodium dihydrogen ethylenediaminetetraacetate

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid, crystalline
Colour	: White.
Odour	: Odorless
Odour threshold	: No data available
pH	: 4-5
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Decomposed at 252 °C
Freezing point	: No data available
Boiling point	: Substance decomposes before boiling.
Flash point	: Not Relevant
Auto-ignition temperature	: > 400 °C
Decomposition temperature	: 252 °C
Flammability (solid, gas)	: Non flammable
Vapour pressure	: 2E-012 hPa at 25°C
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.767 g/cm ³ at 20°C
Solubility	: Water: 108 g/l at 20 °C
Log Pow	: -4.3 at 25 °C / pH = 4.5
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Explosive properties	: Non explosive
Oxidising properties	: no oxidising properties
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid dust formation.

10.5. Incompatible materials

Strong oxidizing agent.

10.6. Hazardous decomposition products

Ammonia. Carbon oxides. Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Inhalation: Harmful if inhaled.

EDTA 2Na (6381-92-6)	
LD50 oral rat	2800 mg/kg bw (male/female)
LOAEC inhalation rat	ca. 30 mg/m ³ air(male) based on: act. ingr. (Na2H2EDTA)
Skin corrosion/irritation	: Not classified

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Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties	: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
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11.2.2. Other information

Other information	: No information available
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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

EDTA 2Na (6381-92-6)

Short-term effects on fish

<i>Lepomis macrochirus</i> freshwater static The static water acute toxicity tests followed the methods described in the EPA publication, "Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians" (COMMITTEE ON METHODS FOR TOXICITY WITH AQUATIC ORGANISMS, 1975).	LC50 (96 h): 41 mg/L test mat. (nominal) based on: mortality (34 - 62 mg/L, very soft water) LC50 (96 h): 159 mg/L test mat. (nominal) based on: mortality (136-204 mg/L, medium hard water) LC50 (96 h): 532 mg/L test mat. (nominal) based on: mortality (473-598 mg/L, very hard water)
<i>Lepomis macrochirus</i> freshwater static The static water acute toxicity tests followed the methods described in the EPA publication, "Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians" (COMMITTEE ON METHODS FOR TOXICITY WITH AQUATIC ORGANISMS, 1975).	LC50 (96 h): 121 mg/L act. ingr. (Na4EDTA) (nominal) based on: mortality (113-130, very soft water) LC50 (96 h): 792 mg/L act. ingr. (Na4EDTA) (nominal) based on: mortality (754-831, medium hard water) LC50 (96 h): 1592 mg/L act. ingr. (Na4EDTA) (nominal) based on: mortality (1493-1678, hard water)
<i>Lepomis macrochirus</i> freshwater static The static water acute toxicity tests followed the methods described in the EPA publication, "Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians" (COMMITTEE ON METHODS FOR TOXICITY WITH AQUATIC ORGANISMS, 1975).	LC50 (96 h): 705 mg/L test mat. (nominal) based on: mortality (623-795)

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EDTA 2Na (6381-92-6)	
<i>Salmo gairdneri</i> (new name: <i>Oncorhynchus mykiss</i>) freshwater static Method: other Fish, Acute Toxicity Test	LC100 (24 h): 860 mg/L test mat. (nominal) based on: mortality
Long-term effects on fish	
Brachydanio rerio (new name: Danio rerio) freshwater early-life stage: reproduction, (sub)lethal effects flow-through OECD Guideline 210 (Fish, Early-Life Stage Toxicity Test)	NOEC (35 d): >= 25.7 mg/L act. ingr. (H4EDTA) (meas. (not specified))
Short-term effects on aquatic invertebrates	
<i>Daphnia magna</i> freshwater static DIN 38412, part 11	EC50 (48 h): 140 mg/L test mat. (nominal) based on: mobility (100-180 mg/L)
<i>Daphnia magna</i> freshwater static ISO 6341 15 (Water quality - Determination of the Inhibition of the Mobility of <i>Daphnia magna</i> Straus (Cladocera, Crustacea))	EC50 (24 h): 610 mg/L test mat. (nominal) based on: mobility
<i>Daphnia magna</i> freshwater static equivalent or similar to DIN 38412, part 11	EC50 (24 h): 625 mg/L test mat. (nominal) based on: mobility
Long-term effects on aquatic invertebrates	
<i>Daphnia magna</i> freshwater semi-static EEC Guideline XI/681/86, Draft 4: "Prolonged toxicity study with <i>Daphnia magna</i> : Effects on reproduction"	NOEC (21 d): 25 mg/L test mat. (nominal) based on: reproduction LOEC (21 d): 50 mg/L test mat. (nominal)
Effects on algae and aquatic plants	
Pseudokirchnerella subcapitata (algae) freshwater static OECD Guideline 201 (Alga, Growth Inhibition Test) (1984)	EC50 (72 h): > 100 mg/L test mat. (nominal) based on: growth rate EC50 (72 h): > 60 mg/L test mat. (meas. (geom. mean)) based on: growth rate NOEC (72 h): 79.4 mg/L test mat. (nominal) based on: growth rate NOEC (72 h): 48.4 mg/L test mat. (meas. (geom. mean)) based on: growth rate LOEC (72 h): 99.9 mg/L test mat. (nominal) based on: growth rate LOEC (72 h): 60.6 mg/L test mat. (meas. (geom. mean)) based on: growth rate
Pseudokirchnerella subcapitata (algae) freshwater static OECD Guideline 201 (Alga, Growth Inhibition Test)	EC50 (72 h): > 1000 mg/L test mat. (nominal) based on: growth rate NOEC (72 h): 100 mg/L test mat. (nominal) based on: growth rate LOEC (72 h): 1000 mg/L test mat. (nominal) based on: growth rate EC10 (72 h): 307.63 mg/L test mat. (nominal) based on: growth rate

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EDTA 2Na (6381-92-6)	
Scenedesmus subspicatus (new name: Desmodesmus subspicatus) (algae) freshwater static EU Method C.3 (Algal Inhibition test)	EC50 (72 h): > 100 mg/L test mat. (nominal) based on: growth rate NOEC (72 h): 100 mg/L test mat. (nominal) based on: growth rate LOEC (72 h): > 100 mg/L test mat. (nominal) based on: growth rate EC10 (72 h): > 100 mg/L test mat. (nominal) based on: growth rate
Scenedesmus subspicatus (new name: Desmodesmus subspicatus) (algae) freshwater static EEC guideline 79/831/EEC, Annexe V, part C: Methods for the determination of ecotoxicity, algae: Test of growth inhibition, May 1988	EC50 (72 h): 2.77 mg/L test mat. based on: growth rate NOEC (72 h): 0.39 mg/L test mat. based on: growth rate LOEC (72 h): 0.78 mg/L test mat. based on: growth rate EC10 (72 h): 0.7 mg/L test mat. based on: growth rate

12.2. Persistence and degradability

EDTA 2Na (6381-92-6)	
Persistence and degradability	EDTA is not readily biodegradable according to OECD criteria.

12.3. Bioaccumulative potential

EDTA 2Na (6381-92-6)	
Log Pow	-4.3
Bioaccumulative potential	Material does not bioaccumulate.

12.4. Mobility in soil

EDTA 2Na (6381-92-6)	
Ecology - soil	No information available.

12.5. Results of PBT and vPvB assessment

EDTA 2Na (6381-92-6)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Contaminated packaging : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

14.6. Special precautions for user

- Overland transport

Not applicable

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- Transport by sea

Not applicable

- Air transport

Not applicable

- Inland waterway transport

Not applicable

- Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

EDTA 2Na (6381-92-6) is not on the REACH Candidate List

EDTA 2Na (6381-92-6) is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

International Inventories

Component	TSCA	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	AICS
EDTA 2Na 6381-92-6	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate

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Abbreviations and acronyms:

BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
IARC	International Agency for Research on Cancer
OECD	Organisation for Economic Co-operation and Development
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
N.O.S.	Not Otherwise Specified
ED	Endocrine disrupting properties

Data sources : ECHA reference.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Full text of H- and EUH-statements:

H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Safety Data Sheet

According to China Standard GB 16483-2008



Monoethanolamine

Version 1.1

Release Date: 2017/02/13

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Monoethanolamine
CAS-No. : 141-43-5
Synonyms : Ethanolamine, β -Aminoethyl alcohol, 2-Hydroxyethylamine
Recommended use : Use in printing industry (e.g printing inks), manufacturing(e.g metalworks), gas treating solvent
Restrictions on use : No restriction of use

Manufacturer or supplier's details

Headquarters

Company : PETRONAS Chemicals Group Berhad
Address : Tower 2, PETRONAS Twin Towers,
Kuala Lumpur City Centre,
50088 Kuala Lumpur
Malaysia

Plant Site

Company : PETRONAS Chemicals Derivatives Sdn Bhd
Address : Administration Complex,
Kerteh Industrial Area,
KM 106 Jalan Kuala Terengganu - Kuantan,
24300 Kerteh, Kemaman,
Terengganu, Malaysia
Emergency telephone number : (+609) 830 7555
+0086-21-68871446

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance : Liquid
Colour : Colourless
Odour : Ammoniacal

Causes severe skin burns and eye damage. May cause respiratory irritation. Toxic to aquatic life.

GHS Classification

Skin corrosion/irritation : Category 1B
Serious eye damage/eye irritation : Category 1
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)
Acute aquatic toxicity : Category 2

GHS Label element

Hazard pictograms :



Signal word : Danger
Hazard statements : H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

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Precautionary statements : H401 Toxic to aquatic life.

Prevention:
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P363 Wash contaminated clothing before reuse.

Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards

Not classified based on available information.

Health hazards

Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.

Environmental hazards

Toxic to aquatic life.

Other hazards which do not result in classification

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
Ethanolamine	141-43-5	>= 90 - <= 100

4. FIRST AID MEASURES

If inhaled : If unconscious, place in recovery position and seek medical

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	advice. If symptoms persist, call a medical doctor. Move to fresh air.
In case of skin contact	: If on skin, rinse well with water. If on clothes, remove clothes. If skin irritation persists, call a medical doctor. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
In case of eye contact	: In case of contact, immediately flush skin with plenty of water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Small amounts splashed into eyes can cause irreversible tissue damage and blindness. Continue rinsing eyes during transport to hospital. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. If symptoms persist, call a medical doctor. Give one cup (8 ounces or 240 ml) of water or milk if available. Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting.
General advice	: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended. Consult a medical doctor.
Most important symptoms and effects, both acute and delayed	: Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Chemical eye burns may require extended irrigation. May cause severe irritation to skin and serious eye damage.
Notes to physician	: Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
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Unsuitable extinguishing media	: High volume water jet
Specific hazards during firefighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Specific extinguishing methods	: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed off in accordance with local regulations.
Special protective equipment for firefighters	: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. If protective equipment is not available or not used, fight fire from a protected location or safe distance. For protective equipment in post-fire or non-fire cleanup situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Use personal protective equipment.
Environmental precautions	: If the product contaminates rivers and lakes or drains inform respective authorities. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.
Methods and materials for containment and cleaning up	: Dilute with water. Neutralise with acid. Keep in suitable, closed containers for disposal. Pump into suitable and properly labeled containers.

7. HANDLING AND STORAGE

Handling

Advice on protection against fire and explosion	: Normal measures for preventive fire protection.
Advice on safe handling	: Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. Avoid formation of aerosol. Smoking, eating and drinking should be prohibited in the application area. Avoid contact with skin and eyes.
Avoidance of contact	: Product may potentially react with various halogenated

organic solvents, resulting in temperature and/or pressure increases. Heating above 60°C in the presence of aluminum can result in corrosion and generation of flammable hydrogen gas. Avoid unintended contact with: Halogenated hydrocarbons.

Storage

Conditions for safe storage : Monoethanolamine can react with iron to form an unstable material that can decompose at temperatures above 130 °C in air. Use caution when thawing drummed material. If steam heating is necessary, use only low pressure steam and stainless steel coils. Store in a dry place. Do not store in: Zinc. Aluminum. Copper. Copper alloys. Galvanized containers. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethanolamine	141-43-5	PC-TWA	8 mg/m ³	GBZ 2.1-2007
		PC-STEL	15 mg/m ³	GBZ 2.1-2007
		TWA	3 ppm	ACGIH
Further information: Eye irritation, Skin irritation				
		STEL	6 ppm	ACGIH
Further information: Eye irritation, Skin irritation				

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C).

Eye/face protection : Use chemical goggles.
Eye wash fountain should be located in immediate work area. If exposure causes eye discomfort, use a full-face respirator. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. Use protective clothing chemically resistant to this material.

	<p>Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.</p> <p>Safety shower should be located in immediate work area.</p> <p>Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.</p>
Hand protection Remarks	<p>: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Butyl rubber. Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.</p>
Hygiene measures	<p>: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area.</p> <p>When using do not eat or drink.</p> <p>When using do not smoke.</p> <p>Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.</p> <p>Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area.</p> <p>Wash hands before breaks and at the end of workday.</p>

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: Colourless
Odour	: Ammoniacal
Odour Threshold	: No data available
pH	: 12.6
Melting point/freezing point	: 10.5 °C
Boiling point/boiling range	: 170 °C
Flash point	: 96 °C Method: ASTM D 93, Pensky-Martens closed cup

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Evaporation rate	: 0.02
Upper explosion limit	: 23.5 %(V)
Lower explosion limit	: 3.0 %(V)
Vapour pressure	: 0.13 hPa (20 °C)
Relative vapour density	: 2.1
Relative density	: No data available
Density	: No data available
Solubility(ies)	
Water solubility	: Soluble
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available

10. STABILITY AND REACTIVITY

Reactivity	: Hazardous polymerisation does not occur.
Chemical stability	: Stable under normal conditions. Hygroscopic
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: Heat, sparks, flame and build-up of static electricity. Exposure to elevated temperatures can cause product to decompose. Avoid moisture.
Incompatible materials	: Product may potentially react with various halogenated organic solvents, resulting in temperature and/or pressure increases. Heating above 60°C in the presence of aluminum can result in corrosion and generation of flammable hydrogen gas. Avoid unintended contact with: Halogenated hydrocarbons.
Hazardous decomposition products	: Fumes, smoke, carbon monoxide Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

Ethanolamine:

Acute oral toxicity	: Remarks: No data available
Acute inhalation toxicity	: Remarks: No data available
Acute dermal toxicity	: Remarks: No data available

Skin corrosion/irritation

Components:

Ethanolamine:

Result	: Causes burns.
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Serious eye damage/eye irritation

Components:

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Ethanolamine:

Species : Rabbit
Result : Irreversible effects on the eye

Respiratory or skin sensitisation

Components:

Ethanolamine:

Exposure routes : Inhalation
Result : Classification not possible
Exposure routes : Skin contact
Result : No data available

Germ cell mutagenicity

Components:

Ethanolamine:

Germ cell mutagenicity - : No data available
Assessment

Carcinogenicity

Components:

Ethanolamine:

Carcinogenicity - : No data available
Assessment

Reproductive toxicity

Components:

Ethanolamine:

Reproductive toxicity - : No data available
Assessment

STOT - single exposure

Components:

Ethanolamine:

Target Organs : Respiratory system
Assessment : May cause respiratory irritation.

STOT - repeated exposure

Components:

Ethanolamine:

Remarks : No data available

Aspiration toxicity

Components:

Ethanolamine:

Statement on Aspiration Tox. : No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

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Ethanolamine:

- Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 349 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 65 mg/l
Exposure time: 48 h
- Toxicity to algae : Remarks: No data available
- Toxicity to fish (Chronic toxicity) : NOEC: 1.24 mg/l
Exposure time: 41 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 2.5 mg/l
- Toxicity to microorganisms : Remarks: No data available

Persistence and degradability

Components:

Ethanolamine:

- Biodegradability : Exposure time: 5 d
Result: Readily biodegradable

Bioaccumulative potential

Components:

Ethanolamine:

- Bioaccumulation : Remarks: Bio-accumulation is low.
- Partition coefficient: n-octanol/water : Remarks: log Kow -1.31

Mobility in soil

Components:

Ethanolamine:

- Mobility : Medium: Soil
Remarks: Very high mobility.

Other adverse effects

Components:

Ethanolamine:

- Additional ecological information : No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC.
Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste.
For used, contaminated and residual materials additional evaluations may be required.
Do not dump into any sewers, on the ground, or into any body of water.
Do not contaminate ponds, waterways or ditches with

Safety Data Sheet

Monoethanolamine



Version 1.1

Release Date: 2017/02/13

Contaminated packaging : chemical or used container.
: Send to a licensed waste management company.
: Empty remaining contents.
: Dispose of as unused product.
: Do not re-use empty containers.

14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number : UN 2491
Proper shipping name : ETHANOLAMINE
Class : 8
Packing group : III
Labels : 8

IATA-DGR

UN/ID No. : UN 2491
Proper shipping name : Ethanolamine
Class : 8
Packing group : III
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852

IMDG-Code

UN number : UN 2491
Proper shipping name : ETHANOLAMINE
Class : 8
Packing group : III
Labels : 8
EmS Code : F-A, S-B
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category : Z
Ship type : 3

National Regulations

GB 6944/12268

UN number : UN 2491
Proper shipping name : ETHANOLAMINE
Class : 8
Packing group : III
Labels : 8

Hazchem Code : 2X

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

**The components of this product are reported in the following inventories:**

CH INV	: On the inventory, or in compliance with the inventory.
TSCA	: On TSCA Inventory.
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory.
NZIoC	: On the inventory, or in compliance with the inventory.
ENCS	: On the inventory, or in compliance with the inventory.
ISHL	: On the inventory, or in compliance with the inventory.
KECI	: On the inventory, or in compliance with the inventory.
PICCS	: On the inventory, or in compliance with the inventory.
IECSC	: On the inventory, or in compliance with the inventory.

16. OTHER INFORMATION

Revision Date	: 2017/02/13
Sources of key data used to compile the Safety Data Sheet	: GESTIS database on hazardous substances - DGUV ECHA - European Chemicals Agency

Full text of other abbreviations

(Q)SAR	- (Quantitative) Structure Activity Relationship
ACGIH	- American Conference of Governmental Industrial Hygienists
AICS	- Australian Inventory of Chemical Substances
ANTT	- National Agency for Transport by Land of Brazil
ASTM	- American Society for the Testing of Materials
bw	- Body weight
CCHC	- Chemicals Classification and Hazard Communication
CMR	- Carcinogen, Mutagen or Reproductive Toxicant
CPR	- Controlled Products Regulations
DIN	- Standard of the German Institute for Standardisation
DSL	- Domestic Substances List (Canada)
ECx	- Concentration associated with x% response
ELx	- Loading rate associated with x% response
EmS	- Emergency Schedule
ENCS	- Existing and New Chemical Substances (Japan)
ErCx	- Concentration associated with x% growth rate response
ERG	- Emergency Response Guide
GHS	- Globally Harmonized System
GLP	- Good Laboratory Practice
IARC	- International Agency for Research on Cancer
IATA	- International Air Transport Association
IBC	- International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50	- Half maximal inhibitory concentration
ICAO	- International Civil Aviation Organization
ICOP	- Industry Code of Practice on Chemicals Classification and Hazard Communication
IECSC	- Inventory of Existing Chemical Substances in China
IMDG	- International Maritime Dangerous Goods
IMO	- International Maritime Organization
ISHL	- Industrial Safety and Health Law (Japan)
ISO	- International Organisation for Standardization
KECI	- Korea Existing Chemicals Inventory
LC50	- Lethal Concentration to 50 % of a test population
LD50	- Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL	- International Convention for the Prevention of Pollution from Ships

MY PEL	-	Malaysian Permissible Exposure Limit
n.o.s.	-	Not Otherwise Specified
Nch	-	Chilean Norm
NITE	-	National Institute of Technology and Evaluation
NO(A)EC	-	No Observed (Adverse) Effect Concentration
NO(A)EL	-	No Observed (Adverse) Effect Level
NOELR	-	No Observable Effect Loading Rate
NOM	-	Official Mexican Norm
NTP	-	National Toxicology Program
NZIoC	-	New Zealand Inventory of Chemicals
OCSPP	-	Office of Chemical Safety and Pollution Prevention
OECD	-	Organization for Economic Co-operation and Development
PBT	-	Persistent, Bioaccumulative and Toxic
PICCS	-	Philippines Inventory of Chemicals and Chemical Substances
REACH	-	Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
SADT	-	Self-Accelerating Decomposition Temperature
SDS	-	Safety Data Sheet
STEL	-	Short Term Exposure Limit
TCSI	-	Taiwan Chemical Substance Inventory
TDG	-	Transportation of Dangerous Goods
TSCA	-	Toxic Substances Control Act (United States)
TWA	-	Time Weighted Average
UN	-	United Nations
UNRTDG	-	United Nations Recommendations on the Transport of Dangerous Goods
UVCB	-	Unknown or Variable Composition, Complex Reaction Products and Biological Materials
vPvB	-	Very Persistent and Very Bioaccumulative
WHMIS	-	Workplace Hazardous Materials Information System

Disclaimer

To the best of PETRONAS knowledge, the information contained herein is accurate and reliable as of the date of publication. Any use of information provided should be undertaken in consultation with a professional with the appropriate expertise, as necessary in the circumstances. No warranty, express or implied, is given as to the quality, accuracy, reliability, applicability or completeness of the contents of this SDS. The information presented here pertains only to the product as shipped. It is the responsibility of the customer to ensure that any activities relating to the product comply with all federal, state or local laws. Any hazards associated with any product regulatory requirements are subject to change and may differ between various locations. Except to the extent required by law, re-publication or retransmission of this SDS, in whole or in part, is strictly prohibited. PETRONAS does not take responsibility for use, transportation, storage, handling, packaging or disposal of the product that is beyond our knowledge and recommendation by this SDS.

Product Stewardship Advisory:

PETRONAS aims to increase awareness of all the hazards associated with the storage, handling and use of its products. Thoroughly reviewing the accompanying Safety Data Sheets and disseminating the information to all dependent and interested parties is an essential part of any 'Responsible Care' programme.

CN / EN



新拓洋生物工程有限公司

NEW TUOYANG BIO-ENGINEERING CO.,LTD

ADDRESS:NO.306,3RD FLOOR,ENTREPRENEURSHIP INCUBATION BUILDING,SHUANGCHUANG PARK,
EAST END OF CHAOYANG STREET,SHANCHENG DISTRICT,HEBI,HENAN

Material Safety Data Sheet

SECTION 1: Identification of the substances/manufacturer

Sodium Erythorbate

NEW TUOYANG BIO-ENGINEERING CO.,LTD

NO.306,3RD FLOOR,ENTREPRENEURSHIP INCUBATION BUILDING,SHUANGCHUANG PARK,
EAST END OF CHAOYANG STREET,SHANCHENG DISTRICT,HEBI,HENAN

TEL: 0086-371-67990260 FAX: 0086-371-6799270

SECTION 2: Composition/information on ingredients

Chemical name: D-erythro-hex-2-enoic acid r-lactone salt

FORMULAR: $C_6H_7O_6Na \cdot H_2O$

Weight: 216.12

CAS#	Chemical Name	%	EINECS#
6381-77-7	Sodium Erythorbate	100	228-973-9

SECTION 3: Hazards identification

None

SECTION 4: Fire-fighting measures

None

SECTION 5: Fire-fighting measures

Extinguishing media: No restriction

Do not burn readily



SECTION 6: Accidental release measures

With plenty of water

SECTION 7: Handling and Storage

Non-toxic, as a food additive, keep container dry in a cool and well-ventilated place.

No special measure required

SECTION 8: Exposure controls / Personal protection

Eye protection: Goggles

Hand protection: rubber gloves

Respiratory protection: if product from dust, wear dust-protection mask, avoid inhaling dust.

Section 9: Physical and Chemical properties:

Sodium Erythorbate

Description: White, odorless crystalline powder

Granules

Assay: 98.0% ~100. 5%

Specific: +95.5 ~ +98.0

PH 5.5 ~ 8.0

Heavy metal: 10ppm max

Lead 2ppm max

Oxalate test: conform

Clarify: conform

Loss on drying: 0.4%max

Section 10: Stability and Reactivate

Thermal decomposition: 160 °C

In solution it deteriorates in the presence of air, trace metals, and light

Section 11: Toxicological information

After many years of experience in the production and use of the product no effects detrimental to health are known.

Sodium Erythorbate: LD 50 (oral) 15.3 kg (tested in rats)

Section 12: Ecological information

None Contaminate

Section 13: disposal considerations

Wash to drain with copious quantifies of water

Section 14: transport information

IMO/IMDG

No Hazard for sea transportation.

No Hazard for air transportation.

Section 15: regularity information





新拓洋生物工程有限公司

NEW TUOYANG BIO-ENGINEERING CO.,LTD

ADDRESS:NO.306,3RD FLOOR,ENTREPRENEURSHIP INCUBATION BUILDING,SHUANGCHUANG PARK,
EAST END OF CHAOYANG STREET,SHANCHENG DISTRICT,HEBI,HENAN

According to F.C.C. IV Standards of USA and EU regulation 231/2012

Section 16: other information

None

The data given here is based on current knowledge and experience. The purpose of this material safety data sheet is to describe the products in terms of these safety requirements. The data does not signify any warranty with regard to the product's properties.



Alphant E

Issue Date: 01/06/2018

revise Date :01/01/2019

Version number: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identification

Product category : chemical compound
Trade name : Alphant E
Cas No 61790-81-6
Product attributes : chemicals
Product type : Trade Product

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant identified uses

Application area : additive in cosmetics
uses : emulsifier

1.2.2 Restricted use

Not used in pharmaceutical products and pharmaceutical intermediates

1.3. Details of the supplier of the safety data sheet

Guangzhou Zhen bao Chemical Co. , Ltd.
Room 1433, Building 2, Hui chuang green space, Taihe Town, Bai yun District
T: +86-020-31230336
F: +86-020-31230336
E:manager@chemboo.com

1.4. Emergency telephone number

Telephone : +86-020-31230336

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

No need for classification according to GHS criteria for this product.

2.2. Label elements

Pictograms : N/A
warning words : warning
Preventive measures : Avoid eating by mistake

Other information : N/A

2.3. Other dangers information

Other information : no specific known hazards if storage and operation regulations are taken into account

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Material : A substance with a definite distribution of molecular weight
 INCI names : PEG-75LANOLIN
 Effective content : ≥99.5%

3.2. Mixture

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Routine : If adverse health effects develop seek medical attention
 If inhaled : Quickly leave the scene to the fresh air, Seek medical attention if necessary
 On skin contact : After contact with skin, wash immediately with plenty of water
 On contact with eyes : In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention if necessary
 On ingestion : Rinse mouth and then drink 200-300 ml of water

4.2. Most important symptoms and effects, both acute and delayed

Symptoms : No significant symptoms are expected due to the non-classification of the product.
 Hazards : Hazards: No hazard is expected under intended use and appropriate handling

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media : water spray, dry powder, foam
 Unsuitable extinguishing media : carbon dioxide

5.2. Special hazards arising from the substance or mixture

Fire : harmful vapours
 Evolution of fumes/fog. The substances/groups of substances mentioned can be released

Explosion : N/A

Measures in case of fire : Avoid inhaling too much smoke

Decomposition products of fire : Carbon Oxide (CO, CO₂)

5.3. Advice for fire-fighters

Special protective equipment : Wear a self-contained breathing apparatus

Further information : Dispose of fire debris and contaminated extinguishing water in accordance with official regulations

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Conventional Measures : Use personal protective clothing

6.1.1. Non-emergency personnel

Protective measures : Reference for details-part 8: "Contact Control/personal protection"

6.1.2. Emergency personnel

Protective measures : Reference for details-part 8: "Contact Control/personal protection"

6.2. Environmental precautions

Do not discharge into drains/surface waters/groundwater

6.3. Methods and material for containment and cleaning up For small amounts

Measures : Pick up with suitable appliance and dispose of

For large amounts : Pick up with suitable appliance and dispose of.
Avoid raising dust. Dispose of absorbed material in accordance with regulations.

Measures in case of fire : Avoid inhaling too much smoke

Other Measures : Prevent leakage from slipping

6.4. Other information

Refer to other sections (8, 13)

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Operational considerations : Operating in accordance with occupational health and safety regulations, no other specific measures are required

Safe Operation Measures	:	In accordance with good industrial hygiene and safety practices, do not pour waste into sewers
Hygiene practices	:	Do not eat, drink or smoke while using the product. Clean contaminated clothes before next use.

7.2. Conditions for safe storage

Technical measures	:	Emergency Eye washers and safety showers should be provided. Ensure adequate ventilation.
Storage conditions	:	Store in a cool, ventilated place. Prevent frosting. Avoid heat and direct light. Save in the original container.
Avoid co-existing products	:	Strong alkali, strong acid.
Storage temperature	:	< 50 °C
Heat and ignition source	:	Avoid heat and direct light.
Packaging materials	:	N/A

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits	:	No occupational exposure limits known
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8.2. Exposure controls

Engineering control	:	Good ventilation. If conditions can not be met, the particle or solvent concentration should be below the relevant occupational limit, Respiratory protection is required
Personal protective equipment	:	To prevent the risk of spatter, wear goggles, gloves and protective clothing.
Respiratory protection	:	
Hand protection	:	Hand protection not required.
Eye protection	:	Safety glasses with side-shields (frame goggles) (e.g. EN 166)
Body protection	:	Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust)
General safety and hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. No eating, drinking, smoking or tobacco use at the

place of work. Handle in accordance with good industrial hygiene and safety practice.



Heat hazard protection	:	Self-contained breathing apparatus equipped with heat protection.
Environmental contact control	:	Ensure that emissions comply with all applicable air pollution control regulations.
Other information	:	N/A

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form	:	waxy lamina
Appearance	:	Pale yellow to amber wax flakes
Colour	:	Pale yellow to amber
pH (1% Water solution)	:	5-7
Concentration of active ingredient (%)		≥99.5%
Melting point range (°C)		≥45
Density (g/cm ³ , 25°C)		0.856
Moisture content (%)		<0.5
Acid value (mg/g)		≤0.5
Flash point	:	≥100 °C (DIN ISO 2592)
Decomposition temperature	:	N/A

9.2. Other information

Other performance	:	Moisture absorption.
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SECTION 10: Stability and Reactivity

10. 1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

10. 2. Chemical stability

The product is stable if stored and handled as prescribed/indicated

10. 3. Possibility of hazardous reactions

None under normal conditions

10. 4. Conditions to avoid

See MSDS section 7 - Handling and storage

10. 5. Incompatible materials

No substances known that should be avoided.

10. 6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological Information

11. 1. Information on toxicological effects

Assessment of acute toxicity	:	Virtually nontoxic after a single ingestion
Assessment of irritating effects	:	Not irritating to the skin
Severe eye damage/irritation	:	Not irritating to the eyes. Serious eye damage/irritation rabbit: Slightly irritating.
Respiratory/skin allergy	:	no evidence of a skin-sensitizing potential.
Assessment of mutagenicity:	:	The chemical structure does not suggest a specific alert for such an effect.
Assessment of carcinogenicity	:	The chemical structure does not suggest a specific alert for such an effect. Reproductive toxicity
Assessment of reproduction toxicity	:	The chemical structure does not suggest a specific alert for such an effect. Developmental toxicity
Assessment of STOT single	:	Based on available Data, the classification criteria are not met.
Assessment of repeated dose toxicity	:	The information available on the product provides no indication of toxicity on target organs after repeated exposure.
Aspiration hazard	:	No aspiration hazard expected.
Other information	:	The product has no harmful effects when used and operated in accordance with the instructions.

SECTION 12: Ecological Information

12. 1. Toxicity

Toxicity to fish : LC50 > 10 - 100 mg/l, *Leuciscus idus* (DIN EN ISO 7346-2)
 Microorganisms/Effec : EC0 > 100 mg/l, *Pseudomonas putida*
 t on activated sludge The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

12. 2. Persistence and degradability

Readily biodegradable (according to OECD criteria)

12. 3. Bioaccumulative potential

No data available

12. 4. Mobility in soil

not applicable

12. 5. Results of PBT and vPvB assessment

According to Annex XIV of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria. Self classification

12. 6. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

SECTION 13: Disposal Considerations

13. 1. Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated : Uncontaminated packaging can be re-used.
 packaging Packs that cannot be cleaned should be disposed of in the same manner as the contents.

SECTION 14: Transport Information

Land transport ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
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14. 1. UN Code

N/A

14. 2. United Nations official technical name for dangerous goods

ADR	IMDG	IATA	ADN	RID
N/A	N/A	N/A	N/A	N/A

14. 3. Level of transportation hazard

ADR	IMDG	IATA	ADN	RID
N/A	N/A	N/A	N/A	N/A

14.4. Type of packaging

ADR	IMDG	IATA	ADN	RID
N/A	N/A	N/A	N/A	N/A

14. 5. Environmental Hazards

N/A	N/A	N/A	N/A	N/A
14. 6.	Special Protection for users			
14. 6. 1.	Land Transport			
14. 6. 2.	By Sea			
14. 6. 3.	Air Transport			
14. 6. 4.	Inland waterway transportation			
	AND control	:	N/A	
14. 6. 5.	Rail transport			
	ban shipping (RID)	:	N/A	

SECTION 15: Regulatory Information

15. 1. Safety, health and environmental regulations/legislation specific for the substance or mixture

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15. 1. 1. Chinese regulations

Chemicals related regulations and chemicals Tag Information : Regulations on the safe use of chemicals in the workplace (No. 423 issued by the Ministry of Labor) GB15258-2009 regulations on the preparation of chemical safety labels.

Waste disposal regulations : Law of the People's Republic of China on the prevention and control of environmental pollution by solid waste

15. 2. Chemical Safety Assessment

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

SECTION 16: Other information

Sources of information : This product is of industrial quality and unless otherwise specified or agreed intended exclusively for industrial use. This includes the mentioned and recommended usage. Any other intended applications should be discussed with the manufacturer. In particular this concerns the application for products that are the object of special standards and regulations.

Other information : N/A

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Technical specification for chemical safety

Part I Chemicals and corporate identification

The Chinese name of the chemical is: sodium bisulfite
compound antioxidant

The English name of the chemical is: Sodium dithionite
compound antioxidant

Company name: Maoming Guangdi Chemical Industry Co., Ltd

Address: No.289, Industrial Avenue, Maoming High-tech Industrial
Development Zone

Postcode: 525000

Email address: <https://gdchemical.com>

Fax number: 0668-2637333

Enterprise emergency telephone number: 0668-2637333

The Chinese name of the
chemical is: sodium bisulfite
compound antioxidant

The English name of the chemical is: Sodium dithionite
compound antioxidant

active principle	content	CAS NO.
Hydros	> 99%	7775-1-6

Part III: An Overview of the hazards

Risk category: Category 4.2 spontaneous combustion objects.

Invasive way: inhalation, feeding, percutaneous absorption.

Health hazards: eating is harmful.

Environmental hazards: react with acid to release toxic gas.

Burst danger: spontaneous combustion.

Part IV First aid measures

Skin contact: Timely medical assistance should be received.

Wash the skin with plenty of water for at least 15 minutes to remove contaminated clothing and shoes. You should wash your clothes before you reuse them.

Eye contact: Immediately rinse the eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Medical assistance should be provided promptly.

Inhalation: Medical assistance should be provided promptly.

Remove from the exposure and move to the fresh air. If breathing is difficult, administer oxygen. Do not use mouth-to-mouth resuscitation if the victim takes or inhale substances; induce artificial respiration, use a pocket mask with a one-way valve or other appropriate respiratory medical equipment.

Eating: gargle with water, vomiting. seek medical advice.

Part five, fire protection measures

Hazardous characteristics: combustible, if the combustion can produce harmful gases and vapors.

Hazardous combustion products: sulfur oxide.

Fire extinguishing methods and fire extinguishing agent: fog water, foam, dry powder, carbon dioxide, sand

Fire fighting precautions: Fire personnel must wear gas masks and full fire suits to put out the fire in the upwind. Do not send water directly to the melt, so as not to cause serious flowing fire or violent splash.

Part VI Emergency treatment for leakage

Emergency treatment: isolate the leakage pollution area and restrict access; it is recommended for emergency handling personnel to wear dust vents

Cover, wear gas clothing; do not contact leakage directly.

Elimination method: small leakage: avoid dust, carefully sweep up, put in a bag to transfer to a safe place. Mass leakage: collection and recovery or transported to the waste disposal site for disposal

Part VII: Operation, Disposal and Storage

Operation precautions: closed operation, local air exhaust. Prevent dust release into the workshop air. Operators must be specially trained and strictly follow the operating procedures. It is recommended that operators wear self-priming filter dust masks, chemical safety protection glasses, poison-proof penetration work clothes, and rubber gloves. Stay away from fire and heat sources, and smoking is strictly prohibited in the workplace. Use an explosion-proof ventilation system and equipment. Avoid dust production. Avoid contact with oxidants and alkali. Equipped with the corresponding variety and quantity of fire-fighting equipment and leakage emergency treatment preparation. The empty container may remain harmful substances.

Storage precautions: store in cool and ventilated warehouse; keep away from fire and heat source to prevent direct sunlight; package seal. Should be stored separately with oxidants, alkali and edible chemicals, and avoid mixed

storage. Equipped with the corresponding variety and quantity of fire-fighting equipment. The storage area shall be equipped with suitable material for the leakage.

Part VIII: Contact Control / Personal Protection

Respiratory system protection: when the dust concentration in the air exceeds the standard, the self-priming filter filter must be worn

cover. Air respirator should be worn during

emergency rescue or evacuation. Eye protection:

Wear chemical safety protection glasses.

Body protection: wear antivirus penetration work clothes.

Hand protection: wear rubber, acid and alkali-resistant gloves.

Other protection: No smoking, eating and drinking in the workplace, and wash your hands before meals. Work work, shower and change clothes. Maintain good hygiene habits.

Part 9, the physicochemical properties

Appearance and properties:

White crystalline powder

melting point (°C): 100

(decomposition)

Relative density (water =1): 1.48

Relative vapor density (air =1): no data

Saturated vapor pressure

(Kpa): no data combustion

heat (kj / mol): no data

critical temperature (°C):

no data

Critical pressure (Mpa):

no data flash point

(°C): no data

Upper explosion limit

(V / V): no data lower

explosion limit (V / V):

no data

Solubility: easily soluble in water, slightly soluble in ethanol, etc.

Main uses: used for chemical raw materials, medicine, etc.

Other physical and chemical properties: no data

Part X Stability and

Reactive Stability: unstable

Forbidden compound: strong acid, oxidant, water, air

Avoid contact conditions: store in a cool, dry and well-ventilated warehouse to prevent direct sunlight; keep the container sealed; store separately from edible chemical raw materials, acid and alkali, etc.

Polymerization hazard: no polymerization

Part X, Toxicology Information

Emergency toxicity: rat oral LD50:2500mg / kg (rat oral)

Subacute and chronic toxicity: no data are available

Irritancy: no data

Mutagenicity: no data are available

Carcinogenicity: no data is available

Other: No information

Part XII, Ecological data

Ecotoxicity: it reacts with the water to form a toxic decomposition material, which is harmful to the water body.

Biodegradability: no data is available

Non-biodegradability: no data is available

Part XIII Waste disposal

Waste nature: hazardous waste industrial solid waste

Waste disposal method: it is recommended to use incineration method. Reuse the containers where available.

Waste precautions: we should refer to the relevant national and local laws before disposal.

art XIV Transportation Information

Dangerous Goods Number: 42012

Packaging mark: spontaneous combustion

UN No. : 1384

Packaging category: II

Part XV: Regulation Information

Regulations information: Regulations on the Safety Management of Hazardous Chemicals (No.344 of The State Council on January 26,2002), Implementation Rules of the Regulations on the Safety Management of Chemical Hazardous Goods (No.423 of Labor [1996]), Safety Management System of Chemical Enterprises (labor [1997] 247), Transportation Rules of Dangerous Goods (Rail [1987] No.802) and other regulations.

Part XVI Other Information

References: Preparation of Chemical Safety Technology Book (GB16483-2000)

Date of filling in the form: June 2,2015

Fill in the form department: Safety Technology Section

99% thioglycollate, cosmetic grade

Version No. 2.0 Print date: 01.04.2015

Revised date:
14.11.2012

1. Articles and manufacturer information

1.1 Product Identification

Person

The commercial name of the product register **99% thioglycollate, cosmetic grade**
mercaptoacetic acid

REACH (Mneng on chemical registration, comment 01-2119494933-24-0001

Evaluation, license and restriction) registration number

Substance name Hydrophobic group acetate
thioglycolic acid

1.2 Relevant application of identified substances or

mixture and suggested unsuitable use industrial

manufacturing (all)

For closed neat, no possibility of exposure

Due to the closed continuous neat, there is

occasional controlled exposure for closed

batch production workers (synthetic or

ingredients)

For batch and other quinoa (synthetic) where the chance of exposure increases

Transfer or mix (load / unload) the substance from / to the

substance or preparation in the container / large container

to a small container with a specific dedicated facility

(several cans, including weighing)

Reagent was used in the solid uterine cavity

Recommended restricted use places for transporting separate intermediate products that do not conform to the strictly controlled conditions specified under REACH Article 18 (4 a-f)

There are applications

1.3 Details of the safety technical specification provider

Producer / manufacturer or supplier name	Bruno Bock Chemische Fabrik GmbH&Co Kommanditgesellschaft Eichholzer Straße 23, D-21436 Marschacht, Germ any phone ++ 49 (0) 4176-9098-0, fax phone ++ 49 (0) 4176-1396
Tabulation Unit (name / address / telephone number)	Norbert Haussler Telephone + 49 (0) 4176-909844, fax telephone + 49 (0) 4176-9098844 Electronic parts (Email) Address: n.haeussler@brunobock.de
1.4 Emergency contact telephone number	
Emergency contact phone number	Emergency contact number Emercency Phonenumber: 053283889090 Chemical Registration Center of state Administration of Work Safety Administration

Material safety data sheet is regulated by the European Union (EU) No. 1907/2006

99% hydrophobic acetic acid, cosmetic grade

Version number: 2.0

Date of printing:
01.04.2015
Revised date:
14.11.2012

2. Hazard identification data

2.1 Classification of substances or mixtures

2.1.1 Article Hazard Classification No. 1272 / 2008 European Community (EC) Regulation

Acute toxicity, level 3	H301: swallowing toxic Toxic if swallowed. H311: Skin contact with toxic Toxic in contact with skin, H331: inhalation of toxic Toxic if inhaled.
Touch skin material, grade 1B	H314: causing serious skin burns and eye damage Causes severe skinburns and eye damage

2.1.2 Classification (EEC directive clause 67 / 548 / EEC, EU clause 1999 / 45 / EC)

Richtlinie Revised in accordance with Appendix 1 of the
67/548/E Guide 67 / 548 / EEC.

WG

T	deleterious
R23/24/25	Inhalation, and skin contact and take in toxic.
C	The rot touch
R34	Lead to burns.

advice	Additional suggestions
R35	Caused in severe burns.
R52	Harmful to the aquatic life.

2.2 Marking elements

GHS-EC (EC) Regulation # 1272/2008

symbol



warning : Hazard Danger

Hazard warning message	H301	Swallowing toxic Toxic if swallowed.
	H311	Toxic skin contact Toxic in contact
	H314	with skin. causing serious skin
	H33	burns and eye damage Causes severe
		skin burns and eye damage.

Hazard prevention measures	P260	Do not inhale dust / smoke / gas / fog drops / vapor / spray Do not breathe dust /
----------------------------	------	--

f
a
k
e

P270

/ gas / miss / vapours / spray.

When using this product, do not eat, drink water,
or smoke to Do
not eat,drink or smoke when using t his
product.

Material Safety Data Sheet according to Regulation (EC) No. 1907/2006

99% thioglycollate, cosmetic grade

Version number 2.0

Date of printing:

01.04.2015

Revised date:

14.11.2012

P271	Only in the outdoor or well-ventilated areas of Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves / protective clothing / eye protection equipment / face protection equipment Wear protective gloves / protective clothing / eye protection / face protection.
prevent:	
Prevention	Prevention Instructions-Prevention
P260	Do not inhale dust / rotten smoke / gas / fog drops / steam / spray Do not breathe dust / fumes / gas / mists / vapours / spray.
P271	Only in the outdoor or well-ventilated areas of Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves / protective clothing / eye guard / face protection equipment Wear protective gloves / protective clothing / eye protection / face protection.
measure:	
Response	Prevention instructions-reaction
P301+P310	If swallowed, immediately call for the center or seek medical treatment.
P330	Gargling mouth Rinse mouth.
lay in	
Storage	Prevention Instructions-Storage
P405	Locked for storage Store locked up.
handle:	
Disposal	Statement of preventive matters-handling
P501	Treat the contents / containers to the approved waste treatment plant Dispose of contents / container to an approved waste disposal plant.

Chemical safety review

This substance has been evaluated
for its chemical safety.2.3 Other
hazards

3. Composition identification data

3.1 Pure substances

3.1.1 Composition of the European
Community (EC) Regulation No. 1272 /
2008

99% thioglycollate acid, cosmetic grade

Version No. 2.0 Print date: 01.04.2015

Revised date:
14.11.2012

chemical name	Chemical Digest Note the number of the (CAS No.)	See Chapter 16 for article hazard classification	potency [%]
	EC-number		
	registration mark		
mercaptoacetic acid thioglycolic acid	68-11-1	AcuteTox. 3;H301, H311, H331 Skin Corr. 1B;H314	>=99
	200-677-4		
	01-2119494933-24-0001		

The H-statement mentioned in this part is provided in Part 16 (section16)

3.1.2 Classification of European economic directive 67 / 548 / EEC

Hazard material composition

chemical name	Chemical Digest Note the number of the (CAS No.)	classify Please see chapter 16	potency [%]
	EC-number		
	registration mark		
mercaptoacetic acid thioglycolic acid	68-11-1	T-C;R23/24/25-R34	>=99
	200-677-4		
	01-2119494933-24-0001		

See section 16 for the full text of the R sentence mentioned in this section.

4. emergency treatment**4.1 Description of the necessary first-aid measures****General advice**

Remove the contaminated clothes and shoes immediately.

inhalation

oxygen supply. Move the patient to fresh air. If the symptoms persist, seek medical attention.

If the vapor / aerosols are inhaled, there is a risk of being absorbed by the human body, so there is a risk of poisoning

skin exposure

Immediately rinse with large amounts of water for at least 15 minutes. Call the doctor immediately.

eye contact

Immediately rinse with plenty of water for at least 15 minutes. Call the doctor immediately.

ingestion

99% thioglycollate, cosmetic grade

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14.11.2012

If spontaneous vomiting is found, the head of the injured should be held low to prevent the vomit from sucking into the trachea, to avoid skin contact with the patients vomit (toxic!). Rinse the mouth again. rinse. If you feel it, drink a lot of water. Call the doctor immediately.

4.2 The most important symptoms and harmful effects

If this acid causes an accident, not only local tissue damage but also systemic toxicity (even if the acid is only in contact with the skin)

Impact on the lungs: depending on the concentration: cough, asthma reaction, glottic edema, pulmonary edema, under the toxic dose, the human body may absorb the toxicity of acid.

The effect on the eye: depending on the concentration: from conjunctivitis to severe corneal touch / corneal soil death, iritis are possible, the effect on the skin: depending on the concentration: from skin stimulation to severe touch is possible.

After feeding: depending on the concentration? • From stimulation to the esophageal mucosa, stomach, intestinal severe rotten touch (perforation), heart-metabolic reaction, respiratory disorders, acid balance imbalance, convulsions are possible

1 Hazard identification data

Deep skin and corneal soil, pneumonia, esophageal perforation, gastric perforation, pulmonary edema (incubation period to 2 days)

4.3 Instructions and instructions for timely medical treatment and special treatment required

Corticosteroids can be used to treat the affected area of skin irritation.

After inhalation of this harmful substance, the patient should be given inhaled glucocorticoid, and bronchodilator should be used when bronchial spasmodic climbing appears. In severe touch, burns must be treated.

As long as there is no esophageal and gastric perforation, it is advisable to wash the stomach with a large nasogastric tube (left until the patient is sent to the hospital). The inhalation of foreign bodies in the lungs can be prevented by timely intubation

Antibiotics should be used to prevent tracheal and lung damage and large skin touch, targeted treatment.

5. Fire fighting measures**5.1 Fire-extinguishing medium**

foam

Carbon

dioxide (002)

water spray

Chemical qian powder

5.2 Special hazards arising from this substance or mixture

Under fire, harmful decomposition
products are generated. carbon
monoxide
oxysulfide sulfoxide
Carbon dioxide (CO₂)

5.3 Advice to firefighters

Special protective equipment for fire fighters

Under fire, put on your own
respirator. Use of personal
protective equipment.
Exposure to decomposition products and may be dangerous to health.

Additional suggestions

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Water spray can be used to cool unopened containers.
Collect contaminated fire water separately, which cannot be discharged into the sewer. Treat the fire residues and contaminated fire water in accordance with local regulations.

Six, shallow leakage treatment method**6.1 Individuals should be noted**

Do not breathe the vapor or spray.
Filter type A is suitable for the escape mask. Avoid contact with the skin and the eyes.
See part 8 for personal protection.
Make sure that the ventilation is adequate.
Remove personnel to safe areas.
Keep personnel away from and headwind in overflow / exposed areas. Exposure control

6.2 Environmental considerations

Contact with the soil, surface water, and groundwater is not allowed.
If the product pollutes a river, lake or gutter, please inform the relevant authorities.

6.3 Cleaning method

Absorbed with inert adsorption substances (such as sand, silicone, acid adhesive, universal binder, saw wood powder) as described in the "treatment methods" section.

7. Safe disposal and storage methods**7.1 Notes for safe operation**

Notes for safe operation

: Ventilate the area.
Can only be used in closed systems.
Carefully move and open the container.
Can only be used under sufficient exhaust conditions.
Exposure control
Ensure that the eye shower system and safe shower room are close to the workplace.
When using this product, do not eat, drink or smoke
Do not eat, drink or smoke when using this product.
: Do not be close to the heat and fire sources.
How to prevent thermal decomposition, do not make it overheat.

Suggestions for fire prevention and explosion prevention

7.2 Conditions for safe storage, including any incompatibility

Requirements for storage areas and storage containers: stored in the original container.

Keep in the dry, shade and good ventilation.

The container must be sealed out of
polyethylene, polypropylene, enamel steel or
glass.

Use PTFE manufactured seals

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Suggestion: Do not approach food, drinks and animal feed

Not coexist with strong and oxidants.

Other data: It is stable under the recommended storage conditions

VIII. Exposure precautions

8.1 Control parameters

chemical abstracts Social registrat ion number a sign or object indicat ing number (CAS No.)	distinguish	price	benchmar k	explanatory note
68-11-1	Thioglycollate, thioglycoli acid		TRGS 900	Not included in the table

DNEL: End User: Operator

Exposure route: inhalation exposure, acute effects

Potential health effects: local

effect, systemic poisoning

exposure time: 0,25 h

Value: 4,5 mg/m³

The DNEL end-user: an operator

Access route: skin

exposure, potential long-

term health effects:

systemic poisoning value:

1,6 mg / kg / d

The DNEL end-user: an operator

Exposure route: inhalation

exposure, long-term

potential health effects:

systemic poisoning

Exposure
time: > 4 h
value:
1,13mg / m³

PNEC: Hydrozone (including sediment)

Value: 0,0009mg / kg

PNEC: and the terrestrial biota

Value: 0,0053mg / kg

**8.2 Exposure
control and
engineering
control**

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Can only be used in closed systems

8.2.1 Personal

protective

equipment for

occupational

exposure control

A) Respiratory protection: When the vapor / aerosols of harmful substances appear, wear it without ventilation

The appliance.

Filter type A is suitable for the escape mask.

Please follow the use instructions provided by the manufacturer

B) Hand protection: protective gloves

Gloves: butyl rubber (e. g. Butoject 898) / layer thickness 0.6–0.8 mm / penetration time greater than 480 minutes (grade 6) / DIN EN374–3

Suggestion: The service life of gloves is about 50% of the penetration time measured in the laboratory!

C) Eye protection: a face mask

Wear protective glasses / protective mask.

D) Skin and body protection: closed work clothes / protective clothing must be worn. If filled and packed outside the closed system, an additional polyethylene (PE) apron must be worn.

E) Sanitary measures: ensure adequate ventilation, especially in confined areas.

Wash your hands before rest and at the end of work.

Clean the equipment, work area and clothes at the specified time.

Prophylactic skin protection

Routine industrial hygiene operations.

When using this product, do not eat, drink water or smoke Do not eat or drink or

smoke when using this product.

Exposure control

Remove the contaminated clothes and shoes immediately.

Separate them to keep the overalls.

8.2.2 Control of environmental exposure

General advice: No contact with soil, surface water and groundwater.

If the product pollutes a river, lake or gutter, please inform the relevant authorities.

9. Physical and chemical properties

9.1 Information on the basic physicochemical properties

Shape: a liquid

Color: colorless

BRUNO BOCK THIOCHEMICALS

Material safety data list root yu European Union (EU)No.1907/2006 regulations

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smell :
Charac
terist
ic
tingli
ng of
the
pain

Flashpoint " Test 131,5°C
method.) Method: DIN EN ISO2719

Lower : Note: Data
limit of measured data
explosio Note: No
n and determined
upper
limit of
explosio
n

Spontaneous combustion temperature: 315°C
Method: ASTM E
659 Note:
decomposition
temperature

PH Value: about 1,5
At 10,00g / 1
20 C
Methods: German industrial
standard DIN 19268 Note:
99% mercaptoacetic acid

Melting point / melting point range of-16°C
Methods: Organization for Economic
Cooperation and Development 102 Note:
99% mercaptoacetic acid

Boiling point / boiling point range: 208-210°C
At 1.024 hPa
Methods: Experimental instructions of the Organization for
Economic Cooperation and Development 103

Steam pressure: 0.16 hPa
At 2 5°C
Methods: OECD Test Guide 104 Note: 99%
mercaptoacetic acid

Density: 1,3,265 g/cm3
At 2 0°C

Method: As tested as per 92 / 69 / EEC.

Water solubility:> 1.000mg / l

In 20C

Methods: The Organization for Economic
Cooperation and Development test Guide

105 Note: Fully dissolved

Octanol / water distribution coefficient: the logarithm value of octanol-water
distribution coefficient: -2,99

In 22 ° °C Methods: The Organization for

Economic Cooperation and Development Test Guide

107 Note: 99% mercaptoacetic acid

Motor viscosity: 4,69mm² / s

Method: The German industrial standard is DIN 51562

Material safety data sheet according to the European Union (EU) No. 1907/2006 regulations

99% thioglycollate acid, cosmetic grade

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Note: 99% mercaptoacetate

9.2 Other data

X. Stability and reactivity

10.1 Reactivity

10.2 Stability

10.3 Potential hazard reactions under special circumstances

10.4 Conditions that should be avoided

Note stored in the dry, 5-25 degrees Celsius well ventilated, and far away from the heat source and fire source, not straight to sunlight shoot.

10.5 Incompatible substance to guard against

Not coexist with strong acids and oxidants.

10.6 Hazardous decomposition material

Under fire, harmful decomposition products are generated.

Xi. Toxicity data

Information on the toxicological impact

11.1 Dynamic metabolism and distribution of poisons

Toxicological dynamics, metabolism and distribution information: at toxic doses, the body absorbs acid toxicity.

Acute effects: If the vapor / aerosol is inhaled, there is a risk of being absorbed by the human body, so there is poisoning

Hazard, effects on the skin: depending on the concentration: from skin irritation to severe touch is possible. , Effect on the lungs: depending on the concentration: cough, asthma response, glottic edema, pulmonary edema. At toxic doses, the body may absorb acid toxicity.

11.2 Acute effects

11.2.1 Acute toxicity

Acute toxicity: semi-lethal dose (LD50): 73mg / kg

Species: rats

10116

The Material Safety Data sheet according to the EU (EU) No,1907 / 2006

99% thioglycollate, cosmetic grade

Version No.2.0 Print date: 01.04.2015

Date: 14.11.201 2

Acute inhalation toxicity	Methods: Test instructions of the Organization for Economic Cooperation and Development 401 Test substance: 99% mercaptoacetic acid : Bow lethal concentration (LC50): 1,098 mg / l exposure time: 4 h Species: rats
Acute skin toxicity	Methods: Test instructions of the Organization for Economic Cooperation and Development 403 Test substance: 99% mercaptoacetic acid
11.2.3 Stimulation and rot touch skin irritatin	: Semi-lethal dose (LD50): 848 mg / kg species: rabbit Test material: thioglycollate acid
11.6.3 Reproductive toxicity	Results: Severe rot touch and broken soil tissue Method: 2000 / 33 / EG, B40 test substance: 99% mercaptoacetic acid
Tteratogenicity	Species: rats Methods: Trial Guide 421 Test material: 98% sodium mercaptoacetate NOTE: NOAEL = 20 mg/kg/day : Seed: rat Methods: Trial Guide 416 Test material: 98% thioglycollate acid Note: NOAEL = 20 mg/kg/day : No detectable harmful effects: 75 mg / kg Application: Nasal feeding tube type: rats Methods: Organization for Economic Cooperation and Development 414 Test substance: 71% thioglycollate : No detectable harmful effects: 100 mg / kg Applicati on: Skin species: the rat Test material: mercaptoacetic acid steel

: No detectable harmful effects: > =65 mg / kg

Applicati

on: Skin

species:

a rabbit

Test material: mercaptoacetic acid steel

Results: does not

cause gene mutation

annotation:

mercaptoacetate

11/16

Material safety data sheet according to the European Union (EU) No. 1907/2006 regulations

99% thioglycollate, cosmetic grade

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The Experimental Instructions of the Organization for Economic
Cooperation and Development 471

In vitro chromosome aberration experiment: Results: does not cause chromosome breakage

Note: The test is the Test Guide for
Economic Cooperation and Development
using CAS number 68-11-1

The Organization for
Economic Cooperation and
Development (OECD) Chemical
Testing Guide No. 474
examine

Results: It does not result in a genetic mutation
Note: The OECD 474 test was conducted
with CAS number 68-11-1

Xii. Ecological data

evaluation of persistence and degradability

12.1 Toxicity

An information about ecology

Toxicity to fish

biodegradability

Toxicity to red worms

Toxicity to algae

Toxicity to bacteria

12.2

Ecotoxicological

	attle lethal concentration
	(LC50) (96h):> 100mg / 1 type:
	Oncorhynchus mykiss
: Semi-lethal	Methods: Experimental Guidance Book 203 of the Economic Cooperation
concentration (LC50) (48	and Development Group
h): 880 mg / 1	
T	
y	
p	: Semi-lethal effective
e	concentration (EC50) (48 h):
:	38 mg / 1: Daphnia magna (flea)
	Methods: 92 / 69 /
L	EWGC. 2 Test
e	substance: 99%
u	thioglycollate acid
c	
i	: Semi-lethal effective concentration (EC50) (72 h): 13
s	mg / 1
c	Species: Pseudokirchneriella
u	subcapitata (green algae)
s	method: the Organization for
	Economic Cooperation and
	Development
i	Test material: 99% thioglycollate acid
d	
u	: Species: Photobacterium
s	phosphoreum Method: DIN
	EN ISO11348-2
	Test material: 99% thioglycollate acid
M	NOTE: EC50=0,01 ml / 1
e	
t	
h	
o	
d	
:	
	; Results: Biodegradation (100% / 28d)
D	Methods: Experimental Guidance document 301C of the Organization for
I	Economic Cooperation and Development
N	
3	
8	
4	
1	
2	
/	
1	
5	
:	
C	

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Results: not easy to biodegradation. (21%/28 d)

Methods: Organization for Economic
Cooperation and Development 301 A: 99%
hydrophobic acetic acid

: Results: Easy to biodegradation. (67 %/28 d)

Methods: Test Instructions of the
Organization for Economic Cooperation and
Development 301D Test substance:
Mercaptoacetic acid

12.3 Bioaccumulation

Octanol / water distribution coefficient: the logarithm value of octanol-water
distribution coefficient: -2,99

At 22 °C

Methods: Test Guide of the Organization for
Economic Cooperation and Development 107
Note: 99% hydrophobic acetic acid

Bioaccumulation: Bioconcentration factor (BCF): 1

Method: Values have been calculated

■ Note: There is no evidence of bioaccumulation (oil-water
distribution coefficient).

12.5 Results of the evaluation of the PBT and vPvB

This substance is neither persistent, biocumulative, nor toxic (PBT)

Xiii. Waste disposal methods

13.1 Waste treatment method

Residual scrap material / unused products

It can be burned when meeting the local regulations.
Avoid discharge into the environment Avoid
release to the environment. This substance and
its container must be treated as hazardous
waste.

Treatment of the contaminated packaging material

This substance and its container must be treated as hazardous waste.

Suitable cleaning agent

water

Classification number for waste discharge disposal in Europe

AVV 160508: Waste organic chemicals composed of hazardous substances, or containing hazardous substances

Additional suggestions

Hazardous waste key numbers are classified by Waste Catalogue

Regulations (AVV) for industry and processing procedure characteristics.

The above-mentioned hazardous waste key numbers refer to unused products

Permission from the competent authority must be obtained before discharge into the sewage treatment plant

Material safety data sheet according to the European Union (EU) No. 1907/2006 regulations

99% thioglycollate, cosmetic grade

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Revised date:
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14. Delivery data**ADR**

United Nations	:1940
Classification of	⁸ :II
Packaging	:8
Packaging	0
Dangerous goods	⁸ : deny
number mark	
Hazardous to the environment	:1940 : Thioglycollate acid, Thioglycolic acid

IATA

UN number	⁸ :II
Description of items	⁸
Transportation Hazards	: 855: No:8 51
Classification	
Category	:1940
tab	: Thioglycollate acid, THIOGLYCOLIC ACID
Packaging instructions (cargo aircraft) are harmful to the environment	⁸ II
Packaging instructions (passenger aircraft)	:8

IMDG

UN number	
Description of items	
Transportation Hazards	
Classification	
Category	
tab	

Emergency for the EMS transport
accident: F-A protocol number 1
EmS transport accident emergency: S-
B protocol number 2

Marine Pollutants (Yes / No): No

Fifteen, legal data

European economic directive 67 / 548 / EEC and EU 1999 / 45 / EC

symbol	T	deleterious
R-class	R23/24/25	Inhalation, contact with the
scaling	R34	skin and take in toxic. Lead
method		to burns
	S25	
	S27	Avoid eye contact.
S-class	S28	Remove all the contaminated clothing immediately.
rhetoric	S45	After contact with Peang, they were immediately washed
		with large amounts of water.
		Seek medical treatment immediately in an accident or feeling
		unwell (if possible).

99% thioglycollate, cosmetic grade

Version No. 2.0 Print date: 01.04.2015

Revised date:
14.11.2012**Hazardous ingredients that must be listed on the label:**

Mercaptogroup acetic acid thioglycolic acid

Supplementary Information for European Union markers

Further information; as per (EC)No. 1272/2008 regulations. , This product is classified as a hazard.

15.1 Rules / regulations specifically for the safety, health and environment of this substance or mixture

Record to 98 / 24 / EC. Establish a table indicating occupational exposure limits, per 2000 / 39 / EC.

Record according to 96 / 82 / EC.

Please abide by the 2003 / 105 / EG published by the Parliament and Executive Committee of 16 December 2003, which is used to revise the Commission's old directive 96 / 82 / EC, which is intended to control the hazards of serious accidents involving dangerous substances

15.2 Chemical safety review

The substance has been evaluated for its chemical safety.

16. Other information**The content of the R-sentence is that in the heading of reference 2,3**

R23/24/25 Inhalation, and skin contact and take in toxic.

R34 Lead to burns.

advice Additional suggestions

C The rot touch

R23/24/25 Inhalation, and skin contact and take in toxic.

R34 Lead to burns

R35 Caused in severe burns.

R52 Harmful to the aquatic life.

Richtlijn Revised in accordance with Appendix 1 of the
671548/E Guide 67 / 548 / EEC.

WG

T deleterious

Part H-refer to Part 2 and 3 (section 2 and 3).

H301	Swalouring toxic Toxic if swallowed.
H311	Skin contact is toxic Toxic incontact with skin.
H314	Cause serious skin burns and eye damage Causes seve
	reskin burns and eye damage.
H331	Inhaled and toxic Toxic if inhaled.

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Training advice

Workers must be trained on safety guidance before using this product

Further information

Unless otherwise stated, the statement here refers only to the specified product. These statements are consistent with our current knowledge and experience. We cannot guarantee, however, that these statements are without error and absolutely complete. This information does not represent a guarantee of product performance, nor is it the basis of the legal relationship of any contract.

The safety data sheet contains only safety-related information: it does not replace the technical data sheet and / or product specifications this technical sheet is changed to the previous version, changed bird:

1. Articles and manufacturer information

reference documentation

Kolstean: The worlds largest database of organic
chemical values and facts RTECS: Chemical toxicity
registry

IUCLID: International Unified Chemical Data

Database/USA

Birth Defect Research(Part B)68,144-161(2003)

Product name: TY2002 1-Hydroxyethylidene-1,1-Diphosphonic Acid
Tongde chemical Co.,Ltd

CHANGZHOU YAO'S TONGDE CHEMICAL CO.,LTD

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: TY2002 1-Hydroxyethylidene-1,1-Diphosphonic Acid
Company Information:

China:

Company: CHANGZHOU YAO'S TONGDE CHEMICAL CO.,LTD

Add:changzhou city jiangsu 213111 P.R. CHINA.

TEL: +86-519-88733208 88732401

FAX: +86-519-88732040

<http://www.chinatongde.com>

E-mail:webmaster@chinatongde.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS NO.</u>	<u>Average Concentration</u> <u>Concentration</u>	<u>concentration</u> <u>range</u>	<u>Units</u>
etidronic acid	2809-21-4		58.0-62.0	%
phosphonic acid	13598-36-2		≤ 4.0	%
water	7732-18-5			%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Form: liquid
Colour: clear to yellow
Odour: characteristic

WARNING STATEMENTS

DANGER!

Causes eye burns

Corrosive to mild steel

POTENTIAL HEALTH EFFECTS

Likely routes of exposure: eye and skin contact

Eye contact: Causes eye burns . Injury may be permanent.
Skin contact : No more than slighty irritating to skin.
No more than slightly toxic if absorbed.
Inhalation: No information available.
Ingestion: No more than slightly toxic if swallowed.
Significant adverse health effects are not expected to develop if only small amounts(less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

If in eyes: Immediately flush with plenty of water for at least 15 minutes.
If easy to do, remove any contact lenses.
Get medical attention.
Remove material from skin and clothing.
If on skin: Immediate first aid is not likely to be required .
This material can be removed with water.
Wash heavily contaminated clothing before reuse.
If inhaled: Immediate first aid is not likely to be required.
If symptoms occur, remove to fresh air.
Remove material from eyes, skin and clothing.
If swallowed: Immediate first aid is not likely to be required.
A physician or poison Control Center can be contacted for advice.
Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Flash point: Non flammable aqueous solution
Hazardous products of combustion : carbon monoxide (CO); carbon dioxide; phosphines
Extinguishing media : Water spray, foam, dry chemical, or carbon dioxide
Unusual fire and explosion hazards: Decomposes in a fire giving off irritant fumes.
Fire fighting equipment: Fire fighters , and others exposed, wear self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protection recommended in section 8.
Environmental Keep out of drains and water courses.
Precautions:
Methods for cleaning up: Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste Container. Neutralize washings with soda ash or lime. Flush spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling

Do not get in eyes , on skin ,or on clothing.
Avoid breathing vapour or mist.

Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned , reconditioned or destroyed. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Storage

Temperature: >-10 C

Suitable materials of glass lining; PVC; polypropylene; glass reinforced plastic; polyethylene construction: mild steel ; carbon steel ; aluminium ; other metals.

Unsuitable materials of mild steel; carbon steel; aluminium; other metals

Construction:

General: Freeze sensitive.

Keep in a cool, dry, well ventilated place.

Stable under normal conditions of handling and storage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection: Wear chemical goggles.

Have eye wash facilities immediately available at any location where eye contact can occur.

Hand protection: Although this product does not present a significant skin concern , minimize skin contamination by following good industrial practice.

Wearing protective gloves is recommended.

Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application.

Body protection: Although this product does not present a significant skin concern , minimize skin contamination by following good industrial practice.

Wash thoroughly after handling..

Respiratory protection: Avoid breathing vapour or mist.

Use approved respiratory protection equipment when airborne exposure is excessive.

If used,full facepiece replaces the need for face shield and/or chemical goggles.

Consult the respirator manufacturer to determine the appropriate type of equipment for a given application.

Observed respirator use limitations specified by the manufacturer.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical , use local mechanical exhaust ventilation at sources of air contamination such as processing equipment.

Airborne exposure limits: (m1/m3=ppm)

TY2002G HEDP No specific occupational exposure limit has been established.

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure limits legislated for the province in which the substance will be used.

9.PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity: 1.45@20°C
PH: <2.0 Conditions 10g/l @25 °C
Freezing point: -25°C
Water solubility: completely miscible

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Conditions to avoid: Do not expose to extreme temperatures.

Materials to avoid- Attacks many metals.

Hazardous reactions: Corrosive to aluminum and mild steel.

Contact with strong oxidizing agents

Contact with strong bases.

Hazardous polymerization does not occur

Hazardous decomposition carbon monoxide(CO); carbon dioxide; Phosphorus oxides(PxOy); phosphines.

Products:

11. TOXICOLOGICAL INFORMATION

This product has been tested for toxicity

Acute animal toxicity data

Oral: LD50, rat, 2,400 mg/kg, Slightly toxic following oral administration.

Dermal: LD50, rabbit, 7,940 mg/kg, Practically nontoxic after skin application in animal studies.

Eye irritation: rabbit, Corrosive

Skin irritation: rabbit, Practically non irritating to skin(rabbit), 24h

Repeat dose toxicity : rat & dog, diet, subchronic

Minor effects(less than lesions) were present in some animals at the end of the observation period.

Repeat dose toxicity: rat & dog, diet, chronic,

Minor effects(less than lesions) were present in some animals at the end of the observation period.

Repeat dose toxicity: dog, subcutaneous, chronic,

Adverse effects observed in repeat dose studies.

Target effects observed in repeat dose studies.

Developmental toxicity: rat & rabbit, gavage, , No birth defects were noted in rats given the active ingredient orally during pregnancy.

Reproductive toxicity: rat, diet, 2 generation, This material had no effect on reproduction or fertility.

Mutagenicity: No genetic effects were observed in standard tests using bacterial and animal cells.

Components

Date from Solutia studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard(29 CFR 1910.1200) or the Canadian Hazardous Products Act are discussed below.

Phosphonic acid Slightly toxic following oral administration.

Slightly toxic after skin application in animal studies
Corrosive to eyes(rabbit)
Corrosive to skin(rabbit)
The weight of the evidence indicates that this material is not mutagenic
In in-vitro assays.

12.ECOLOGICAL INFORMATION

Environmental Toxicity:

Invertebrates 48h,EC50 Water flea(Daphnia magna) 527mg/L
Fish: 96 h, LC50 Rainbow trout(Oncorhynchus mykiss) 368 mg/L
96 h, LC50 Bluegill sunfish (Lepomis macrochirus) 868 mg/L
Algae: 96h ,EC50 Algae (Selenastrum capricornutum) 3mg/L
Algal growth inhibition is due to ability of this product to complex materials not to toxicity per se.

Environmental fate

Biodegradation Zahn-Wellens Dissolved Organic Carbon removed 33% 28d
Modified OECD Screening theoretical CO2 evolution 2% 70 d
Modified SCAS Dissolved Organic Carbon removed 90% Closed Bottle BOD 30/COD
5%
Degrades after acclimatization
Bioconcentration factor not expected to bioaccumulate.
(BCF):

13.DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This material when discarded is a hazardous waste as that term is defined by the Resource,Conservation and Recovery Act (RCRA), 40 CFR 261. See disposal considerations below for U.S. EPA disposal requirements.Consult regulatory officials for performance standards.

US EPA RCRA D002 Compound/Characteristic: Corrosivity

Hazardous waste number:

Disposal considerations: Incineration

Miscellaneous advice: Local, state,provincial, and national disposal regulations may be more or less stringent.

Consult your attorney or appropriate regulatory officials for information on such disposal.

This product should not be dumped , spilled, rinsed or washed into sewers or public waterways.

14.TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT

Proper shipping name: CORROSIVE LIQUID , ACIDIC, ORGANIC, N.O.S.

Phosphonic acid

Hazard Class: 8
Hazard Identification number: UN3265
Packing Group: Packing Group III
Transport label: Corrosive

Canadian TDG

Proper shipping name: CORROSIVE LIQUID ,ACIDIC, ORGANIC, N.O.S.
Phosphonic acid

Hazard Class: 8
Hazard Identification number: UN3265
Packing Group: Packing Group III
Transport label : Corrosive

15.REGULATORY INFORMATION

All components are on the following U.S. TSCA, Canadian DSL, EU EINECS, Japanese Inventories : ENCS, Australian AICS,Korean ,Phillipine PICCS,Chinese(Draft)

Canadian WHMIS classification: D2(B) – Materials Causing Other Toxic Effects
E – Corrosive Material

SARA Hazard Notification:
Hazard Categories Under Title III Immediate
Rules (40 CFR 370):

Section 302 Extremely Hazardous

Substances:

Section 313 Toxic Chemical(s):

CERCLA Reportable Quantity:

Not applicable

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section II for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

16.OTHER INFORMATION

Product use: Cleaning/washing agents and disinfectants, Complexing agents,other

Reason for revision: New software implementation.

	Health	Fire	Reactivity	Additional	Information
Suggested NFPA Rating	1	0	1		
Suggested HMIS Rating:	1	0	1	H	

Prepared by the Solutia Hazard Communication Group. Please consult Solutia if further information needed.

河北兰炼飞天石化科技有限公司
Hebei Lanlian Feitian Petrochemical Technology Co., Ltd

Material Safety Data Sheet
White Vaseline

1. Product Identification

Product name: White Vaseline
Chemical English name: Petrolatum
Molecular formula: C16H34-C32H66
CAS No.: 8009-03-8
Name of manufacturer: Hebei Lanlian Feitian Petrochemical Technology Co., Ltd
Address: No. 99, North Education Road, Xinji, Hebei Province, China.
Post code: 052360
Enterprise emergency tel: 0311-83309697
Enterprise contact tel: 0311-83323666

2. Composition/Information on Ingredients

Ingredient	CAS No.	Percent	Hazardous
White Vaseline	8009-03-8	99 - 100%	No

3. Hazards Identification

Emergency Overview

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Ratings (Provided here for your reference)

Health Rating: 0 - None

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:

High concentrations of dust may cause coughing and sneezing.

Ingestion:

Extremely large oral doses may cause gastrointestinal disturbances.

Skin Contact:

No adverse effects expected.

Eye Contact:

Contact may cause mild irritation, redness, and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Contact:

Not expected to require first aid measures.

Eye Contact:

Wash thoroughly with running water. Get medical advice if irritation develops.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

Use protective clothing and breathing equipment appropriate for the surrounding fire.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Small amounts of residue may be flushed to sewer with plenty of water.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White even ointment.

Odor:

Odorless.

Solubility:

7.8g/100g water @ 18°C ((64F).

Density:

0.81-0.88

pH:

8.3 (0.1 molar @ 25°C (77F))

% Volatiles by volume @ 21°C ((70F):

0

Boiling Point:

Not applicable.

Melting Point:

60°C (140F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Gaseous carbon dioxide.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Reacts with acids to form carbon dioxide. Dangerous reaction with monoammonium phosphate or a sodium-potassium alloy.

Conditions to Avoid:

Heat, moisture, incompatibles.

11. Toxicological Information

Investigated as a mutagen, reproductive effector. Oral rat LD50: 4220 mg/kg. Irritation data: human, skin, 30mg/3D-I mild, rabbit, eye, 100 mg/30 S, mild.

-----\Cancer Lists\-----

Ingredient	Known	---NTP Carcinogen---		IARC Category
		Anticipated		
White Vaseline (8009-03-8)	No	No		None

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
White Vaseline (8009-03-8)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

--Canada--

Ingredient	Korea	DSL	NDSL	Phil.
White Vaseline (8009-03-8)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

-SARA 302- -SARA 313-----

Ingredient	RQ	TPQ	List	Chemical Catg.
White Vaseline (8009-03-8)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----

-RCRA- -TSCA-

Ingredient	CERCLA	261.33	8(d)
White Vaseline (8009-03-8)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: any SARA 311/312:
Acute: No Chronic: No Fire: No Pressure: No Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 1 Flammability: 0 Reactivity: 0

Label Hazard Warning:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions:

None.

Label First Aid:

Not applicable.

Product Use:

Medicinal excipients, ointment matrix, lubricants, etc

Revision Information:

New 16 section MSDS format, all sections have been revised.

Disclaimer:

We provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate

precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

WE MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, WE WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Safety Data Sheet

according to Regulation(EC) no.1907/2006

Revision date:08/2022

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier:

Identification on the label/Trade name: 5-AMINO-2-METHYLPHENOL ; P-AMINO-O-CRESOL;
5-AMINO-O-CRESOL
Identification of the product: CAS No:2835-95-2
EINECS No:220-618-6

1.2 Relevant identified uses of the substance and uses advised against:

1.2.1 Identified uses: Hair dye intermediates
1.2.2 Uses advised against: Not available.

1.3 Details of the supplier of the safety data sheet:

Company:

Address:

Contact person(E-mail): _____

Telephone:

Fax:

1.4 Emergency telephone Number:

2. Hazard Identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC)No 1272/2008:

Regulation (EC) No 1272/2008

Hazard classes/Hazard categories	Hazard statement
Acute toxicity,oral.(Category 5)	H303
Skin corrosion/irritation.(Category 2)	H315
Sensitisation, Skin.(Category 1)	H317
Serious eye damage/eye irritation.(Category 2A)	H319
Specific target organ toxicity, single exposure;Respiratory tract irritation.(Category 3)	H335
Hazardous to the aquatic environment, long-term hazard.(Category 2)	H411

2.1.2 The most important adverse effects

2.1.2.1 The most important adverse physicochemical effects:

No data available

2.1.2.2The most important adverse human health effects:

Irritating to eyes,respiratory system and skin.

2.1.2.3 The most important adverse enviromental effects:

No data available

2.2 Label elements

Labelling according Regulation(EC) No 1272/2008[CLP]

Hazard pictograms:



GHS09



GHS07

Signal Word(s)

warning warning

Hazard Statement:

H303	May be harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statement Prevention:

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement Response:

P301+P312:	IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.
P302+P352:	IF ON SKIN: wash with plenty of soap and water.
P304+P340:	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P305+P351+P338:	if present and easy to do. Continue rinsing.
P312:	Call a POISON CENTER or doctor/physician if you feel unwell.
P330:	Rinse mouth.
P332+P313:	IF SKIN irritation occurs: Get medical advice/attention.
P333+P313:	IF SKIN irritation or rash occurs: Get medical advice/attention.
P337+P313:	IF eye irritation persists: Get medical advice/attention.
P362:	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
Storage:	
P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
Disposal:	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

No data available(PBT,vPvB,Substance is an endocrine disruptor etc.)

3 Composition/information on ingredients

Substance/Mixture: Substance

Ingredient(s):

Chemical Name:	CAS No:	Weight %	Formula:
5-Amino-2-methylphenol	2835-95-2	≥99%	C ₇ H ₉ NO
Water	7732-18-5	≤1%	H ₂ O

4 First aid measures

4.1 Description of first aid measures:

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

4.1.1 In case of inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact:

Wash off with soap and plenty of water. Consult a physician.

4.1.3 In case of eyes contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

4.1.4 In case of ingestion:

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects ,both acute and delayed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed.

No data available

5. Fire-Fighting measures:

5.1 Extinguishing media:

Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, nitrogen oxides (NOX)

5.3 Advice for fire-fighters:

Wear self-contained breathing apparatus for fire fighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental Precautions:

Do not let product enter drains.

6.3 Methods for Containment and Cleaning up:

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections:

See section 13 for information on disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Not applicable

8. Exposure control/personal protection

8.1 Control parameters:

Components with workplace control parameters

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

8.2.2 Individual protection measures, such as personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH(US) or EN 166(EU).

Skin protection:

Handle with gloves. Gloves must be inspected prior to use.

Use proper glove removal technique to avoid skin contact with this product

Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection

Impervious clothing.

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95(US) or type P1(EU EN 143) particle respirator.

For higher level protection use type OA/AG/P99(US) or type ABEK-P2(EU EN 143) respirator cartridges.

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

8.3 Environmental exposure controls:

According to local regulations, Federal and official regulations.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Powder
Colour	Off white
Odour	Very light
PH	No data available
Melting point/range(°C)	160-164°C
Initial Boiling point/range(°C)	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability(solid,gas)	No data available
Ignition temperature:	No data available
Upper/lower flammability/explosive limits:	No data available
Vapour pressure	No data available
Vapour density:	No data available
Relative Density	No data available
Bulk density	No data available
Water solubility	soluble
Partition coefficient:n-octanol-water	No data available

N-octanol/water	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity,dynamic	No data available
Danger of explosion:	No data available
Oxidising properties:	No data available
Fat solubility(solvent-oil to be specified)etc:	No data available
n-octanol/water	No data available
Dissociation constant in water(pka)	No data available
Oxidation-reduction Potential:	No data available

10.Stability and reactivity:

Reactivity:	No data available.
Chemical stability:	No data available.
Possibility of hazardous reactions:	No data available.
Incompatible materials:	Strong oxidizing agents
Hazardous decomposition products:	No data available.

11 Toxicological information

11.1 Information on toxicological effects

11.2.1 Acute toxicity:

<u>Acute toxicity:</u>	LD50: oral, rat: 3600 mg/kg orl-qal LD50:750 mg/kg orl-brd LD50:562 mg/kg skn-rbt LD:>5 g/kg
------------------------	---

Skin corrosion/Irritation: No data available.

Serious eye damage/irritation: No data available.

Respiratory or skin sensitization: No data available.

Germ cell mutagenicity: No data available.

Carcinogenicity:

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable,possible or confirmed human carcinogen By IARC.

Reproductive toxicity: No data available.

Specific target organ toxicity-single exposure: May cause respiratory irritation.

Specific target organ toxicity-repeated exposure: No data available.

Aspiraton hazard: No data available.

Potential health effects:

Ingestion	May be Harmful if swallowed.
Skin	Causes skin irritation.May cause an allergic skin reaction.
Eyes	Cause serious eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge,the chemical,physical,and toxicological properties have not been thoroughly investigated

12 Ecological information

Toxicity:

Toxicity:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available
Result of PBT and pvb assessment:	No data available

13 Disosal considerations:

13.1 Waste treatment methods

Product:

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14 Transport information

	Land transport(ADR/RID)	Sea transport(IMDG)	Air transport(ICA0/IATA)
Un-Number	3077	3077	3077
UN Proper shipping name	Environmentally hazardous substance, solid n.o.s.	Environmentally hazardous substance, solid n.o.s.	Environmentally hazardous substance, solid n.o.s.
Transport hazard Class	9	9	9
Packaging group:	III	III	III
Environmental hazards:	Yes	Yes	Yes
Special precautions for user	See section 2.2	See section 2.2	See section 2.2

15 Regulation information

This safety datasheet complies with the requirement of Regulation(EC)No.1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

15.2 Chemical Safety Assessment

No data available

16 Other information

Employers should use this information only as a supplement to other information gathered by them and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

3-AMINOPHENOL

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: 3-AMINOPHENOL

CAS: 591-27-5
EC: 209-711-2
Index: Non-applicable
REACH: Non-applicable

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant uses: Laboratory or factory. For professional user only.
Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:

Jining Kaite Chemical Co., Ltd.
Yutai Zhanghuang Chemical Industry Park, Ji'ning, Shandong, China.
Phone: +8615615677070
E-mail: kaitehuagong@gmail.com
Website: kaitechem.com

1.4 Emergency telephone number: +8605376212698

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

CLP Regulation (EC) No 1272/2008:

Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.

Acute Tox. 4: Acute toxicity, Category 4, H302+H312

Aquatic Chronic 2: Hazardous to the aquatic environment, long-term hazard, Category 2, H411

2.2 Label elements:

CLP Regulation (EC) No 1272/2008:

Warning



Hazard statements:

Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects

Precautionary statements:

P264: Wash thoroughly after handling

P273: Avoid release to the environment

P280: Wear protective gloves/protective clothing/eye protection/face protection

P302+P352: IF ON SKIN: Wash with plenty of water

P312: Call a POISON CENTER/doctor if you feel unwell

P330: Rinse mouth

P391: Collect spillage

P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively

2.3 Other hazards:

Product fails to meet PBT/vPvB criteria

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance:

Chemical description: Chemical substance

Components:

- CONTINUED ON NEXT PAGE -

3-AMINOPHENOL

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification		Concentration
CAS: 591-27-5 EC: 209-711-2 Index: Non-applicable	3-aminophenol		99%
	Regulation 1272/2008	Acute Tox. 4: H302+H312; Aquatic Chronic 2: H411 - Warning 	

To obtain more information on the hazards of the substances consult sections 8, 11, 12, 15 and 16.

3.2 Mixture:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:

This product does not contain substances classified as hazardous for inhalation, however, in case of symptoms of intoxication remove the person affected from the exposure area and provide with fresh air. Seek medical attention if the symptoms get worse or persist.

By skin contact:

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:

Request medical assistance immediately, showing the SDS of this product. Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. In the case of loss of consciousness do not administer anything orally unless supervised by a doctor. Rinse out the mouth and throat, as they may have been affected during ingestion. Keep the person affected at rest.

4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of any immediate medical attention and special treatment needed:

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

- CONTINUED ON NEXT PAGE -

3-AMINOPHENOL

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

6.2 Environmental precautions:

Avoid at all cost any type of spillage into an aqueous medium. Contain the product absorbed appropriately in hermetically sealed containers. Notify the relevant authority in case of exposure to the general public or the environment.

6.3 Methods and material for containment and cleaning up:

It is recommended:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions

Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

C.- Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal See sections 8 and 13.

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Minimum Temp.: 5 °C
Maximum Temp.: 30 °C
Maximum time: 6 Months

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the work environment

Nuisance dust: Inhalable dust 10 mg/m³ // Respirable dust 4 mg/m³

DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
3-aminophenol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 591-27-5	Dermal	Non-applicable	Non-applicable	0,666666667 mg/kg	Non-applicable
EC: 209-711-2	Inhalation	Non-applicable	Non-applicable	1,175438596 mg/m ³	Non-applicable

- CONTINUED ON NEXT PAGE -

3-AMINOPHENOL

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

DNEL (General population):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
3-aminophenol	Oral	Non-applicable	Non-applicable	0,67 mg/kg	Non-applicable
CAS: 591-27-5	Dermal	Non-applicable	Non-applicable	0,333333333 mg/kg	Non-applicable
EC: 209-711-2	Inhalation	Non-applicable	Non-applicable	0,289855072 mg/m³	Non-applicable

PNEC:

Identification					
3-aminophenol	STP	0,29 mg/L	Fresh water	1,075 mg/L	
CAS: 591-27-5	Soil	0,529225 mg/kg	Marine water	0,1075 mg/L	
EC: 209-711-2	Intermittent	0,1075 mg/L	Sediment (Fresh water)	2,0314275 mg/kg	
	Oral	0,079 g/kg	Sediment (Marine water)	2,0314275 mg/kg	

8.2 Exposure controls:

A.- General security and hygiene measures in the work place

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	NON-disposable chemical protective gloves	 CAT III	EN 374-1:2003 EN 374-3:2003/AC:2006 EN 420:2003+A1:2009	The Breakthrough Time indicated by the manufacturer must exceed the period during which the product is being used. Do not use protective creams after the product has come into contact with skin.

D.- Ocular and facial protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Face mask	 CAT II	EN 166:2001 EN 167:2001 EN 168:2001 EN ISO 4007:2012	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory complete body protection	Disposable clothing for protection against chemical risks	 CAT III	EN 13034:2005+A1:2009 EN 168:2001 EN ISO 13982-1:2004/A1:2010 EN ISO 6529:2001 EN ISO 6530:2005 EN 464:1994	For professional use only. Clean periodically according to the manufacturer's instructions.
 Mandatory foot protection	Safety footwear for protection against chemical risk	 CAT III	EN ISO 20345:2011 EN 13832-1:2006	Replace boots at any sign of deterioration.

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2002	 Eyewash stations	DIN 12 899 ISO 3864-1:2002

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3-AMINOPHENOL

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Environmental exposure controls:

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

Volatile organic compounds:

With regard to Directive 2010/75/EU, this product has the following characteristics:

V.O.C. (Supply):	0 % weight
V.O.C. density at 20 °C:	0 kg/m ³ (0 g/L)
Average carbon number:	Non-applicable
Average molecular weight:	Non-applicable

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 °C:	Solid
Appearance:	Flakes
Colour:	Not available
Odour:	Odourless
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	Non-applicable *
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	<300000 Pa (300 kPa)
Evaporation rate at 20 °C:	Non-applicable *

Product description:

Density at 20 °C:	1195 kg/m ³
Relative density at 20 °C:	1,195
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	Non-applicable *
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	122 °C
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *

Flammability:

Flash Point:	Non-applicable
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

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3-AMINOPHENOL

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
Explosive:	
Lower explosive limit:	Non-applicable *
Upper explosive limit:	Non-applicable *
9.2 Other information:	
Surface tension at 20 °C:	Non-applicable *
Refraction index:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

10.2 Chemical stability:

Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Acids	Water	Combustive materials	Combustible materials	Others
Avoid strong acids	Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A.- Ingestion (acute effect):

- Acute toxicity : The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

C- Contact with the skin and the eyes (acute effect):

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3-AMINOPHENOL

SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- Contact with the skin: Above all, may have harmful effects for health if the product is absorbed through the skin. For more information on the secondary effects of skin contact see section 2.
- Contact with the eyes: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):
 - Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
 - Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
 - Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- E- Sensitizing effects:
 - Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitising effects. For more information see section 3.
 - Cutaneous: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- F- Specific target organ toxicity (STOT) - single exposure:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- G- Specific target organ toxicity (STOT)-repeated exposure:
 - Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
 - Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Other information:

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
3-aminophenol	LD50 oral	693 mg/kg	Rat
CAS: 591-27-5	LD50 dermal	1100 mg/kg	Rabbit
EC: 209-711-2	LC50 inhalation	Non-applicable	

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:

Identification	Acute toxicity		Species	Genus
3-aminophenol	LC50	121 mg/L (96 h)	Oryzias latipes	Fish
CAS: 591-27-5	EC50	3.6 mg/L (48 h)	QSAR	Fish
EC: 209-711-2	EC50	62 mg/L (72 h)	Pseudokirchneriella subcapitata	Algae

12.2 Persistence and degradability:

Identification	Degradability		Biodegradability	
3-aminophenol	BOD5	Non-applicable	Concentration	2 mg/L
CAS: 591-27-5	COD	Non-applicable	Period	5 days
EC: 209-711-2	BOD5/COD	Non-applicable	% Biodegradable	46 %

12.3 Bioaccumulative potential:

Not available

12.4 Mobility in soil:

- CONTINUED ON NEXT PAGE -

3-AMINOPHENOL

SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Absorption/desorption		Volatility	
3-aminophenol	Koc	72	Henry	1,12E-1 Pa·m ³ /mol
CAS: 591-27-5	Conclusion	Very High	Dry soil	No
EC: 209-711-2	Surface tension	Non-applicable	Moist soil	No

12.5 Results of PBT and vPvB assessment:

Product fails to meet PBT/vPvB criteria

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Code	Description	Waste class (Regulation (EU) No 1357/2014)
	It is not possible to assign a specific code, as it depends on the intended use by the user	Dangerous

Type of waste (Regulation (EU) No 1357/2014):

HP14 Ecotoxic, HP6 Acute Toxicity

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See paragraph 6.2.

Regulations related to waste management:

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:

With regard to ADR 2017 and RID 2017:



- 14.1 UN number:** UN2512
14.2 UN proper shipping name: AMINOPHENOLS (o-, m-, p-)
14.3 Transport hazard class(es): 6.1
Labels: 6.1
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user
Special regulations: 279
Tunnel restriction code: E
Physico-Chemical properties: see section 9
Limited quantities: 500 kg
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by sea:

With regard to IMDG 38-16:

- CONTINUED ON NEXT PAGE -

3-AMINOPHENOL

SECTION 14: TRANSPORT INFORMATION (continued)



- 14.1 UN number:** UN2512
14.2 UN proper shipping name: AMINOPHENOLS (o-, m-, p-)
14.3 Transport hazard class(es): 6.1
Labels: 6.1
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user
Special regulations: 279
EmS Codes: F-A, S-A
Physico-Chemical properties: see section 9
Limited quantities: 500 kg
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by air:

With regard to IATA/ICAO 2017:



- 14.1 UN number:** UN2512
14.2 UN proper shipping name: AMINOPHENOLS (o-, m-, p-)
14.3 Transport hazard class(es): 6.1
Labels: 6.1
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user
Physico-Chemical properties: see section 9
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable

Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable

Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable

Article 95, REGULATION (EU) No 528/2012: Non-applicable

REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc)
:

Non-applicable

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

Other legislation:

The product could be affected by sectorial legislation

15.2 Chemical safety assessment:

The supplier has not carried out evaluation of chemical safety.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830)

Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:

Non-applicable

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3-AMINOPHENOL

SECTION 16: OTHER INFORMATION (continued)

Texts of the legislative phrases mentioned in section 2:

H302+H312: Harmful if swallowed or in contact with skin

H411: Toxic to aquatic life with long lasting effects

Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

CLP Regulation (EC) No 1272/2008:

Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects

Advice related to training:

Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

<http://echa.europa.eu>

<http://eur-lex.europa.eu>

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road

IMDG: International maritime dangerous goods code

IATA: International Air Transport Association

ICAO: International Civil Aviation Organisation

COD: Chemical Oxygen Demand

BOD5: 5-day biochemical oxygen demand

BCF: Bioconcentration factor

LD50: Lethal Dose 50

LC50: Lethal Concentration 50

EC50: Effective concentration 50

Log-POW: Octanol–water partition coefficient

Koc: Partition coefficient of organic carbon

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -

1. Identification of substance	
Product Name	<i>p</i> -Phenylenediamine
Other Name	<i>p</i> -Phenylenediamine
Chemical Name	<i>p</i> -Phenylenediamine
Recommended Use	Used in engineering polymers, aramid fibers, hair dyes, rubber chemical textile dyes, pigments ect.
Manufacturer Name	Zhejiang Hongsheng Chemical Co., Ltd.
Address	No. 15 Weisan Road, Hangzhou Bay Shangyu Economic and Technological Development Area, Zhejiang, China /312369
Phone Number	+86-575-89281961
Fax Number	None
WEB or E-mail	None
Emergency Phone Number	+86-532-83889090 or Call your nearest poison control centre
2. Hazards identification	
GHS classification	Acute toxicity-oral 3 Acute toxicity-dermal 3 Acute toxicity- inhalation 3 Skin corrosion/irritation 3 Serious eye damage/eye irritation 2A Sensitisation-skin 1 Specific target organ toxicity, single exposure 1 Hazardous to the aquatic environment, acute hazard 1 Hazardous to the aquatic environment, long-term hazard 1
GHS Pictograms	
Signal words	Danger
Hazard statements	H301:Toxic if swallowed H311:Toxic in contact with skin H316:Causes mild skin irritation H317:May cause an allergic skin reaction H319:Causes serious eye irritation H331:Toxic if inhaled H370:Causes damage to organs H400:Very toxic to aquatic life H410:Very toxic to aquatic life with long lasting effects
Precautionary Statement	P260:Do not breathe dust/fume/gas/mist/vapours/spray. P261:Avoid breathing dust/fume/gas/mist/vapours/spray. P264:Wash hands thoroughly after handling. P270:Do not eat, drink or smoke when using this product. P271:Use only outdoors or in a well-ventilated area.
Prevention	

Precautionary Statement Response	<p>P272:Contaminated work clothing should not be allowed out of the work place.</p> <p>P273:Avoid release to the environment.</p> <p>P280:Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.</p> <p>P301+P316:IF SWALLOWED: Get emergency medical help immediately.</p> <p>P302+P352:IF ON SKIN: Wash with plenty of water/...</p> <p>P304+P340:IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338:IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P308+P316:IF exposed or concerned: Get emergency medical help immediately.</p> <p>P316:Get emergency medical help immediately.</p> <p>P321:Specific treatment (see the supplemental first aid instruction).</p> <p>P330:Rinse mouth.</p> <p>P332+P317:If skin irritation occurs:Get medical help.</p> <p>P333+P317:If skin irritation or rash occurs: Get medical help.</p> <p>P337+P317:If eye irritation persists: Get medical help.</p> <p>P361+P364:Take off immediately all contaminated clothing and wash it before reuse.</p> <p>P362+P364:Take off immediately contaminated clothing and wash it before reuse.</p> <p>P391:Collect spillage.</p>
Precautionary Statement Storage	<p>P403+P233:Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405:Store locked up.</p>
Precautionary Statement Disposal	P501:Dispose of contents/container in according with local regulation.
Other hazards which do not result in classification	Dust explosion possible if in powder or granular form, mixed with air.

3. Composition/information on ingredients

☒ **Substances**

☐ **Mixtures**

Component Information

Component	CAS number	EINECS number	Mass(%)
p-Phenylenediamine	106-50-3	203-404-7	≥ 99.9%wt

Note:1. Unless a component presents a severe hazard, it does not need to be considered in the SDS if the concentration is less than 1%.

4.First-aid measures

NOTE TO PHYSICIAN	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.
After inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Get immediate medical attention.
After skin contact	Immediately flush skin with plenty of water. Remove and isolate contaminated clothing and shoes. If irritation persists, get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
After eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with fingers. Get medical attention immediately.
After ingestion	Do not induce vomiting without medical advice. Rinse mouth. Give a slurry of activated charcoal in water to drink. Seek immediate medical attention.
Most important symptoms/effects, acute and delayed	Toxic if swallowed. Toxic in contact with skin. Causes mild skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic if inhaled. Causes damage to organs.
5. Fire-fighting measures	
Suitable extinguishing agents	Water spray, CO ₂ , dry chemical powder, alcohol resistant foam, sand soil.
Special hazards caused by the material, its products of combustion or flue gases	Carbon oxides, nitrogen oxides, irritating and toxic fumes and gases.
Protective equipment	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
6. Accidental release measures	
Person-related safety precautions	Ensure adequate ventilation. Avoid dust formation. Avoid breathing dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away.
Measures for environmental protection	Prevent further leakage or spillage if safe to do so. Do not allow material to be released to the environment without proper governmental permits.
Measures for cleaning/collecting	Small spill: collect in dry, clean, covered containers use clean shovels. Large spill: collect and recycle or transport to waste treatment site for disposal.

Additional information	See Section 7 for information on safe handling See section 8 for information on personal protection equipment. See Section 13 for information on disposal.				
7. Handling and storage					
Handling					
Information for safe handling	Airtight operation, strengthen ventilation. Operator must undergo special training and follow the procedure strictly. Recommend operating personnel wear self-contained filter mask (half mask), chemical safety goggles, antistatic protective clothing and chemical safety gloves. Keep away from heat, sources of ignition - No smoking. Prevent materials release into the workplace. Handle with care to prevent packaging and containers damage. Equip with corresponding varieties and quantities of fire equipments and emergency equipment for leakage. When filling, grounding device should be used to prevent electrostatic accumulation. Empty containers may contain harmful substances.				
Information about protection against explosions and fires	Keep away from heat, sources of ignition, sparks or open flame. No Smoking. Dust explosion possible if in powder or granular form, mixed with air. Emergency cooling must be available in case of fire. Keep respiratory protective device available.				
STORAGE					
Requirements to be met by storerooms and containers	Keep in a cool and well-ventilated warehouse. Keep away from fire and heat source. Keep tightly closed until used. Containers are clearly and permanently labelled. Store only in the original receptacle. Store locked up.				
Information about storage in one common storage facility	Store away from incompatible substances such as oxidants, acids, edible chemicals, Avoid mixed storage.				
Further information about storage conditions	Equip with corresponding variety and quantity of fire fighting equipment. The storage area should be equipped with suitable materials to contain the leakage.				
8. Exposure controls/personal protection					
Limit Values for Exposure					
Component	CAS number	ACGIH TLV-TWA	ACGIH TLV-STEL	NIOSH PEL-TWA	NIOSH PEL-STEL
p-Phenylenediamine	106-50-3	0.1 mg/m ³	N.E.	0.1 mg/m ³	N.E.

Appropriate engineering controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.
General protective and hygienic measures	Provide safety shower and eyewash equipment. Smoking, eating and drinking water are prohibited in the workplace. After work, shower and change clothes. Don't drink before work, bathe in warm water. Pre-employment and regular physical examination should be carried out.
Personal protective equipment	Wear an air respirator, chemical safety glasses, impervious overalls.
Breathing equipment	In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Protection of hands	Wear appropriate chemical resistant gloves.
Eye/Face protection	Tightly sealed goggles.
Body protection	Full set of anti chemical reagent overalls, flame retardant antistatic protective clothing, choose body protection according to the amount and concentration of the dangerous substance at the work place.

Note: 1. N.E. means not established.

9. Physical and chemical properties

Physical state	Solid
Colour	White
Odour	Characteristic
Melting point/freezing point	142 °C
Boiling point or initial boiling point and boiling range	274 °C
Flammability	Not highly flammable
Lower and upper explosion limit/ flammability limit	Lower: 1.5 Vol %
Flash point	Not applicable
Auto-ignition temperature	567 °C
Decomposition temperature	No data available
pH	No data available
Kinematic viscosity	No data available
Solubility	38 g/l (20 °C, water)
Partition coefficient: n-octanol/water(log value)	0.151
Vapour pressure	0.0104 Pa
Density and/or relative density	1.14 g/cm ³ (water=1)

Relative vapour density (air=1.0)	3.7
Particle characteristics	No data available
10. Stability and reactivity	
Reactivity	No data available.
Chemical stability	Stable under normal conditions. Exposure to light and air darkens and is vulnerable to pollution.
Possibility of hazardous reactions	Normally, there was no dangerous reaction.
Conditions to avoid (e.g. static discharge, shock or vibration)	Heat and flame and spark. The extreme temperatures and direct sunlight. Incompatible substances. Exposure to air.
Incompatible materials	Keep away from strong oxidizing agents, acids, acid chlorides, acid anhydrides.
Hazardous decomposition products	Nitrogen oxides, carbon monoxide and carbon dioxide.
11. Toxicological information	
Routes of Entry: Dermal contact, eye contact, inhalation, ingestion.	
Acute Toxicity	
<i>p</i> -Phenylenediamine (CAS 106-50-3)	LD50 (Oral, rat) 80 mg/kg LC50 (Inhalation, rat) 0.92 mg/l / 4h LD50 (Dermal, rabbit) N/A
Skin corrosion/Irritation	Causes mild skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-single exposure	Causes damage to organs.
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified
Chronic Effects	Not classified
Further Information	No data
12. Ecological information	
Ecotoxicity	
Aquatic Toxicity	<i>p</i> -Phenylenediamine (CAS 106-50-3) Test & Species 96 Hr LC50 fish: 3.9 mg/l 48 Hr EC50 Daphnia: 0.33 mg/l 72 Hr EC50 Algae: 0.27 mg/l
Persistence and degradability	Not available

Bioaccumulative potential	Not available
Mobility in soil	Not available
Additional Information	Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

WASTE DISPOSAL INSTRUCTIONS

Contact a qualified professional waste disposal service to dispose of this material.
Dispose of in accordance with local environmental regulations or local authority requirements.

14. Transport information

The Recommendation of Transport of Dangerous Goods(TDG)

UN Number	UN 1673
Proper Shipping Name	PHENYLENEDIAMINES (<i>p</i> -)
Class/Division	Division 6.1 Toxic Substances
Package Group	PG III
Subsidiary risk	—
labelling pictogram	



Maritime transport IMDG/ Marine pollutant (Yes/No)	Being same with TDG/ Yes
Air transport ICAO-TI and IATA-DGR	Being same with TDG

15. Regulatory information

European/International Regulations

OSHA: Hazardous by definition of Hazard Communication Standard(29CFR 1910.1200).

EINECS Status: *p*-Phenylenediamine (CAS 106-50-3) is included in EINECS inventory.

EPA TSCA Status: *p*-Phenylenediamine (CAS 106-50-3) is included in TSCA inventory.

Canadian DSL/NDL (Domestic Substances List/ Non-domestic Substances List): *p*-Phenylenediamine (CAS 106-50-3) is included in DSL.

HMIS(Hazardous Material Identification System Ratings):
Health: 3
Flammability: 1
Physical hazard: 0
Personal protection: F
(4. Severe Hazard; 3. Serious Hazard; 2. Moderate Hazard; 1. Slight Hazard; 0. Minimal Hazard)

WHMIS(Canadian Workplace Hazardous Material Identification System Ratings):	Not listed.
GB 12268-2012 List of dangerous goods	This chemical is a dangerous goods on the GB 12268-2012 list of dangerous goods.

16. other information

This Material Safety Data Sheet was based on the "Globally Harmonized System of Classification and Labelling of Chemicals", "Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations", "INTERNATIONAL MARITIME DANGEROUS GOODS CODE", "International Air Transport Association Dangerous Goods Regulations", the National Standards and other related dangerous chemicals management laws, regulations and standards, which are periodically updated and changed. To make dangerous goods / hazardous chemicals comply with the relevant requirements of the latest management, regularly update is recommended.

This Material Safety Data Sheet has been compiled in both English and Chinese. For any discrepancies, the Chinese version shall prevail.

Abbreviations and acronyms ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

IMDG: International Maritime Code for Dangerous Goods

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50 percent

Edit Date

Update and Revise

LD50: Lethal dose, 50 percent

EC50: Effective concentration, 50 percent

Edit Standard

06.03.2024

Original edition

Revised Institution

Globally Harmonized System of Classification and Labelling for Chemicals Part 1.5

Zhejiang Hongsheng Chemical Co.,Ltd.

Extended Safety Data Sheet
According to Regulation (EU) No. 1907/2006, Annex II,
Amended by REGULATION (EU) No 453/2010

Resorcinol

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1 Identification of the substance and of the company/undertaking

1.1 Product identifier:

Identification on the label/Trade name:	Resorcinol
Additional identification:	Resorcinol
Identification of the product:	CAS# 108-46-3; EC# 203-585-2
Index Number:	604-010-00-1
REACH registration No.:	01-2119480136-40-0003

1.2 Relevant identified uses of the substance and uses advised against:

1.2.1 Identified uses:

Compounding - Use of Resorcinol in rubber compounding – tyres
compounding - use in manufacturing of rubber compounds - other products
Dipping - Use in manufacture of rubber compounds
Manufacture of Resorcinol Formaldehyde Resins
Industrial use of Phenol Resorcinol Formaldehyde resin as a wood adhesive
Manufacture of Flame Retardants
Manufacture of UV Stabilisers
Manufacture of Ag. Chemicals
Manufacture of Industrial Dyes
Formulation of Hair Dyes
Manufacture of Phenol Resorcinol Formaldehyde Resins
Use of Hair Dyes

1.2.2 Uses advised against:

Uses by professional workers advised against: Skin Peels
Uses by consumers advised against: Skin Peels

1.3 Details of the supplier of the safety data sheet:

Supplier(Only representative):	Chemical Inspection & Regulation Service Limited
Supplier(Manufacturer):	Zhejiang Hongsheng Chemical Co., Ltd.
Address:	HANGZHOU GULF FINE CHEMICAL ZONE, ZHEJIANG, CHINA
Contact person(E-mail):	Peipei Jiang
Telephone:	+86-21-50306558-124
Fax:	+86-21-50306881

1.4 Emergency telephone Number:

+353 41 980 6916

Available outside office hours?

YES

☐

NO

☒

2 Hazards Identification

2.1 Classification of the substance

2.1.1 Classification:

The substance is classified as following according to 67/548/EEC and REGULATION (EC) No 1272/2008:

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EU CLP 1272/2008-self classification	
Hazard classes/Hazard categories	Hazard statement
Acute Tox. 4 *	H302
Eye Damage 1	H318
Skin Irrit. 2	H315
Skin Sens. 1	H317
STOT Single Exp. 1	H370
STOT Single Exp. 2	H371
Aquatic Acute 1	H400
Aquatic Chronic 3	H412

For full text of H- phrases: see section 2.2.

67/548/EEC-self classification	
Hazards characteristics	R-Phrases
Xn	R22
Xi	R41
Xi	R38
-	R43
T	R39/23
Xn	R68/20
N	R50
-	R52/53

For full text of R- phrases: see section 16.

2.1.2 The most important adverse effects

2.1.2.1 The most important adverse physicochemical effects:

Not available.

2.1.2.2 The most important adverse human health effects:

Harmful if swallowed.

Causes serious eye damage.

May cause an allergic skin reaction.

Causes damage to organs (CNS and blood effects).

May cause damage to organs (Respiratory effects).

Causes skin irritation.

2.1.2.3 The most important adverse environmental effects:

Very toxic to aquatic life with long lasting effects.

2.2 label elements

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Danger

H302: Harmful if swallowed.
H318: Causes serious eye damage.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H370: Causes damage to organs <or state all organs affected, if known> <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
(H370: Causes damage CNS effects and blood effects - methemoglobin via oral bolus dosing).
H371: May cause damage to organs <or state all organs affected, if known> <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
(H371: May cause damage to the respiratory system, via oral bolus dosing).
H410: Very toxic to aquatic life with long lasting effects.

P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311: IF exposed: Call a POISON CENTER or doctor/physician.
P310: Immediately call a POISON CENTER or doctor/physician.
P321: Specific treatment (see on this label).
P330: Rinse mouth.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P362: Take off contaminated clothing and wash before reuse.
P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container in according with local regulation.

Not available

Ingredient(s):

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Chemical Name	Registration No.	CAS No.	EC No.	Concentration
Resorcinol	01-2119480136-40-0003	108-46-3	203-585-2	99.7%
Moisture	N/A	-	-	0.2%
Phenol	N/A	108-95-2	203-632-7	0.1%

4 First aid measures

4.1 Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

4.1.1 In case of inhalation:

Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

4.1.2 In case of skin contact:

Remove contaminated clothing. Wipe material from skin. Immediately flush area with large amounts of water for at least 15 minutes. In any irritation is present seeking medical aid. Wash contaminated clothing before reuse.

4.1.3 In case of eyes contact:

Remove contact lenses. Immediately flush eyes and surrounding areas with large amounts of lukewarm water for at least 15 minutes. Seek immediate medical aid.

4.1.4 In case of ingestion:

DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Remove any evidence of substance from patient's mouth. If victim is conscious and alert, give 8-12 ounces of water or milk. Immediately seek medical aid.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed; Causes serious eye damage; May cause an allergic skin reaction; Causes damage to organs (CNS and blood effects); May cause damage to organs (Respiratory effects); Causes skin irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Further treatment may be necessary. Contact local Poison Control Center.

5 Fire-Fighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Use dry chemical, carbon dioxide, steam or water fog

Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture

Dust (powder) may form explosive mixture in air. Closed containers may explode or rupture when exposed to extreme heat (fire).

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5.3 Advice for fire-fighters:

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel:

Remove ignition sources. Provide adequate ventilation. Avoid inhalation of vapour or dust. Avoid skin and eye contact.

6.1.2 For emergency responders:

Wear an appropriate NIOSH/MSHA approved respirator if mist, vapor or dust is generated.

6.2 Environmental Precautions:

Avoid disposing into drainage/sewer system or directly into the aquatic environment.

6.3 Methods for Containment and Cleaning up:

Stop spill/leak if no risk involved. Stay upwind. Shovel back into original dry container or waste receptacle. Flush area with water. Contain runoff from fire control and dilution water

6.4 Reference to other sections:

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

6.5 Additional information:

Clear spills immediately.

7 Handling and storage

7.1 Precautions for safe handling:

7.1.1 Protective measures:

Provide vacuuming if dust raise.

Suitable industrial vacuum cleaners or central vacuuming equipment must be used for taking up dust. Avoid the formation and deposition of dust.

7.1.2 Advice on general occupational hygiene:

Avoid contact with skin or eyes. Avoid prolonged or repeated breathing of dusts. Minimize generation of dust. Observe good personal hygiene practices and recommended procedures.

7.2 Conditions for safe storage, including any incompatibilities

Protect from physical damage. Store in a closed, properly labeled, well-ventilated area away from possible sources of ignition. Not for use or storage in or around the home. Do not use until manufacturer's precautions have been read/understood. Vacuum or wet down dust as a good housekeeping practice. Provide suitable facilities for quick drenching or flushing of the eyes and body.

7.3 Specific end use(s):

Not applicable.

8 Exposure control/personal protection

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8.1 Control parameters:

8.1.1 Occupational exposure limits:

ACGIH - TLV - 10 ppm (45 mg/m³)
ACGIH - STEL - 20 ppm (90 mg/m³)

8.1.2 Additional exposure limits under the conditions of use: Not available.

8.1.3 DNEL/DMEL and PNEC-Values:

DN(M)ELs for workers

Exposure pattern	Route	Descriptor	DNEL / DMEL	(Corrected) Dose descriptor *)	Most sensitive endpoint	Justification
Acute systemic effects	- Dermal				repeated dose toxicity	Based on data available for acute/systemic effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute systemic effects	- Inhalation				repeated dose toxicity	Based on data available for acute/systemic effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute local effects	- Dermal				repeated dose toxicity	Based on data available for acute/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute local effects	- Inhalation				repeated dose toxicity	Based on data available for acute/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Long-term - systemic effects	Dermal	DNEL (Derived No Effect Level)	40 mg/kg bw/day	NOAEL:	repeated dose toxicity	See appended Table for correction factors and assessment factors.
Long-term - systemic effects	Inhalation	DNEL (Derived No Effect Level)	5.6 mg/m ³	NOAEC:	repeated dose toxicity	Please note that the starting point is corrected from a NOAEL. See appended Table for correction factors and assessment factors.
Long-term - local effects	Dermal				repeated dose toxicity	Based on data available for long term/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Long-term - local effects	Inhalation				repeated dose toxicity	Based on data available for long term/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.

*) The (corrected) dose descriptor starting points have been automatically calculated by multiplying the values of the fields "D(N)MEL" and "Assessment factor" provided in the Endpoint summary of IUCLID section 7. Toxicological information. It reflects the value after any corrections, e.g. route-to-route extrapolation. See column "Justification" for the rationale behind such modifications and the use of assessment factors.

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DN(M)ELs for the general population

Exposure pattern	Route	Descriptor	DNEL / DMEL	(Corrected) Dose descriptor *)	Most sensitive endpoint	Justification
Acute systemic effects	- Dermal				repeated dose toxicity	Based on data available for acute effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute systemic effects	- Inhalation				repeated dose toxicity	Based on data available for acute effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute systemic effects	- Oral				repeated dose toxicity	Based on data available for acute effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute local effects	- Dermal				repeated dose toxicity	Based on data available for acute/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Acute local effects	- Inhalation				repeated dose toxicity	Based on data available for acute/local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint. Please note that the starting point is corrected from a NOAEL.
Long-term systemic effects	- Dermal	DNEL (Derived No Effect Level)	20 mg/kg bw/day	NOAEL:	repeated dose toxicity	See appended Table for correction factors and assessment factors.
Long-term systemic effects	- Inhalation	DNEL (Derived No Effect Level)	1.4 mg/m ³	NOAEC:	repeated dose toxicity	Please note that the starting point is corrected from a NOAEL. See appended Table for correction factors and assessment factors.
Long-term systemic effects	- Oral	DNEL (Derived No Effect Level)	0.4 mg/kg bw/day	NOAEL:	repeated dose toxicity	See appended Table for correction factors and assessment factors.
Long-term local effects	- Dermal				repeated dose toxicity	Based on data available for long term and local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.
Long-term local effects	- Inhalation				repeated dose toxicity	Based on data available for long term and local effects and following ECHA Guidance document R. 8, Characterization of Dose [Concentration]-Response for Human Health dated May 2008, a DNEL is not suitable for this endpoint.

*) The (corrected) dose descriptor starting points have been automatically calculated by multiplying the values of the fields "D(N)MEL" and "Assessment factor" provided in the Endpoint summary of IUCLID section 7. Toxicological information. It reflects the

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value after any corrections, e.g. route-to-route extrapolation. See column "Justification" for the rationale behind such modifications and the use of assessment factors.

8.2 Exposure controls

8.2.1 Appropriate engineering controls:

Ensure good ventilation and local exhaustion of the working area.

8.2.2 Individual protection measures, such as personal protective equipment:

Eye/face protection

Chemical goggles; face shield, as necessary.

Hand protection

Chemical resistant gloves meeting EN374. Chloroprene and butyl rubber may be suitable glove material.

Respiratory protection

If ventilation is inadequate to maintain personal inhalation exposures below TLV (PEL)(OEL), use appropriate MSHA/NIOSH approved respiratory protection to comply with current standards and manufacturer's "instructions" and "Warnings". If within OSHA protection factor, air purifying organic vapor cartridge/canister with particulate filter is acceptable.

Skin/body protection

Thermal protective and/or rubber gloves as required. In dusty areas wear necessary resistant protective apparel, including necessary head, hand and footwear protection.

Thermal hazards

Wear suitable protective clothing to prevent heat.

8.2.3 Environmental exposure controls:

Avoid discharge into the environment. This material and its container must be disposed of as hazardous waste.

According to local regulations, Federal and official regulations.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Flakes
Colour:	White-slightly colored flake
Odour:	Phenolic
Odour threshold:	Not available
pH:	Not applicable
Melting point/range (°C):	110 deg C
Boiling point/range (°C) :	277.5 deg C at 1013 hPa
Flash point (°C) :	127 °C at 1013 hPa
Evaporation rate:	Not applicable
Flammability (solid, gas);	Non flammable
Ignition temperature (°C) :	Not applicable
Upper/lower flammability/explosive limits:	Not determined
Vapour pressure (20°C) :	0.065 Pa at 25 deg C
Vapour density:	Not available
Relative Density (23°C):	1.278
Bulk density (kg/m ³) :	Not determined
Water solubility (mg/l) at 21°C :	717000 mg/l at 25 deg C
n-Octanol/Water (log Pow) :	0.8 at 20 deg C
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity, dynamic (mPa s) :	Not determined
Explosive properties:	non explosive
Oxidising properties:	Not applicable

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9.2. Other information:

Fat solubility(solvent– oil to be specified) etc:	Not available
Surface tension:	72 mN/m at 20°C and 1000 mg/L
Dissociation constant in water(pKa):	pKa = 9.81 at 25 deg C
Oxidation-reduction Potential:	Not available

10 Stability and reactivity

10.1 Reactivity:

The substance is stable under normal storage and handling conditions.

10.2 Chemical stability:

Under normal conditions, the product is stable. No hazardous reaction when handled and stored according to provisions. Hazardous reactions are not known.

10.3 Possibility of hazardous reactions:

Under normal conditions, not hazardous reactions will occur.

10.4 Conditions to avoid:

High temperatures, incompatible materials, light, dust generation, exposure to air, exposure to moist air or water, heat

10.5 Incompatible materials:

Strong oxidizing agents, bases, acid chlorides, iron, ferric salts, acid anhydrides, alkalies, albumin, iron salts, antipyrine, methanol, acetanilide, camphor, urethane, spirit nitrous ether.

10.6 Hazardous decomposition products:

Carbon monoxide, carbon dioxide

11 Toxicological information

11.1 Toxicokinetics, metabolism and distribution

11.1.1 Toxicokinetics

Basic toxicokinetics

Three rats/sex were exposed to 112 mg 14C resorcinol/kg bw; resorcinol was readily absorbed, rapidly metabolized and excreted after this single oral dosing (Kim and Matthews, 1987). Within 24 hrs most of the administered dose was excreted via urine (90.8 – 92.8%) with a minimal amount excreted via the feces (1.5 – 2.1%). The remaining 14C activity was detected in blood and major tissues such as liver, skin, fat, muscle, large intestine content and thyroid gland, and gave no indication of bioaccumulation. At least 50% of the excreted dose undergoes enterohepatic circulation and is excreted via urine. The major metabolite (ca. 65%) was a monoglucuronide conjugate and minor metabolites included a monosulphate conjugate, a mixed sulfate-glucuronide conjugate, and a diglucuronide conjugate. In females a greater proportion was excreted as sulfate conjugate, while males excreted a higher proportion of a diconjugate (both sulfate and glucuronide groups). From these data the authors concluded that male rats have a higher capacity for glucuronidation of resorcinol than females. In the same study after dosing with 225 mg/kg bw or daily doses of 225 mg/kg bw for 5 consecutive days, comparable results were obtained; in rats, resorcinol was excreted primarily through the urine.

After single subcutaneous dosing of male Sprague-Dawley rats with 10, 50 or 100 mg 14C resorcinol/kg bw, the 14C activity in plasma decreased rapidly (ca. 90 % clearance within the first 2 hours p. a; (Merker et al., 1982). The elimination was biphasic with half-lives of 18 – 21 min and 8.6 – 10.5 hrs. Within 24 hrs after dosing with 10 mg/kg bw, 98 % of the applied dose was excreted via urine and 1 % via feces, mainly as glucuronide conjugate (84 %). The 14C activity was rapidly distributed in major tissues such as muscles, kidneys and liver without indication of bioaccumulation.

Chinchilla-rabbits were exposed to 0.2 g/kg resorcinol by oral bolus dosing (gavage) to determine glucuronic acid and ethereal-sulfate

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excretions in urine (Garton and Williams, 1949). Even though resorcinol is expected to be highly conjugated, appreciable amounts (11-12% by isolation) of resorcinol were excreted in the free-state. In this study, resorcinol was shown to be monoconjugated.

The following information is taken into account for any hazard / risk assessment:

Toxicokinetic studies in rats and rabbits suggest that orally-administered resorcinol is rapidly absorbed, metabolized and excreted in the urine primarily as monoglucuronide conjugate. Minor metabolites included a monosulphate conjugate, a mixed sulfate-glucuronide conjugate, and a diglucuronide conjugate. Rats given repeated oral doses appeared to increase the rate of metabolism.

Value used for CSA: no bioaccumulation potential

Dermal absorption

A 2% absorption rate was identified as being conservative absorption rate, while recent studies suggest the dermal absorption to be < 1% (0.82%).

Value used for CSA: Absorption rate (%): 2

11.2 Information on toxicological effects

Acute toxicity:

LD50(Oral, rat): 510 mg/kg bw
LD50(Dermal, rabbit): 2830 mg/kg bw
LC50(Inhalation, rabbit): 2800 mg/m³

Skin corrosion/Irritation: Causes skin irritation

Serious eye damage/irritation: Causes serious eye damage

Respiratory irritation /skin sensitization: May cause an allergic skin reaction

Germ cell mutagenicity: Negative

Carcinogenicity: Not classified

reproductive toxicity: Not classified

STOT- single exposure: Causes damage to organs (CNS and blood effects)
May cause damage to organs <or state all organs affected (Respiratory effects)

STOT-repeated exposure: Not classified

Aspiration hazard: Not classified

12 Ecological information

Toxicity:

Acute toxicity		Time	Species	Method	Evaluation	Remarks
LC ₅₀	26.8 mg/L	96h	Fish	OECD 203	N/A	N/A
EC ₅₀	1 mg/L	48h	Daphnia	OECD 202	N/A	N/A
EC ₅₀	97 mg/L	72h	Algae	OECD 201	N/A	N/A

Persistence and degradability: Readily biodegradable

Bioaccumulative potential: Not applicable

Mobility in soil: Not available.

Results of PBT&vPvB assessment: Not PBT & vPvB.

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Other adverse effects: Not applicable.

13 Disposal considerations

13.1 Waste treatment methods

For recycling, consult manufacturer. According to local regulations, Federal and official regulations.

13.2 Product / Packaging disposal:

If empty container retains product residues, all label precautions must be observed. Return for reuse or dispose according to national or local regulations.

14 Transport information

	<i>Land transport (ADR/RID)</i>	<i>Sea transport (IMDG)</i>	<i>Air transport (ICAO/IATA)</i>
UN-Number:	UN2876	UN2876	UN2876
UN Proper shipping name:	Resorcinol	Resorcinol	Resorcinol
Transport hazard Class:	6.1	6.1	6.1
Packaging group:	III	III	III
Environmental hazards:	Not regulated	Not regulated	Not regulated
Special precautions for user:	See section 2.2	See section 2.2	See section 2.2
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	IBC 08	IBC 08	IBC 08

15 Regulation information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant information regarding authorization: Not applicable.

Relevant information regarding restriction: Not applicable.

Other EU regulations: Employment restrictions concerning young person must be observed. For use only by technically qualified individuals.

Other National regulations: Not applicable

Chemical Safety Assessment has been carried out? YES ☒ X ☐ NO ☐

16 Other information

16.1 Indication of changes

Version 1.1 Amended by EU No 453/2010

Version 2.0 Placed exposure scenarios in the Annex (eSDS)

16.2 Relevant R- phrases (number and full text):

R22: Harmful if swallowed

R41: Causes serious eye damage.

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R38: Causes skin irritation.

R43: May cause an allergic skin reaction.

R39/23: Causes damage to organs (CNS and blood effects)

R68/20: May cause damage to organs (Respiratory effects)

R50: Very toxic to aquatic life

R52/53: Harmful to aquatic life with long lasting effects.

16.3 Training instructions:

Not applicable.

16.4 Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

16.5 Notice to reader:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees.

This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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9 Annex to extended safety data sheet (eSDS)

Exposure scenario 1: Compounding-use of resorcinol in rubber compounding

1 Substance / User identity	
Registration number(s)	01-2119480136-40-0003
Substance identity	Resorcinol (CAS# 108-46-3; EC# 231-104-6)
Short title of the exposure scenario	Compounding-use of resorcinol in rubber compounding
Use Descriptor	Sector of Use: Industrial (SU11) Process Categories: PROC3, PROC5, PROC6, PROC8b, PROC8a, PROC9, PROC13, PROC 14, PROC 15, PROC 21, PROC24, Environmental Release Categories: ERC2, ERC3, ERC6d, ERC5
2 Operational conditions and risk management measures	
2.1 Contributing scenario (1) Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	500t/a
Frequency and duration of use	Covers daily exposures more than 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Use of ventilation	Indoor
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E118]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures Use in contained batch processes. ;With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers.	Ensure material transfers are under containment or extract ventilation.

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Drum/batch transfers [CS8].	
Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
Dedicated facility [CS81]Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
Use of respiratory protection, and if so, minimum efficiency?	90%
Dermal PPE/Gloves	Gloves APF 5
2.2 Contributing scenario (2)Control of environmental exposure	
Product characteristics	Solid
Amounts used	Total amount for this usage is 500 tpa
Frequency and duration of use	Default 500 d/y
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.
Other environmental control measures additional to above	Not applicable
Fraction of the main local source	0.15

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3 Exposure estimation

3.1 Workers exposure

Acute exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²) ¹	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³) ²	Not applicable	The long-term exposure data will be used in RCR

¹ per day or per event, which ever is more relevant
² during short-term exposure, air concentration at the workplace

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Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	1.65	mg/kg/d			PROC5 ECETOC TRA calculation
	3.29	mg/kg/d			PROC6 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	1.65	mg/kg/d			PROC8a ECETOC TRA calculation
	0.823	mg/kg/d			PROC9 ECETOC TRA calculation
	1.65	mg/kg/d			PROC13 ECETOC TRA calculation
	0.411	mg/kg/d			PROC14 ECETOC TRA calculation
	0.0411	mg/kg/d			PROC15 ECETOC TRA calculation
	0.339	mg/kg/d			PROC21 ECETOC TRA calculation
	0.339	mg/kg/d			PROC24a ECETOC TRA calculation
	0.0823	mg/kg/d			PROC3 ECETOC TRA calculation
Inhalation exposure	0.03	mg/m ³			PROC5 ECETOC TRA calculation
	0.006	mg/m ³			PROC6 ECETOC TRA calculation
	0.006	mg/m ³			PROC8b ECETOC TRA calculation
	0.03	mg/m ³			PROC8a ECETOC TRA calculation
	0.006	mg/m ³			PROC9 ECETOC TRA calculation
	0.006	mg/m ³			PROC13 ECETOC TRA calculation
	0.006	mg/m ³			PROC14 ECETOC TRA calculation
	0.006	mg/m ³			PROC15 ECETOC TRA calculation
	0.06	mg/m ³			PROC21 ECETOC TRA calculation
	0.06	mg/m ³			PROC24a ECETOC TRA calculation
	0.006	mg/m ³			PROC3 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	3.29	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ³	0.06	The maximum value of all the PROC

³ air concentration at the workplace

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3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.0158	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.00131	EUSES 2.1.
Marine water (mg/L)	0.00103	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.0016	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00126	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000904	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000312	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

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Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning.

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 2: Dipping-Use in manufacture of rubber compounds

1 Substance / User identity	
Title	Dipping-use in manufacture of rubber compounds
Use Descriptor	Sector of Use: Industrial (SU11) Process Categories: PROC3, PROC4, PROC8b, PROC13, PROC 15, PROC 21 Environmental Release Categories: ERC3, ERC6d, ERC5
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E118]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.

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Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
Use of respiratory protection, and if so, minimum efficiency?	90%
Dermal PPE/Gloves	Gloves APF 5
2.2 Control of environmental exposure	
Product characteristics	Solid
Amounts used	Total amount for this usage is 200 tpa
Frequency and duration of use	Default 200 d/y
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m3/d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.
Other environmental control measures additional to above	Not applicable
Fraction of the main local source	0.25

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3 Exposure estimation

3.1 Workers exposure

Acute exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²) ⁴	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³) ⁵	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.82	mg/kg/d			PROC4 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	1.65	mg/kg/d			PROC13 ECETOC TRA calculation
	0.041	mg/kg/d			PROC15 ECETOC TRA calculation
	0.34	mg/kg/d			PROC21 ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
Inhalation exposure	0.0021	mg/m ³			PROC4 ECETOC TRA calculation
	0.00021	mg/m ³			PROC8b ECETOC TRA calculation
	0.00042	mg/m ³			PROC13 ECETOC TRA calculation
	0.00042	mg/m ³			PROC15 ECETOC TRA calculation
	0.0042	mg/m ³			PROC21 ECETOC TRA calculation
	0.00042	mg/m ³			PROC3 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

⁴ per day or per event, which ever is more relevant
⁵ during short-term exposure, air concentration at the workplace

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<i>Routes of exposure</i>	<i>Concentrations</i>	<i>Justification</i>
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ⁶	0.0042	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Concentration in sewage (PEC _{stp})(in mg/L)	0.0105	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater (mg/L)	0.00087	EUSES 2.1.
Marine water (mg/L)	0.000685	EUSES 2.1.

Exposure concentration in sediments

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater sediments (in mg/kg d.w)	0.00107	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00084	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Agricultural soil averaged (mg/kg ww)	0.000206	EUSES 2.1. 180days

⁶ air concentration at the workplace

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Grassland averaged (mg/kg ww)

0.0000207

EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible.
Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning.

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 3: Manufacture of resorcinol formaldehyde resins

1 Substance / User identity	
Title	Manufacture of resorcinol formaldehyde resins
Use Descriptor	Sector of Use: Industrial (SU9) Process Categories: PROC3, PROC6, PROC8b, PROC15, PROC 8a, PROC 21 Environmental Release Categories: ERC6d
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E118]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.

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Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
Use of respiratory protection, and if so, minimum efficiency?	90%
Dermal PPE/Gloves	Gloves APF 5
2.2 Control of environmental exposure	
Product characteristics	Solid
Amounts used	Total amount for this usage is 200 tpa
Frequency and duration of use	Default 200 d/y
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.
Other environmental control measures additional to above	Not applicable
Fraction of the main local source	0.25

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3 Exposure estimation

3.1 Workers exposure

Acute exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²) ⁷	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³) ⁸	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.069	mg/kg/d			PROC15 ECETOC TRA calculation
	2.743	mg/kg/d			PROC8b ECETOC TRA calculation
	2.743	mg/kg/d			PROC8a ECETOC TRA calculation
	5.486	mg/kg/d			PROC6 ECETOC TRA calculation
	0.566	mg/kg/d			PROC21 ECETOC TRA calculation
	0.137	mg/kg/d			PROC3 ECETOC TRA calculation
Inhalation exposure	0.0007	mg/m ³			PROC15 ECETOC TRA calculation
	0.00035	mg/m ³			PROC8b ECETOC TRA calculation
	0.0035	mg/m ³			PROC8a ECETOC TRA calculation
	0.0007	mg/m ³			PROC6 ECETOC TRA calculation
	0.007	mg/m ³			PROC21 ECETOC TRA calculation
	0.0007	mg/m ³			PROC3 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

⁷ per day or per event, which ever is more relevant
⁸ during short-term exposure, air concentration at the workplace

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<i>Routes of exposure</i>	<i>Concentrations</i>	<i>Justification</i>
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	5.486	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ⁹	0.007	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Concentration in sewage (PEC _{stp})(in mg/L)	0.0105	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater (mg/L)	0.00087	EUSES 2.1.
Marine water (mg/L)	0.000685	EUSES 2.1.

Exposure concentration in sediments

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater sediments (in mg/kg d.w)	0.00107	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00084	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Agricultural soil averaged (mg/kg ww)	0.0000603	EUSES 2.1. 180days

⁹ air concentration at the workplace

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Grassland averaged (mg/kg ww)

0.0000208

EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible.
Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning.

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 4: industrial use of phenol resorcinol formaldehyde resin as a wood adhesive

1 Substance / User identity	
Title	industrial use of phenol resorcinol formaldehyde resin as a wood adhesive
Use Descriptor	Sector of Use: Industrial (SU6a, SU10) Process Categories: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC 15, PROC 19 Environmental Release Categories: ERC2 ERC5 ERC6d
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E18]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers.	Ensure material transfers are under containment or extract ventilation.

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Drum/batch transfers [CS8].	
Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
Dedicated facility [CS81]Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
Use of respiratory protection, and if so, minimum efficiency?	90%
Dermal PPE/Gloves	Gloves APF 5
2.2 Control of environmental exposure	
Product characteristics	Solid
Amounts used	Total amount for this usage is 100 tpa
Frequency and duration of use	Default 100 d/y
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.
Other environmental control measures additional to above	Not applicable
Fraction of the main local source	0.25

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3 Exposure estimation

3.1 Workers exposure

Acute exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.0411	mg/kg/d			PROC15 ECETOC TRA calculation
	1.646	mg/kg/d			PROC8a ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
	1.646	mg/kg/d			PROC8b ECETOC TRA calculation
	16.971	mg/kg/d			PROC19 ECETOC TRA calculation
	0.823	mg/kg/d			PROC4 ECETOC TRA calculation
	1.646	mg/kg/d			PROC5 ECETOC TRA calculation
	3.291	mg/kg/d			PROC10 ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.021	mg/m ³			PROC8a ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.021	mg/m ³			PROC19 ECETOC TRA calculation
	0.021	mg/m ³			PROC4 ECETOC TRA calculation
	0.021	mg/m ³			PROC5 ECETOC TRA calculation
	0.021	mg/m ³			PROC10 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

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<i>Routes of exposure</i>	<i>Concentrations</i>	<i>Justification</i>
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	16.971	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday10	0.021	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Concentration in sewage (PEC _{stp})(in mg/L)	0.00527	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater (mg/L)	0.000435	EUSES 2.1.
Marine water (mg/L)	0.000343	EUSES 2.1.

Exposure concentration in sediments

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Freshwater sediments (in mg/kg d.w)	0.00053	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00042	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
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10 air concentration at the workplace

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Agricultural soil averaged (mg/kg ww)	0.0000301	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000103	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible.
 Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning.

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 5: manufacture of flame retardants

1 Substance / User identity	
Title	Manufacture of flame retardants
Use Descriptor	Sector of Use: Industrial (SU9) Process Categories: PROC3, PROC4, PROC8a, PROC8b, PROC 15 Environmental Release Categories: ERC6a
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [EI18]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.
Filling / preparation of equipment from drums or	Handle substance within a closed system. Provide extract ventilation to

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containers. [CS45]. Filling of articles/equipment [CS84]	points where emissions occur.				
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].				
Use of respiratory protection, and if so, minimum efficiency?	90%				
Dermal PPE/Gloves	Gloves APF 5				
2.2 Control of environmental exposure					
Product characteristics	Solid				
Amounts used	Total amount for this usage is 100 tpa				
Frequency and duration of use	Default 100 d/y				
Other Operational Conditions of use affecting environmental exposure	Not applicable				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable				
Organisation measures to prevent/limit release from site	Not applicable				
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10				
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route				
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.				
Other environmental control measures additional to above	Not applicable				
Fraction of the main local source	0.25				
3 Exposure estimation					
3.1 Workers exposure					
Acute exposure concentrations to workers					
Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

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Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.041	mg/kg/d			PROC15 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8aECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
	0.823	mg/kg/d			PROC4 ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.021	mg/m ³			PROC8aECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.021	mg/m ³			PROC4 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ¹¹	0.021	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

¹¹ air concentration at the workplace

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Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.00527	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.000435	EUSES 2.1.
Marine water (mg/L)	0.000343	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.000533	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00042	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000301	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000104	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

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Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 6: manufacture of UV stabilisers

1 Substance / User identity	
Title	manufacture of UV stabilisers
Use Descriptor	Sector of Use: Industrial (SU9) Process Categories: PROC3, PROC9, PROC8a, PROC8b, PROC 15 Environmental Release Categories: ERC6a
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [EI18]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.
Filling / preparation of equipment from drums or	Handle substance within a closed system. Provide extract ventilation to

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containers. [CS45]. Filling of articles/equipment [CS84]	points where emissions occur.				
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].				
Use of respiratory protection, and if so, minimum efficiency?	90%				
Dermal PPE/Gloves	Gloves APF 5				
2.2 Control of environmental exposure					
Product characteristics	Solid				
Amounts used	Total amount for this usage is 100 tpa				
Frequency and duration of use	Default 80d/y				
Other Operational Conditions of use affecting environmental exposure	Not applicable				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable				
Organisation measures to prevent/limit release from site	Not applicable				
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10				
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route				
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.				
Other environmental control measures additional to above	Not applicable				
Fraction of the main local source	0.25				
3 Exposure estimation					
3.1 Workers exposure					
Acute exposure concentrations to workers					
Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

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Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.041	mg/kg/d			PROC15 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8aECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
	0.823	mg/kg/d			PROC9ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.021	mg/m ³			PROC8aECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.0042	mg/m ³			PROC9 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday12	0.021	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

¹² air concentration at the workplace

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Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.00422	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.000348	EUSES 2.1.
Marine water (mg/L)	0.000274	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.000426	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.000336	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000241	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.00000832	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

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Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 7: manufacture of Ag. Chemicals

1 Substance / User identity	
Title	Manufacture of Ag. Chemicals
Use Descriptor	Sector of Use: Industrial (SU9) Process Categories: PROC1, PROC3, PROC8a, PROC8b, PROC 15 Environmental Release Categories: ERC6a
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [EI18]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.
Filling / preparation of equipment from drums or	Handle substance within a closed system. Provide extract ventilation to

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containers. [CS45]. Filling of articles/equipment [CS84]	points where emissions occur.				
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].				
Use of respiratory protection, and if so, minimum efficiency?	90%				
Dermal PPE/Gloves	Gloves APF 5				
2.2 Control of environmental exposure					
Product characteristics	Solid				
Amounts used	Total amount for this usage is 80tpa				
Frequency and duration of use	Default 80d/y				
Other Operational Conditions of use affecting environmental exposure	Not applicable				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable				
Organisation measures to prevent/limit release from site	Not applicable				
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10				
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route				
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.				
Other environmental control measures additional to above	Not applicable				
Fraction of the main local source	0.25				
3 Exposure estimation					
3.1 Workers exposure					
Acute exposure concentrations to workers					
Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

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Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.041	mg/kg/d			PROC15 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8aECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	0.004	mg/kg/d			PROC1 ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.021	mg/m ³			PROC8aECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.00042	mg/m ³			PROC1 ECETOC TRA calculation
	0.0042	mg/m ³			PROC3ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday13	0.021	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

13 air concentration at the workplace

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Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.00422	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.000348	EUSES 2.1.
Marine water (mg/L)	0.000274	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.000426	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.000336	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000241	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.00000832	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

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Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 8: manufacture of industrial dyes

1 Substance / User identity	
Title	Manufacture of industrial dyes
Use Descriptor	Sector of Use: Industrial (SU9,SU10) Process Categories: PROC1, PROC3, PROC4, PROC 5, PROC8a, PROC8b, PROC9, PROC14, PROC 15 Environmental Release Categories: ERC 1, ERC 2, ERC6a
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E118]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.

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Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
Use of respiratory protection, and if so, minimum efficiency?	90%
Dermal PPE/Gloves	Gloves APF 5

2.2 Control of environmental exposure

Product characteristics	Solid
Amounts used	Total amount for this usage is 150 tpa
Frequency and duration of use	Default 150 d/y
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.
Other environmental control measures additional to above	Not applicable
Fraction of the main local source	0.25

3 Exposure estimation

3.1 Workers exposure

Acute exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

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Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	0.0411	mg/kg/d			PROC15 ECETOC TRA calculation
	1.65	mg/kg/d			PROC8a ECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	0.00411	mg/kg/d			PROC1 ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
	0.823	mg/kg/d			PROC9 ECETOC TRA calculation
	0.823	mg/kg/d			PROC4 ECETOC TRA calculation
	1.65	mg/kg/d			PROC5 ECETOC TRA calculation
	0.411	mg/kg/d			PROC14 ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.021	mg/m ³			PROC8a ECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.00042	mg/m ³			PROC1 ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.0042	mg/m ³			PROC9 ECETOC TRA calculation
	0.021	mg/m ³			PROC4 ECETOC TRA calculation
	0.021	mg/m ³			PROC5 ECETOC TRA calculation
	0.0042	mg/m ³			PROC14 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ¹⁴	0.00375	The maximum value of all the PROC

3.2 Consumer exposure

¹⁴ air concentration at the workplace

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There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.0079	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.000652	EUSES 2.1.
Marine water (mg/L)	0.000514	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.000799	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00063	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000452	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000156	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

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The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

<i>Compartments</i>	<i>Local concentration</i>	<i>Justification</i>
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 9: Formulation of hair dyes

1 Substance / User identity	
Title	Formulation of hair dyes
Use Descriptor	Sector of Use: Industrial (SU10) Process Categories: PROC3, PROC 5, PROC8b, PROC9, PROC 15 Environmental Release Categories: ERC 2
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [EI18]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.
Filling / preparation of equipment from drums or	Handle substance within a closed system. Provide extract ventilation to

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containers. [CS45]. Filling of articles/equipment [CS84]	points where emissions occur.				
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].				
Use of respiratory protection, and if so, minimum efficiency?	90%				
Dermal PPE/Gloves	Gloves APF 5				
2.2 Control of environmental exposure					
Product characteristics	Solid				
Amounts used	Total amount for this usage is 250 tpa				
Frequency and duration of use	Default 250 d/y				
Other Operational Conditions of use affecting environmental exposure	Not applicable				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable				
Organisation measures to prevent/limit release from site	Not applicable				
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 15				
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route				
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.				
Other environmental control measures additional to above	Not applicable				
Fraction of the main local source	0.3				
3 Exposure estimation					
3.1 Workers exposure					
Acute exposure concentrations to workers					
Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

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Summary of acute exposure concentrations to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	1.65	mg/kg/d			PROC5 ECETOC TRA calculation
	0.082	mg/kg/d			PROC3 ECETOC TRA calculation
	0.0411	mg/kg/d			PROC15 ECETOC TRA calculation
	0.823	mg/kg/d			PROC9 ECETOC TRA calculation
Inhalation exposure	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.021	mg/m ³			PROC5 ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.0042	mg/m ³			PROC15 ECETOC TRA calculation
	0.0042	mg/m ³			PROC9 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday15	0.021	The maximum value of all the PROC

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

¹⁵ air concentration at the workplace

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Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.0158	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.000871	EUSES 2.1.
Marine water (mg/L)	0.00103	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.00107	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00126	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000904	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000312	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible. Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 10: Manufacture of phenol resorcinol formaldehyde resins

1 Substance / User identity	
Title	Manufacture of phenol resorcinol formaldehyde resins
Use Descriptor	Sector of Use: Industrial (SU9) Process Categories: PROC3, PROC4, PROC 5, PROC8a ,PROC8b, PROC9, PROC 15 Environmental Release Categories: ERC 2, ERC 6d
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
Contributing Scenarios	Risk Management Measures Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment and may be communicated in Section 5 of the ES or within the main sections of the SDS.
Mixing operations (closed systems). Continuous process.	Handle substance within a closed system.Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Ensure all waste water is collected and treated via a WWTP. {Drain down and flush system prior to equipment break-in or maintenance }. {Clear spills immediately }. {Retain drain downs in sealed storage pending disposal or for subsequent recycle }.
Mixing operations (open systems). Batch process. With sample collection	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. No specific measures identified [E118]. Wear suitable gloves tested to EN374 [PPE15]. Dispose of waste or used sacks/containers according to local regulations. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposuresUse in contained batch processes. ; With sample collection	Use in semi-automated and predominantly enclosed filling lines. Ensure material transfers are under containment or extract ventilation. Wear suitable gloves tested to EN374 [PPE15].
Transfer from/pouring from containers. Drum/batch transfers [CS8].	Ensure material transfers are under containment or extract ventilation.

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Filling / preparation of equipment from drums or containers. [CS45]. Filling of articles/equipment [CS84]	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.				
Dedicated facility [CS81] Filling of articles/equipment [CS84]	Ensure material transfers are under containment or extract ventilation. No specific measures identified. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].				
Use of respiratory protection, and if so, minimum efficiency?	90%				
Dermal PPE/Gloves	Gloves APF 5				
2.2 Control of environmental exposure					
Product characteristics	Solid				
Amounts used	Total amount for this usage is 200 tpa				
Frequency and duration of use	Default 200 d/y				
Other Operational Conditions of use affecting environmental exposure	Not applicable				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable				
Organisation measures to prevent/limit release from site	Not applicable				
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 20000 m ³ /d, assuming a dilution factor of 10				
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route				
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.				
Other environmental control measures additional to above	Not applicable				
Fraction of the main local source	0.3				
3 Exposure estimation					
3.1 Workers exposure					
Acute exposure concentrations to workers					
Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Summary of acute exposure concentrations to workers					

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Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to workers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	value	unit	
Dermal exposure	1.65	mg/kg/d			PROC8aECETOC TRA calculation
	1.65	mg/kg/d			PROC8b ECETOC TRA calculation
	0.0411	mg/kg/d			PROC15ECETOC TRA calculation
	0.0823	mg/kg/d			PROC3 ECETOC TRA calculation
	0.823	mg/kg/d			PROC4 ECETOC TRA calculation
	1.65	mg/kg/d			PROC5 ECETOC TRA calculation
	0.823	mg/kg/d			PROC9 ECETOC TRA calculation
Inhalation exposure	0.021	mg/m ³			PROC8aECETOC TRA calculation
	0.0042	mg/m ³			PROC8b ECETOC TRA calculation
	0.0042	mg/m ³			PROC15ECETOC TRA calculation
	0.0042	mg/m ³			PROC3 ECETOC TRA calculation
	0.021	mg/m ³			PROC4 ECETOC TRA calculation
	0.021	mg/m ³			PROC5 ECETOC TRA calculation
	0.0042	mg/m ³			PROC9 ECETOC TRA calculation

Summary of long-term exposure concentration to workers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	1.65	The maximum value of all the PROC
Inhalation exposure (in mg/m ³)/8h workday ¹⁶	0.021	The maximum value of all the PROC

¹⁶ air concentration at the workplace

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3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.0126	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.00104	EUSES 2.1.
Marine water (mg/L)	0.000822	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.00128	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00101	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible.

Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.0000722	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.0000248	EUSES 2.1.

Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible.

Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

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Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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Exposure scenario 11: consumer use- use of hair dyes

1 Substance / User identity	
Title	Use of hair dyes
Use Descriptor	PC 39: Cosmetics, personal care products Environmental Release Categories: ERC8a
2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Physical form of product	Solid, White-slightly colored flake
Concentration of substance in product	Substance as such
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 4hours (unless stated differently)
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient Assumes a good basic standard of occupational hygiene is implemented
2.2 Control of environmental exposure	
Product characteristics	Solid
Amounts used	Total amount for this usage is 10 tpa
Frequency and duration of use	Default 10 d/y
Product Ingredient Fraction by Weight	0.05
body part exposed	5: upper part of the body
surface area mouthed	1: some fingertips
FreQ of Use (events/day)	2
Amount Product used per Application (g/event)	19.2
Exposure Time(hr)	8
FreQ of Use(events/day)	2
Other Operational Conditions of use affecting environmental exposure	Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Not applicable
Organisation measures to prevent/limit release from site	Not applicable
Conditions and measures related to municipal sewage treatment plant	Safe use was shown with an default effluent rate of 18000 m ³ /d, assuming a dilution factor of 10
Conditions and measures related to external treatment of waste for disposal	Incineration in municipal incinerators will be the major disposal route
Conditions and measures related to external recovery of waste	Re-use of equipment washing solvent has been a common measure for waste minimisation over the years and is usually achieved by distillation (on- or off-site) of the washing liquid to recover the cleaning solvent.

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Other environmental control measures additional to above	Not applicable
Fraction of the main local source	1

3 Exposure estimation

3.1 consumer exposure

Acute exposure concentrations to consumers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR
Inhalation exposure	Not applicable				The long-term exposure data will be used in RCR
	Not applicable				The long-term exposure data will be used in RCR

Summary of acute exposure concentrations to consumers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	Not applicable	The long-term exposure data will be used in RCR
Dermal systemic exposure (in mg/kg bw/d)	Not applicable	The long-term exposure data will be used in RCR
Inhalation exposure (in mg/m ³)	Not applicable	The long-term exposure data will be used in RCR

Long-term exposure concentrations to consumers

Routes of exposure	Estimated Exposure Concentrations		Measured exposure concentrations		Explanation / source of measured data
	value	unit	Value	unit	
Dermal exposure	14.6	mg/kg/d			PC39 ECETOC TRA calculation
Inhalation exposure	0.0166	mg/m ³			PC39 ECETOC TRA calculation

Summary of long-term exposure concentration to consumers

Routes of exposure	Concentrations	Justification
Dermal local exposure (in mg/cm ²)	No data	
Dermal systemic exposure (in mg/kg bw/d)	14.6	The maximum value of all the PC
Inhalation exposure (in mg/m ³)/8h	0.0166	The maximum value of all the PC

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workday17

3.2 Consumer exposure

There is no consumer use for this substance. So exposure to consumers won't be considered in the CSR.

3.3 Environmental exposure

In case the exposure scenario is covering several life stages, the section below has to be repeated to cover those different life stages within this section.

Environmental releases

No significant quantities of resorcinol will be released into the environmental compartments like water, air and soil during the production of general rubber goods; and hence the amount of resorcinol breakdown products found in environment due to this use is also negligible.

Releases to the environment

Exposure concentration in sewage treatment plants (STP)

Compartments	Local concentration	Justification
Concentration in sewage (PEC _{stp})(in mg/L)	0.0173	EUSES 2.1.

Exposure concentration in aquatic pelagic compartment

Summary of the Predicted Exposure Concentrations (PEC) in the aquatic pelagic compartment taken into account for risk characterization

Compartments	Local concentration	Justification
Freshwater (mg/L)	0.00174	EUSES 2.1.
Marine water (mg/L)	0.00137	EUSES 2.1.

Exposure concentration in sediments

Compartments	Local concentration	Justification
Freshwater sediments (in mg/kg d.w)	0.00175	EUSES 2.1.
Marine water sediments (in mg/kg d.w.)	0.00138	EUSES 2.1.

Exposure concentrations in soil and groundwater

The exposure of the terrestrial compartment can occur through the application of sewage sludge and the deposition from the atmosphere. Since no emission to waste water occurs, the entry via sewage sludge can be excluded. Deposition from air is unlikely to occur as an emission to the atmospheric compartment during production of general rubber goods is negligible. Summary of the Predicted Exposure Concentration (PEC) in soil taken into account for risk characterization.

Compartments	Local concentration	Justification
Agricultural soil averaged (mg/kg ww)	0.000337	EUSES 2.1. 180days
Grassland averaged (mg/kg ww)	0.000428	EUSES 2.1.

17 air concentration at the workplace

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Atmospheric compartment

The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible.

Summary of the Predicted Exposure Concentration in air taken into account for risk characterization.

Compartments	Local concentration	Justification
Air	negligible	The substance is bound in solid matrix. Due to the low vapour pressure, release of the substance into air is negligible

Exposure concentration relevant for the food chain (Secondary poisoning)

The key step for the risk estimation of accumulation through the food chain is to consider whether there are indications for bioaccumulation potential. The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning .

Compartments	Local concentration	Justification
Concentration in fish for secondary poisoning (freshwater) (in mg/kg w.w)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in earthworm from agricultural soil (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish for secondary poisoning (marine) (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning
Concentration in fish-eating marine top predators (in mg/kg w.w.)	NA	The described breakdown products are not bioaccumulative; and hence there is no risk for secondary poisoning

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10 RISK CHARACTERISATION

1 compounding-use of resorcinol in rubber compounding

1.1 Human health

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL¹⁸	Risk characterisation ratio¹⁹
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal-systemic
Long-term - systemic effects	Dermal	3.29mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0823
	Inhalation	0.06 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00153
	Combined routes				0.08383
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	3.29mg/kg bw/d	90-d repeated dose toxicity	0.0823 risk controlled
	Inhalation	0.06 mg/m ³	90-d repeated dose toxicity	0.00153 risk controlled
	Combined routes			0.08383 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

¹⁸ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

¹⁹ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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Consumers

Not required because resorcinol won't be contacted by generation population.

1.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.00131 mg/l	0.0172 mg/l	0.076	
Marine water	0.00103g/l	0.00172mg/l	0.6	
Sediment(freshwater)	0.0016	0.109 mg/kg	0.015	
Sediment(marinewater)	0.00126	0.0109 mg/kg	0.12	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

1.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000904 mg/kg	0.0076mg/kg	0.012	
Terrestrial food chain	not relevant	3.78mg/kg food		

1.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

1.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0158mg/l	0.79 mg/l	0.02	

2 Dipping-use in manufacture of rubber compounds

2.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ²⁰	Risk characterisation ratio ²¹
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term -	Dermal	1.65mg/kg bw/d	90-d repeated	5.6mg/kg d	0.0411

²⁰ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误! 未找到引用源。.

²¹ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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systemic effects			dose toxicity		
	Inhalation	0.0042 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00075
	Combined routes				0.04185
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.0042 mg/m ³	90-d repeated dose toxicity	0.00075 risk controlled
	Combined routes			0.04185 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

2.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.00087 mg/L	0.0172 mg/l	0.051	
Marine water	0.000685mg/L	0.00172mg/l	0.398	
Sediment(freshwater)	0.00107	0.109 mg/kg	0.0098	
Sediment(marinewater)	0.00084	0.0109 mg/kg	0.077	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

2.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
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soil	0.0000904 mg/kg	0.0076mg/kg	0.012	
Terrestrial food chain	not relevant	3.78mg/kg food		

2.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

2.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0105mg/l	0.79 mg/l	0.013	

3 Industrial use of resorcinol formaldehyde resins Human health

3.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL22	Risk characterisation ratio23
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term - systemic effects	Dermal	5.486mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.137
	Inhalation	0.007 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00125
	Combined routes				0.13825
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute -	Dermal	mg/kg bw/d		

22 The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

23 Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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systemic effects	Inhalation	mg/m ³		
	Acute - local effects	Dermal	mg/cm ² *	
		Inhalation	mg/m ³ **	
		Combined routes		
Long-term - systemic effects	Dermal	5.486mg/kg bw/d	90-d repeated dose toxicity	0.137 risk controlled
	Inhalation	0.007 mg/m ³	90-d repeated dose toxicity	0.00125 risk controlled
	Combined routes			0.13825 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

3.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.00087 mg/L	0.0172 mg/l	0.051	
Marine water	0.000685mg/L	0.00172mg/l	0.398	
Sediment(freshwater)	0.00107	0.109 mg/kg	0.0098	
Sediment(marinewater)	0.00084	0.0109 mg/kg	0.077	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

3.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000603 mg/kg	0.0076mg/kg	0.079	
Terrestrial food chain	not relevant	3.78mg/kg food		

3.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

3.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0105mg/l	0.79 mg/l	0.013	

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4 Industrial use of phenol resorcinol formaldehyde resin as a wood adhesive

**4.1 Human health
workers**

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ²⁴	Risk characterisation ratio ²⁵
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term - systemic effects	Dermal	16.971mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.424
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.42775
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	16.971mg/kg bw/d	90-d repeated dose toxicity	0.424 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.42775 risk controlled

²⁴ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

²⁵ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

4.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000435mg/L	0.0172 mg/l	0.025	
Marine water	0.000343mg/L	0.00172mg/l	0.2	
Sediment(freshwater)	0.000533	0.109 mg/kg	0.0049	
Sediment(marinewater)	0.00042	0.0109 mg/kg	0.039	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

4.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000103 mg/kg	0.0076mg/kg	0.014	
Terrestrial food chain	not relevant	3.78mg/kg food		

4.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

4.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0105mg/l	0.79 mg/l	0.013	

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5 Manufacture of flame retardant

**5.1 Human health
workers**

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ²⁶	Risk characterisation ratio ²⁷
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04475
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.4775 risk controlled

²⁶ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

²⁷ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

5.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000435mg/L	0.0172 mg/l	0.025	
Marine water	0.000343mg/L	0.00172mg/l	0.2	
Sediment(freshwater)	0.000533	0.109 mg/kg	0.0049	
Sediment(marinewater)	0.00042	0.0109 mg/kg	0.039	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

5.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000301g/kg	0.0076mg/kg	0.004	
Terrestrial food chain	not relevant	3.78mg/kg food		

5.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

5.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.00527	0.79 mg/l	0.0067	

6 Manufacture of UV stabilisers

6.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL28	Risk characterisation ratio29
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR

28 The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。 .

29 Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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					Dermal- systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04485
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.04485 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

6.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000348mg/L	0.0172 mg/l	0.02	
Marine water	0.000274mg/L	0.00172mg/l	0.16	
Sediment(freshwater)	0.000426mg/kg	0.109 mg/kg	0.004	
Sediment(marinewater)	0.000336 mg/kg	0.0109 mg/kg	0.031	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food		

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6.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000241g/kg	0.0076mg/kg	0.00317	
Terrestrial food chain	not relevant	3.78mg/kg food		

6.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

6.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.00527	0.79 mg/l	0.005	

7 Manufacture of Ag. Chemicals

7.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL30	Risk characterisation ratio ³¹
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal-systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04485
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as "Acute systemic effects-inhalation exposure concentration"

*** same value as "Long-term systemic effects-inhalation exposure concentration"

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations	Leading toxic end point /	Qualitative risk characterisation
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30 The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

31 Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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		(EC)	Critical effect	
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.04485 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

7.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000348mg/L	0.0172 mg/l	0.02	
Marine water	0.000274mg/L	0.00172mg/l	0.16	
Sediment(freshwater)	0.000426mg/kg	0.109 mg/kg	0.004	
Sediment(marinewater)	0.000336 mg/kg	0.0109 mg/kg	0.031	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food	Not relevant	

7.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000241g/kg	0.0076mg/kg	0.00317	
Terrestrial food chain	not relevant	3.78mg/kg food		

7.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

7.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.00422mg/l	0.79 mg/l	0.005	

8 Manufacture of industrial dyes

8.1 Human health workers

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(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ³²	Risk characterisation ratio ³³
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal-systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04485
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.04485 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

³² The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。
³³ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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Not required because resorcinol won't be contacted by generation population.

8.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000652mg/L	0.0172 mg/l	0.038	
Marine water	0.000514mg/L	0.00172mg/l	0.3	
Sediment(freshwater)	0.000799mg/kg	0.109 mg/kg	0.0073	
Sediment(marinewater)	0.00063 mg/kg	0.0109 mg/kg	0.058	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food	Not relevant	

8.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000452g/kg	0.0076mg/kg	0.006	
Terrestrial food chain	not relevant	3.78mg/kg food		

8.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

8.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0079mg/l	0.79 mg/l	0.01	

9 Formulation if hair dyes

9.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ³⁴	Risk characterisation ratio ³⁵
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR

³⁴ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误! 未找到引用源。 .

³⁵ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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					Dermal- systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04485
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.04485 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

9.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.000871mg/L	0.0172 mg/l	0.051	
Marine water	0.000103mg/L	0.00172mg/l	0.6	
Sediment(freshwater)	0.000107mg/kg	0.109 mg/kg	0.0098	
Sediment(marinewater)	0.00126mg/kg	0.0109 mg/kg	0.12	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food	Not relevant	

9.3 Terrestrial compartment (including secondary poisoning)

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Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000904g/kg	0.0076mg/kg	0.012	
Terrestrial food chain	not relevant	3.78mg/kg food		

9.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

9.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0158mg/l	0.79 mg/l	0.02	

10 Manufacture of phenol resorcinol formaldehyde resins

10.1 Human health

workers

(Semi) Quantitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ³⁶	Risk characterisation ratio ³⁷
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.0411
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.00375
	Combined routes				0.04485
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event, which ever is more relevant

** same value as "Acute systemic effects-inhalation exposure concentration"

*** same value as "Long-term systemic effects-inhalation exposure concentration"

Qualitative risk characterisation for workers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute -	Dermal	mg/kg bw/d		

³⁶ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

³⁷ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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systemic effects	Inhalation	mg/m ³		
	Acute - local effects	Dermal	mg/cm ² *	
		Inhalation	mg/m ³ **	
		Combined routes		
Long-term - systemic effects	Dermal	1.65mg/kg bw/d	90-d repeated dose toxicity	0.0411 risk controlled
	Inhalation	0.021 mg/m ³	90-d repeated dose toxicity	0.00375 risk controlled
	Combined routes			0.04485 risk controlled
Long-term – local effects	Dermal	mg/cm ² /d		
	Inhalation	mg/m ³ ***		

Consumers

Not required because resorcinol won't be contacted by generation population.

10.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.00104mg/L	0.0172 mg/l	0.06	
Marine water	0.000822mg/L	0.00172mg/l	0.48	
Sediment(freshwater)	0.0128mg/kg	0.109 mg/kg	0.117	
Sediment(marinewater)	0.00101mg/kg	0.0109 mg/kg	0.093	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food	Not relevant	

10.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.0000722g/kg	0.0076mg/kg	0.0095	
Terrestrial food chain	not relevant	3.78mg/kg food		

10.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

10.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0126mg/l	0.79 mg/l	0.016	

11 Consumer use-use of hair dyes

11.1 Human health

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workers

(Semi) Quantitative risk characterisation for consumers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	DN(M)EL ³⁸	Risk characterisation ratio ³⁹
Acute - systemic effects	Dermal	mg/kg bw/d			
	Inhalation	mg/m ³			
Acute - local effects	Dermal	mg/cm ² *			
	Inhalation	mg/m ³ **			
	Combined routes				RCR Inhalation-systemic + RCR Dermal- systemic
Long-term - systemic effects	Dermal	14.6mg/kg bw/d	90-d repeated dose toxicity	5.6mg/kg d	0.729
	Inhalation	0.0166 mg/m ³	90-d repeated dose toxicity	40mg/kg d	0.0118
	Combined routes				0.7408
Long-term – local effects	Dermal	mg/cm ² /d	Not applicable		
	Inhalation	mg/m ³ ***	Not applicable		

* per day or event which ever is more relevant

** same value as “Acute systemic effects-inhalation exposure concentration”

*** same value as “Long-term systemic effects-inhalation exposure concentration”

Qualitative risk characterisation for consumers

	Route	ES 1- exposure concentrations (EC)	Leading toxic end point / Critical effect	Qualitative risk characterisation
Acute - systemic effects	Dermal	mg/kg bw/d		
	Inhalation	mg/m ³		
Acute - local effects	Dermal	mg/cm ² *		
	Inhalation	mg/m ³ **		
	Combined routes			
Long-term - systemic effects	Dermal	14.6mg/kg bw/d	90-d repeated dose toxicity	0.729 risk controlled
	Inhalation	0.0166 mg/m ³	90-d repeated dose toxicity	0.0118 risk controlled
	Combined routes			0.7408 risk controlled
Long-term –	Dermal	mg/cm ² /d		

³⁸ The 8 D(M)NELs relevant here can be extracted from IUCLID 5 and are already reported in 错误！未找到引用源。.

³⁹ Equal to the ratio of the relevant EC (reported in column 3) to the relevant D(M)NEL (reported in column 5)

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local effects	Inhalation	mg/m ³ ***		
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Consumers

Not required because resorcinol won't be contacted by generation population.

11.2 Environment (combined for all emission sources)

Aquatic compartment (including sediment and secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Freshwater	0.00174mg/L	0.0172 mg/l	0.1	
Marine water	0.00137mg/L	0.00172mg/l	0.8	
Sediment(freshwater)	0.00175mg/kg	0.109 mg/kg	0.117	
Sediment(marinewater)	0.00138mg/kg	0.0109 mg/kg	0.13	
Aquatic freshwater food chain	0 mg/kg	3.78mg/kg food	0	
Aquatic marine water food chain	not relevant	3.78mg/kg food	Not relevant	

11.3 Terrestrial compartment (including secondary poisoning)

Compartments	PEC	PNEC	PEC/PNEC	Discussion
soil	0.000337g/kg	0.0076mg/kg	0.044	
Terrestrial food chain	not relevant	3.78mg/kg food		

11.4 Atmospheric compartment

Compartments	PEC	PNEC	PEC/PNEC	Discussion
Atmospheric compartment	not relevant			

11.5 Sewage treatment system compartment

Risk characterisation for the STP

Compartments	PEC	PNEC	PEC/PNEC	Discussion
STP	0.0173mg/l	0.79 mg/l	0.002	

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Creation Date: Aug 10, 2019

1. Identification

1.1 GHS Product identifier

Product name 4-aminophenol

1.2 Other means of identification

Product number -

Other names 4-NH₂-Phenol

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only. Intermediates

Uses advised against no data available

1.4 Supplier's details

Company Guangzhou Haoliyang Chemical Co., Ltd
Address No.917-924, No.2 building, greenbelt international plaza, baiyun district, Guangzhou
Telephone 86-13360560806
Fax 86-020-86093643

1.5 Emergency phone number

Emergency phone number

Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

Acute toxicity - Inhalation, Category 4

Germ cell mutagenicity, Category 2

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed

H332 Harmful if inhaled

H341 Suspected of causing genetic defects

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell.

P330 Rinse mouth.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor/...if you feel unwell.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P391 Collect spillage.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4-aminophenol	4-aminophenol	123-30-8	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this chemical may include asthma, irritation of the skin and eyes, dermatitis and methemoglobinemia with cyanosis.

ACUTE/CHRONIC HAZARDS: This compound is a skin and eye irritant and an allergen. When heated to decomposition it emits toxic fumes.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Aniline and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use dry chemical, carbon dioxide, or alcohol foam extinguishers. Vapors are heavier than air and will collect in low areas. Vapors may travel long distances to ignition sources and flashback. Vapors in confined areas may explode when exposed to fire. Storage containers and parts of containers may rocket great distances, in many directions. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors or shows any signs of deforming), withdraw immediately to a secure position ... The only respirators recommended for fire fighting are self-contained breathing apparatuses that have full facepieces and are operated in a pressure-demand or other positive-pressure mode. /Anisidines/

5.2 Specific hazards arising from the chemical

Flash point data are not available for this chemical. It is probably combustible.

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Spill handling: keep dust under control. Use a vacuum or wet method to reduce dust during clean-up. Do not sweep. Evacuate persons not wearing protective equipment from area of spill or leak until clean-up is complete. Remove all ignition sources. Collect powdered material in the most convenient and safe manner and deposit in sealed containers. Ventilate area after clean-up is complete. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection of your regional office of the federal EPA for specific recommendations. /Aminophenols/

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in a cool, well-ventilated area. Aminophenols must be stored to avoid contact with strong oxidizers (such as chlorine, bromine, and fluorine), since violent reactions occur. /Aminophenols/

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	Off white granular powder
Colour	Orthorhombic plates from water
Odour	no data available
Melting point/ freezing point	-80°C(lit.)
Boiling point or initial boiling point and boiling range	110°C/1mmHg(lit.)
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	93°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:1.5 g/100 mL (20 °C)
Partition coefficient n-octanol/water (log value)	log Kow = 0.04 at pH 7.4
Vapour pressure	0.00202mmHg at 25°C
Density and/or relative density	1.21g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Deteriorates under influence of air and light

10.3Possibility of hazardous reactions

Heat (decomposition forming HCN, nitrous vapors, CO); water (CO₂); reacts violently with acids, bases, alcohols and amines causing fire and explosion hazards [Handling Chemicals Safely 1980 p. 647].

10.4Conditions to avoid

no data available

10.5Incompatible materials

Strong oxidants. /Aminophenols/

10.6Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /nitric oxides/.

11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 375 mg/kg
- Inhalation: LC50 Rat inhalation > 5.91 mg/L for 60 min
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (rainbow trout); Concentration: 1.2 mg/L for 96 hr /Conditions of bioassay not specified
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: 4-Aminophenol, present at 100 mg/L, reached 6% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). Total loss of UV absorbancy due to cleavage of the benzene ring was reported in 16 days in a screening study using a soil inoculum and 4-aminophenol at 5 ppm(2). 4-Aminophenol, present at 100 mg/L, in an electrolytic respirometry screening test using an activated sludge inoculum, was not biodegraded over a 10-day period as measured by BOD(3). 4-Aminophenol, at 200 mg/L chemical oxygen demand reached 87% removal in 5 days in a screening test using acclimated activated sludge at 100 mg/L(4). 4-Aminophenol, present at 50 and 10 mg/L was degraded by 0 and 85%, respectively, in river water and 0 and 100% in seawater, respectively(5).

12.3 Bioaccumulative potential

BCFs of 10-39 and 15-46 in carp (*Cyprinus carpio*) were reported for a 8 week study using 1.5 and 0.15 mg/L 4-aminophenol, respectively(1). According to a classification scheme(2), these BCFs suggest the potential for bioconcentration in aquatic organisms is low to moderate(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of 4-aminophenol can be estimated to be 90(SRC). According to a classification scheme(2), this estimated Koc value suggests that 4-aminophenol is expected to have high mobility in soil. However, anilines are expected to bind strongly to humus or organic matter in soils due to the high reactivity of the aromatic amino group(3-4), suggesting that mobility may be much lower in some soils(SRC). Measured pKa values are 5.48(5) and 10.46(6), for the amine and hydroxy functional groups, respectively(7). 4-Aminophenol is amphoteric and behaves either as a weak acid or weak base; the basic character usually predominates(8).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN2512

IMDG: UN2512

IATA: UN2512

14.2 UN Proper Shipping Name

ADR/RID: AMINOPHENOLS (o-, m-, p-)

IMDG: AMINOPHENOLS (o-, m-, p-)

IATA: AMINOPHENOLS (o-, m-, p-)

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG: yes

IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
4-aminophenol	4-aminophenol	123-30-8	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16. Other information

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.

Part 1: Chemicals and enterprise identification
Product name: PLATYCLADUS ORIENTALIS EXTRACT

Product use: the active component of personal care products

Part 2: Overview of the hazards
Risk: no danger under normal use conditions.

Part 3: Composition and component information
Mixture description: A mixture of the following ingredients containing harmless additives

NO.	INCI Name	Extracti on site	CAS No.	Content%
<u>1</u>	WATER	--	7732-18-5	<u>69.4</u>
<u>2</u>	BUTYLENE GLYCOL	--	107-88-0	<u>20</u>
3	PLATYCLADUS ORIENTALIS EXTRACT	--	--	<u>10</u>
<u>4</u>	PHENOXYETHANOL	--	122-99-6	0.6

Part 4: First-aid measures
Inhalation: supply fresh air, and the patient feels ill to ask the doctor.

Skin contact: rinse thoroughly with water and soap; consult doctor if skin irritation continues.

Eye contact: Open your eyes and rinse under running water for several minutes. If the symptoms persist, consult your doctor.

Feed: rinse your mouth with water; consult your doctor.

Part 5: Fire-fighting measures
Appropriate fire extinguishing agent: recommend carbon dioxide, dry powder, water and other fire extinguishing measures suitable for the surrounding environment.

Disable fire extinguisher: No.

Special hazard: if a fire occurs, irritating smoke may be released.

Protective equipment: Wear fully protected clothing, oral respiratory protection device.

Part 6: leakage emergency treatment
Personal protective measures: Wear protective clothing and wear anti-chemical gloves.

Environmental protection measures: Do not enter the sewers / water surface or groundwater.

Methods and materials for collecting and removing leaks: absorbing liquid adhesive raw materials (sand particles, diatomite, acid adhesives, universal adhesives, sawdust) for reuse or treatment.

Part 7: Operation, disposal and storage
Safe operation and handling precautions: Keep the storage sealed away from heat and direct sunlight, ensure good ventilation / exhaust devices in the workplace, and avoid contact with the eyes and skin.

Safe storage conditions: the original package is protected from light preservation, the recommended storage temperature: 10~25°C.

Storage: Store in a cool and ventilated warehouse. Stay away from fire and heat sources. Should be stored separately with oxidant, reducing agent, etc., avoid mixed storage.

Part 8: Contact control and individual protection
Preventive measures: full ventilation.

Respiratory system protection: Appropriate respiratory protection device is recommended.

Hand protection: The glove material must be impermeable and resistant to the product / substance / additive.

Eye protection: Wear safety glasses.

Environmental exposure control: the control measures must comply with the environmental protection regulations.

Part 9: Physical and chemical characteristics

Appearance (25°C): transparent liquid

Smell (25°C): slight characteristic odor

Specific gravity (D 20/4):0.90–1.10

Represent rate (N 20/D):1.3330–1.4500

Acidity (25°C, direct test): 4.0–8.0

Solubility: dissolved in water

Solid content (%): 10.0

Total number of bacteria (CFU / ml): 1000

Mold and Yeast (CFU / ml): 100

Heat-resistant coliform group (CFU / ml): Negative

S. aureus (CFU / ml): Negative

Pseudomonas aeruginosa (CFU / ml): Negative

Part 10: Stability and Reactivity

Stability: it is stable under the recommended storage conditions, the original package is protected from light, the storage temperature: 10~25°C, 24 months.

What should be avoided: avoid light, heat source, oxidant, reducing agent.

Part 11: Toxicology Information

Information on the toxicological impact: No.

Part 12: Ecological information

Ecological information: Avoid contaminating soil, surface water, and groundwater.

Part 13: Waste treatment methods

Recommendation: Disposal of the product according to the local regulations.

Suggestion: It must be discarded according to the official regulations.

Part 14: Transportation information

Transportation information: transportation by non-dangerous goods.

Part 15: Regulatory information

Regulatory information: No.

Part 16: Other information

Other information: The above content is based on our knowledge and the data information mentioned in this security information table. These are only for the above products and should help adopt adequate safety precautions.

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 1: Identification of the substance/mixture and of the company/undertaking
第1节：物质或混合物和供应商的标识

1.1. Product identifier/产品标识

Product Form/产品形态	Mixture/混合物
Product Name/产品名称	生姜
Product Code/产品货号	SY081535

1.2. Relevant identified uses of the substance or mixture and use advised against/化学品使用建议和使用限制

1.2.1 Relevant identified uses /已知的相关用途
Use of the substance/mixture/物质/混合物的使用：Fragrances/香料
1.2.2. Uses advised against/不建议的用途
No additional information available/无详细说明

1.3. Details of the supplier of the safety data sheet /供应商的详细情况

Guangzhou Sinyu Flavours & Fragrances Co. Ltd./广州馨誉香料有限公司
020-86302630

1.4. Emergency telephone number/紧急电话号码

Open hours/营业时间：8:30 am. to 17:45 pm./早上8：30-下午17：45
Emergency number/紧急号码：020-86302630

SECTION 2: Hazards identification
第2节：危险标识

2.1. Classification of the substance or mixture and any national or regional information/物质或混合物的分类

2.1.1 Classification according to Regulation (EC) No. 1272/2008(CLP),amended to COMMISSION DELEGATED REGULATION (EU) 2023/707./根据（EC）1272/2008（CLP），以及委员会授权条例（EU）2023/707进行分类

Acute Tox., Category2	H310
Skin Irrit., Category2	H315
Eye Irrit., Category2	H319
Aquati Chronic., Category2	H411

2.1.2 Additional information/其他信息

Full text of H- and EUH-statements/全文的H-语句: see section 16/请参阅第16节

2.2. Label elements/标签要素

Labelling according to Regulation (EC) No. 1272/2008 [CLP],amended to COMMISSION DELEGATED REGULATION (EU) 2023/707./根据（EC）1272/2008（CLP），以及委员会授权条例（EU）2023/707进行分类

Hazard pictograms/危险象形图

Safety Data Sheet

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According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878



GHS06



GHS07



GHS09

Signal word/信号词: danger

Hazard statements /危险陈述: H310-Fatal in contact with skin.
H315-Causes skin irritation.
H319-Causes serious eye irritation.
H411-Toxic to aquatic life with long lasting effects.

Precautionary statements/预防性声明: P260-Do not breathe dust/fume/gas/mist/vapours/ spray.
P264-Wash ... thoroughly after handling.
P264+P265-Wash hands[and...] thoroughly after handling.Do not touch eyes.
P271-Use only outdoors or in a well-ventilated area.
P273-Avoid release to the environment.
P280-Wear protective gloves/protective clothing/eye protection/face protection.
P284-[In case of inadequate ventilation] wear respiratory protection.
P302+P352-IF ON SKIN: Wash with plenty of water/...
P304+P340-IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P316-Get emergency medical help immediately.
P320-Specific treatment is urgent (see ... on this label).
P321-Specific treatment (see ... on this label)
P337+P317-If eye irritation persists:Get emergency medical help.
P362+P364-Take off contaminated clothing and wash it before reuse.
P391-Collect spillage.
P403+P233-Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards/其他危险

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605./该混合物不含 REACH 第 59 (1) 条中规定的具有内分泌干扰特性的物质, 以及不含委员会授权条例 (EU) 2017/2100 或 (EU) 2018/605 中规定的具有内分泌干扰特性的物质。

SECTION 3: Composition/information on ingredients 第3节: 组成/成分信息

3.1. Substances/物质

Not applicable./不适用

3.2. Mixtures

Safety Data Sheet

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Name/混合物	Cas-No/CAS号	EC-No/EC号	含量%	Classification according to Regulation (EC)No. 1272/2008 [CLP]/根据（EC）1272/2008 [CLP]进行分类
DIETHYL PHTHALATE	84-66-2	201-550-6	50-60	
CITRAL	5392-40-5	205-476-5	10-20	Skin Sens.,1,H317,Eye Irrit.,2,H319,
GERANIAL	141-27-5	205-476-5	1-5	
NERAL	106-26-3	203-379-2	1-5	
CITRONELLAL	106-23-0	203-376-6	1-5	Skin Sens.,1,H317,Eye Irrit.,2,H319,Aquati Chronic.,2,H411,
BUTYLATED HYDROXYTOLUENE	128-37-0	204-881-4	1-5	Aquatic Chronic.,1,H410,
CITRONELLOL	106-22-9	203-375-0	1-5	Skin Irrit.,2,H315,Skin Sens.,1,H317,Eye Irrit.,2,H319,Aquati Chronic.,2,H411,
LIMONENE	138-86-3	205-341-0	1-5	Flam Liq.,3,H226,Asp. Tox.,1,H304,Skin Irrit.,2,H315,Skin Sens.,1,H317,Eye Irrit.,2,H319,Aquatic Acute.,1,H400,Aquatic Chronic.,1,H410,

Supplemental hazard information/其他危险信息: Not applicable/无

SECTION 4: First aid measures 第4节：急救措施

4.1. Description of first aid measures

First-aid measures after inhalation/吸入后的急救措施:	Remove person to fresh air and keep comfortable for breathing./吸入新鲜空气，保持呼吸顺畅。
First-aid measures after skin contact/接触皮肤后的急救措施:	Wash skin with plenty of water. Take off contaminated clothing.If skin irritation or rash occurs: Get medical advice/attention./用大量的水清洗皮肤；脱掉受污染的衣服；如果发生皮肤刺激或皮疹：及时就诊/护理。
First-aid measures after eye contact/接触眼睛后的急救措施:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention./小心用水冲洗几分钟，如果可以，请取下隐形眼镜继续冲洗；如果眼睛刺激持续存在：及时就诊/护理。
First-aid measures after ingestion/摄入后的急救措施:	Call a poison center or a doctor if you feel unwell./如果您感觉不舒服，请致电毒物中心或医生。

4.2. Most important symptoms and effects, both acute and delayed/最重要的急性和延迟症状/效应

Symptoms/effects after skin contact/皮肤接触后的症状/影响: May cause an allergic skin reaction./可能导致皮肤过敏反应。

Symptoms/effects after eye contact/眼睛接触后的症状/影响: Eye irritation./眼睛刺激。

4.3. Indication of any immediate medical attention and special treatment needed/注明立即就医及所需的特殊治疗

Treat symptomatically. /对症治疗。

SECTION 5: Firefighting measures 第5节：消防措施

5.1. Extinguishing media/适当的灭火介质

Suitable extinguishing media/适当的灭火介质: Water spray. Dry powder. Foam. Carbon dioxide./水喷雾、干粉、泡沫、二氧化碳

Safety Data Sheet

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

5.2. Special hazards arising from the substance or mixture/化学品产生的具体危害

Hazardous decomposition products in case of fire/火灾时的危险分解产物: Toxic fumes may be released.有毒烟雾可能会被释放。

5.3. Advice for firefighters/给消防人员的建议

Protection during firefighting/消防期间的保护: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing./在没有适当的防护设备的情况下, 不要试图采取行动; 准备自给式呼吸器和完整的防护服。

SECTION 6: Accidental release measures

第6节: 意外释放措施

6.1. Personal precautions, protective equipment and emergency procedures/个人防护、保护设备和应急程序

6.1.1. For non-emergency personnel /对于非紧急人员

Emergency procedures/紧急程序: Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray./通风溢出区; 避免接触皮肤和眼睛; 避免呼吸灰尘/烟雾/气体/喷雾/蒸汽/喷雾。

6.1.2. For emergency responders /对于应急人员

Protective equipment/防护设备: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: Exposure controls/personal protection. /在没有合适的防护设备的情况下, 不要试图采取行动。有关更多信息, 请参阅第8节“暴露控制/个人防护”。

6.2. Environmental precautions/环境保护措施

Avoid release to the environment. /避免释放到环境中。

6.3. Methods and material for containment and cleaning up /控制和清洁的方法和材料

Methods for containment/控制方法: Providing a cover or protection(e.g. to prevent damage or spillage)./提供盖子或防护(例如, 防止损坏或溢出)

Methods for cleaning up/清洁方法: To take up liquid spill into absorbent material./将溢出的液体吸到吸收材料中。

Other information/其他信息: Dispose of materials or solid residues at an authorized site./在授权地点处置材料或固体残留物。

6.4. Reference to other sections/参考其他部分

For further information refer to section 13./更多相关信息, 请参阅第13节

SECTION 7: Handling and storage

第7节: 搬运和存放

7.1. Precautions for safe handling/安全搬运的防范措施

Precautions for safe handling/安全操作注意事项: Ensure good ventilation of the work station. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Wear personal protective equipment. /确保工作站通风良好; 避免接触皮肤和眼睛; 避免呼吸灰尘/烟雾/气体/喷雾/蒸汽/喷雾, 佩戴个人防护设备。

Hygiene measures/卫生措施: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. /不应允许受污染的工作服进入工作场所; 重复使用前清洗受污染的衣服; 使用本产品时不要吃、喝或抽烟; 处理完产品后, 请务必洗手。

7.2. Conditions for safe storage, including any incompatibilities/安全存放的条件, 包括一切不相容性

Storage conditions/储存条件: Store in a well-ventilated place. Keep cool. /存放在通风良好的地方; 保持凉爽。

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

7.3. Specific end use(s) /特定的最终用途

No additional information available/无

SECTION 8: Exposure controls/personal protection
第8节：接触控制/人身保护

8.1. Control parameters /控制参数

Contains no substances with occupational exposure limit values

8.2. Exposure controls/暴露控制

8.2.1. Appropriate engineering controls /适当的工程控制

Appropriate engineering controls/适当的工程控制: Ensure good ventilation of the work station. /确保工作站的良好通风。

8.2.2. Personal protection equipment /个人防护措施

8.2.2.1. Eye and face protection/眼睛和面部保护

Eye protection/护眼: Safety glasses /安全眼镜

8.2.2.2. Skin protection/皮肤防护

Skin and body protection/皮肤和身体防护:Wear suitable protective clothing./穿合适的防护服。

Hand protection/手部防护: Protective gloves./防护手套。

8.2.2.3. Respiratory protection/吸入防护

Respiratory protection/吸入防护:In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards /热危害

No additional information available./无

8.2.3. Environmental exposure controls/环境暴露控制

Environmental exposure controls/环境暴露控制: Avoid release to the environment./避免向环境释放。

SECTION 9: Physical and chemical properties
第9节：物理和化学特性

9.1. Information on basic physical and chemical properties /基本的物理和化学特性

Physical state/物理状态:	Liquid/液体
Colour/颜色:	Colorless
Odour/香气:	Characteristic aroma
Odour threshold/气味阈值:	Not available/无
Melting point/熔点:	Not applicable/无
Freezing point/凝固点:	Not available/无
Boiling point/沸点:	Not available/无
Flammability/易燃性:	Not applicable/无
Explosive limits/爆炸限值:	Not available/无
Lower explosive limit (LEL)/爆炸下限(LEL):	Not available/无
Upper explosive limit (UEL)/爆炸上限(UEL):	Not available/无
Flash point/闪点:	Not available/无

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Auto-ignition temperature/自燃温度:	Not available/无
Decomposition temperature/分解温度:	Not available/无
pH/PH值:	Not available/无
kinematic Viscosity/运动黏度:	Not available/无
Solubility/可溶性:	Not available/无
Partition coefficient n-octanol/water (Log Kow) /正辛醇-水分配系数:	Not available/无
Vapour pressure/蒸汽压力:	Not available/无
Relative density/相对密度:	0.9934-1.0134
Relative vapour density at 20°C/20°C时的 相对蒸气密度:	Not available/无
Particle size/颗粒尺寸:	Not applicable/无
Particle size distribution/粒度分布:	Not applicable/无
Particle shape/颗粒形状:	Not applicable/无
Particle aspect ratio/颗粒宽高比:	Not applicable/无
Particle aggregation state/颗粒聚合状态:	Not applicable/无
Particle agglomeration state/颗粒聚集状态:	Not applicable/无
Particle specific surface area/颗粒特定表面积:	Not applicable/无
Particle dustiness/颗粒尘埃:	Not applicable/无

9.2. Other information/其他信息

9.2.1. Information with regard to physical hazard classes/有关物理危害分类的信息

No additional information available./无

9.2.2. Other safety characteristics/其他安全特性

No additional information available./无

SECTION 10: Stability and reactivity

第10节: /稳定性和反应性

10.1. Reactivity/反应性

The product is non-reactive under normal conditions of use, storage and transport./该产品在正常使用、储存和运输条件下是非活性的。

10.2. Chemical stability/化学稳定性

Stable under normal conditions./在正常条件下稳定。

10.3. Possibility of hazardous reactions /危险反应的可能性

No dangerous reactions known under normal conditions of use. /在正常使用条件下没有已知的危险反应。

10.4. Conditions to avoid /应避免的条件

None under recommended storage and handling conditions (see section 7)./应按照建议的存储和处理条件（见第7节）。

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

10.5. Incompatible materials /不相容材料

No additional information available./无

10.6. Hazardous decomposition products/危险的分解产物

Under normal conditions of storage and use, hazardous decomposition products should not be produced. /在正常的储存和使用条件下，不应生产危险的分解产物。

SECTION 11: Toxicological information
第11部：毒理学信息

11.1. Information on hazard classes as defined in Regulation (EC) No.1272/2008./法规（EC）No.1272/2008 中定义的危险分类信息

Acute toxicity (Oral)/急性毒性（口服）：	Not classified
Acute toxicity (dermal)/急性毒性（皮肤）：	Fatal in contact with skin.
Acute toxicity (inhalation) /急性毒性（吸入）：	Not classified/无
Skin corrosion/irritation/皮肤腐蚀/刺激：	Causes skin irritation.
Respiratory or skin sensitisation/呼吸或皮肤过敏：	Not classified
Germ cell mutagenicity/生殖细胞诱变性：	Not classified
Carcinogenicity/致癌性：	Not classified
Reproductive toxicity/生殖毒性：	Not classified
STOT-single exposure/特异性靶器官毒性——单次接触：	Not classified
STOT-repeated exposure/特异性靶器官毒性——反复接触：	Not classified
Aspiration hazard/吸入危险：	Not classified/无

11.2. Information on other hazards /关于其他危害的信息

No additional information available./无

SECTION 12: Ecological information
第12类：生态信息

12.1. Toxicity/毒性

Hazardous to the aquatic environment, short-term/ 危害水生环境，短期	No additional information available
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SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Hazardous to the aquatic environment, long-term /对水生环境有害，长期	Toxic to aquatic life with long lasting effects.
---	--

12.2. Persistence and degradability/持久性和可降解性

No additional information available./无

12.3. Bioaccumulative potential /生物累积潜力

No additional information available./无

12.4. Mobility in soil/土壤中的流动性

No additional information available./无

12.5. Other adverse effects/其他有害效应

No additional information available./无

SECTION 13: Disposal considerations
第13类：处置考虑

13.1. Waste treatment methods/废物残留的处理方法

Waste treatment methods/废物处置方法: Dispose of contents/container in accordance with licensed collector’s sorting instructions./根据持牌收集者的分类说明处置残留物/容器。

Product/Packaging disposal/产品/包装处理: Dispose of according to local regulations. Avoid disposing into drainage systems and into the environment./根据当地法规进行处理；避免丢弃到排水系统和环境中。

Waste treatment-relevant information/废物处理相关信息: Empty containers should be taken to an approved waste handling site for recycling or disposal./空容器应运往经批准的废物处理地点进行回收或处置。

Other disposal recommendations/其他处置建议: Dispose of contents/container in accordance with licensed collector’s sorting instructions. /按照持牌收集者的分类说明处理内容物/容器。

SECTION 14: Transport information
第14节：运输信息

In accordance with ADR / IMDG / IATA / ADN / RID./符合《国际公路运输危险货物协定》、《国际海运危险货物规则》、国际航空运输协会、《国际内河运输危险货物协定》和《国际铁路运输危险货物规则》

14.1. UN number or ID number /联合国编号

ADR :Not regulated /无
IMDG :Not regulated /无

IATA:Not regulated /无
ADN :Not regulated /无
RID :Not regulated /无

14.2. UN proper shipping name/联合国正式运输名称

ADR :Not regulated /无
IMDG :Not regulated /无

IATA:Not regulated /无
ADN :Not regulated /无
RID :Not regulated /无

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

14.3. Transport hazard class(es) /运输危险分类

ADR :Not regulated /无

IMDG :Not regulated /无

IATA:Not regulated /无

ADN :Not regulated /无

RID :Not regulated/无

14.4. Packing group/包装类别

ADR :Not regulated /无

IMDG :Not regulated /无

IATA:Not regulated /无

ADN :Not regulated /无

RID :Not regulated /无

14.5. Environmental hazards /环境危害

ADR :Not regulated /无

IMDG :Not regulated /无

IATA:Not regulated /无

ADN :Not regulated /无

RID :Not regulated /无

14.6. Special precautions for user /用户的特别防范防护措施

Overland transport/陆路运输:Not regulated /无

Transport by sea/海上运输: Not regulated /无

Air transport/空中运输: Not regulated /无

Inland waterway transport/内陆水道运输 : Not regulated /无

Rail transport/铁路运输: Not regulated/无

14.7. Maritime transport in bulk according to IMO instruments /按照海事组织文书运输散货

Not applicable/无

SECTION 15: Regulatory information

第15节：铁路信息

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture/关于物质或混合物的安全、健康和环境的特定法规/法例

15.1.1EU-Regulations /欧盟条例

Contains no substance on the REACH candidate list./不含任何REACH名单中的物质

Contains no REACH Annex XIV substances./不含REACH附件十四中的物质

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012./不含欧洲议会和理事会2012年7月4日发布的关于危险化学品进出口的第649/2012号欧盟条例中限制的物质。

Concerning the export and import of hazardous chemicals./关于危险化学品的进出口。

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants. /不含欧洲议会和理事会2019年6月20日发布的关于持久性有机污染物的第2019/1021号欧盟条例中限制的物质。

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

15.1.2. National regulations /国家法规

No additional information available./无

15.2. Chemical safety assessment/化学品安全评估

No chemical safety assessment has been carried out for this mixture./没有进行化学品安全评估

SECTION 16: Other information

第16节：其他信息

Revision Date/最新版本:12.01.2014

Abbreviations and acronyms/缩略词	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways/《国际内河运输危险货物协定》
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road/《国际公路运输危险货物协定》
ATE	Acute Toxicity Estimate/急性毒性估计
BCF	Bioconcentration factor/生物富集因子
BLV	Biological limit value/生物极限值
EC-No.	European Community number/欧洲共同体编号
EN	European Standard/欧洲标准
IATA	International Air Transport Association/国际航空运输协会
IMTG	The International Maritime Dangerous Goods/《国际海运危险货物规则》
IOEL	Indicative Occupational Exposure Limit/指示性职业暴露限值
LC50	Median lethal concentration/半致死浓度
LD50	Median lethal dose/半致死剂量
OEL	Occupational Exposure Limit/职业接触限值
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail/《国际铁路运输危险货物规则》
SDS	Safety Data Sheet/安全数据清单
STEL	Shor-Term Exposure Limit/短期暴露限值
TWA	Time Weighted Average/时间加权平均值
CAS-No.	Chemical Abstract Service number/物质数字识别号码
N.O.S.	Not Otherwise Specified/未另行说明
ED	Endocrine disrupting properties/内分泌干扰特性

Full text of H-statements /全文的H语句	
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Safety Data Sheet

SY081535 生姜

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

The classification complies with/该分类符合: Safety Data Sheet (SDS), EU /欧盟安全数据表 (SDS)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product./此信息基于我们目前的知识，旨在仅出于健康、安全和环境要求的描述产品。因此，它不应被解释为保证产品的任何特定属性。

Part 1: Chemicals and enterprise identification**Product name:** POLYGONUM MULTIFLORUM EXTRACT**Product use:** the active component of personal care products**Part 2: Overview of the hazards****Risk:** no danger under normal use conditions.**Part 3: Composition and component information****Mixture description:** A mixture of the following ingredients containing harmless additives

NO.	INCI Name	Extracti on site	CAS No.	Content%
<u>1</u>	WATER	--	7732-18-5	<u>69.4</u>
<u>2</u>	BUTYLENE GLYCOL	--	107-88-0	<u>20</u>
<u>3</u>	POLYGONUM MULTIFLORUM EXTRACT	--	--	<u>10</u>
<u>4</u>	PHENOXYETHANOL	--	122-99-6	<u>0.6</u>

Part 4: First-aid measures**Inhalation:** supply fresh air, and the patient feels ill to ask the doctor.**Skin contact:** rinse thoroughly with water and soap; consult doctor if skin irritation continues.**Eye contact:** Open your eyes and rinse under running water for several minutes. If the symptoms persist, consult your doctor.**Feed:** rinse your mouth with water; consult your doctor.**Part 5: Fire-fighting measures****Appropriate fire extinguishing agent:** recommend carbon dioxide, dry powder, water and other fire extinguishing measures suitable for the surrounding environment.**Disable fire extinguisher:** No.**Special hazard:** if a fire occurs, irritating smoke may be released.**Protective equipment:** Wear fully protected clothing, oral respiratory protection device.**Part 6: leakage emergency treatment****Personal protective measures:** Wear protective clothing and wear anti-chemical gloves.**Environmental protection measures:** Do not enter the sewers / water surface or groundwater.**Methods and materials for collecting and removing leaks:** absorbing liquid adhesive raw materials (sand particles, diatomite, acid adhesives, universal adhesives, sawdust) for reuse or treatment.**Part 7: Operation, disposal and storage****Safe operation and handling precautions:** Keep the storage sealed away from heat and direct sunlight, ensure good ventilation / exhaust devices in the workplace, and avoid contact with the eyes and skin.**Safe storage conditions:** the original package is protected from light preservation, the recommended storage temperature: 10~25°C.**Storage:** Store in a cool and ventilated warehouse. Stay away from fire and heat sources. Should be stored separately with oxidant, reducing agent, etc., avoid mixed storage.**Part 8: Contact control and individual protection****Preventive measures:** full ventilation.**Respiratory system protection:** Appropriate respiratory protection device is recommended.**Hand protection:** The glove material must be impermeable and resistant to the product / substance / additive.

Eye protection: Wear safety glasses.

Environmental exposure control: the control measures must comply with the environmental protection regulations.

Part 9: Physical and chemical characteristics

Appearance (25°C): transparent liquid

Smell (25°C): slight characteristic odor

Specific gravity (D 20/4): 0.90–1.10

Represent rate (N 20/D): 1.3330–1.4500

Acidity (25°C, direct test): 4.0–8.0

Solubility: dissolved in water

Solid content (%): 10.0

Total number of bacteria (CFU / ml): 1000

Mold and Yeast (CFU / ml): 100

Heat-resistant coliform group (CFU / ml): Negative

S. aureus (CFU / ml): Negative

Pseudomonas aeruginosa (CFU / ml): Negative

Part 10: Stability and Reactivity

Stability: it is stable under the recommended storage conditions, the original package is protected from light, the storage temperature: 10~25°C, 24 months.

What should be avoided: avoid light, heat source, oxidant, reducing agent.

Part 11: Toxicology Information

Information on the toxicological impact: No.

Part 12: Ecological information

Ecological information: Avoid contaminating soil, surface water, and groundwater.

Part 13: Waste treatment methods

Recommendation: Disposal of the product according to the local regulations.

Suggestion: It must be discarded according to the official regulations.

Part 14: Transportation information

Transportation information: transportation by non-dangerous goods.

Part 15: Regulatory information

Regulatory information: No.

Part 16: Other information

Other information: The above content is based on our knowledge and the data information mentioned in this security information table. These are only for the above products and should help adopt adequate safety precautions.



Specification for chemical safety data
MATERIAL SAFETY DATA SHEET
Effective Date: January 1, 2023

Part I: Chemicals and corporate identification

Product name: Curlasso aloe extract

Manufacturer: Guangzhou Baoyi Biotechnology Co., Ltd

Product use: personal care products and detergent active ingredients

Tel.: + 86-020-89602116

Emergency contact number: 15913132229

Note: The sample can be classified as a cosmetic product and is not within the safety technical specification as required by Regulation 1907 / 2006 / EC. This safety technical specification is intended for customer reference only.

Part two: Overview of the danger

Risk category of substance or mixture

Classification as per European Community (EC) Regulation No.1272/2008

This product is not classified according to the EU chemical classification, labeling and packaging related CLP regulations. Classification per EU Directive 67 / 541/EEC or Directive 1999 / 45 / EC is not applicable

Information about harmful to human beings and the environment:

The product is not required to be labeled as per EU Directive 67 / 548 / EEC, 1999 / 45 / EC and Regulation 1272 / 2008 / EC.classification system:

It is classified under the latest version of EU Directive 67 / 548 / EC, 1999 / 45 / C and Regulation 1272 / 2008 / C and expanded with company and literature data. label

As per Regulation (EC) No1272 / 2008 (Eu provisions for classification, marking and packaging of chemical substances), label marking is not applicable

Signal words do not apply

Disdangerous hazards on the label: not applicable

Warning words are not applicable

Other deleterious

PBT (residual, bioconcentration, toxic substance) and vPvB (high residual, high bioconcentration substance) evaluation results PBT (residual, bioconcentration, toxic substance) are not applicable

And vPvB (high residual, high bioconcentration): not applicable

Part three: Composition and component information

Mixture Description: A mixture consisting of the following ingredients containing harmless additions

<u>Chinese name</u>	<u>INCI Name</u>	<u>CAS</u>	<u>content%</u>
water	WATER	<u>No. 7732-18-5</u>	<u>69.4</u>
cis-butanediol	BUTYLENE GLYCOL	107-88-0	<u>20</u>
Aloe vera (ALOE BARBADENSIS) extract	ALOE BARBADENSIS EXTRA CT	--	<u>10</u>
phenoxyethanol	PHENOXYETHANOL	122-99-6	<u>0.6</u>

Part four: First-aid measures

Inhalation: supply fresh air, the patient feels ill to ask the doctor.

Skin contact: rinse thoroughly with water and soap; consult doctor if skin irritation continues. Eye contact: Open your eyes and rinse under running water for several minutes. If the symptoms persist, consult your doctor.

Ineding: rinse your mouth with water; if symptoms persist, consult your doctor.

Part V: Fire protection measures

Appropriate fire extinguishing agent: recommend carbon dioxide, dry powder, water and other fire extinguishing measures suitable for the surrounding environment. Disable fire extinguisher: No.

Special hazard: No.



Specification for chemical safety data
MATERIAL SAFETY DATA SHEET
Effective Date: January 1, 2023

Protective equipment: wear fully protected clothing, oral respiratory protection device.

Part VI: Emergency treatment of leakage

Personal protective measures: wear protective clothing and wear anti-chemical gloves.

Environmental protection measures: No entry into the sewer / water surface or groundwater.

Methods and materials for collecting and removing leaks: absorbing liquid bonding raw materials (sand particles, diatomite, acid adhesives, universal adhesives, sawdust) for reuse or treatment.

Part VII: Operation, disposal and storage

Prevention for safe operation disposal: Keep the storage sealed away from heat and direct sunlight, ensure good ventilation / exhaust in the workshop, and avoid contact with eyes and skin.

Safe storage conditions: the original package is protected from light, and the recommended storage temperature is: 10~25°C.

Storage: Store in a cool, ventilated warehouse. Stay away from the fire and heat sources. Should be stored separately with oxidant, reducing agent, etc., avoid mixed storage.

Part 8: Contact control and individual protection

Preventive measures: full ventilation.

Respiratory system protection: An appropriate respiratory protection device is recommended.

Hand protection: The material of the glove must be impermeable and resistant to the product / substance / additive. Eye protection: wear safety glasses.

Environmental exposure control: The control measures must comply with the environmental protection regulations.

Part 9: Physical and chemical characteristics

Appearance (25°C): transparent

or opaque liquid odor (25°C):

characteristic odor or

tasteless specific gravity

(D20/4): 0.90-1.10

Represent rate (N20/D): 1.3330-

1.4500PH (25°C, direct test

method): 4.0-8.0

Solubility: dissolve in water

Heavy metals: 10ppm

Part X: Stability and Reactivity

Stability: it is stable under the recommended storage conditions, the original packaging is protected from light, the storage temperature: 10~25°C, 24 months.

What should be avoided: avoid light, heat source, oxidant, reducing agent.

Part X: Toxicology information

Acute toxicity LD50: 22,500 mg / kg

Skin irritation: normal use

without irritation. Violent

reaction: No

Toxicological dynamics: no relevant information.

CMR role: No relevant information is available.

Part XII: Ecological information

Aquatic toxicity: no relevant information

Water hazard level: Class I (minor), do not expose large quantities of undiluted products to groundwater and soil.

Part XIII: Waste disposal methods

Suggestion: Disposal of the product according to the local regulations.

Part 14: Transportation information

Transportation information: transport by non-dangerous goods.

Part XV: Regulatory information

Regulatory information: None.

Part XVI: Other information

Additional information: The content and format of this safety technical specification for chemicals is prepared in accordance with EU Regulations 1272 / 2008 / EC, 1907 / 2006 / EC and 453 / 2010 / EC, and Directive 1999 / 45 / EC and 67 / 548 / EEC.

Disclaimer: The information in this chemical safety technical specification is obtained from sources we believe are reliable. However, we have no express or implied warranty as to the data presented. The handling, storage, use or disposal status and methods of this product are beyond our control and possibly beyond our knowledge. In no case shall we be liable for the loss, damage or associated costs of improper handling, storage, use or disposal of this chemical. This chemical safety technical specification is fabricated from this product and can only be applied to this product. If the product is used as a component of another product, this chemical safety technical description does not applicable.

Note: The sample can be classified as a cosmetic product and is not within the safety technical specification as required by Regulation 1907 / 2 006 / EC. This safety technical specification is intended for customer reference only.



Specification for chemical safety data
MATERIAL SAFETY DATA SHEET
Effective Date: January 1, 2023

Part I: Chemicals and corporate identification

Product name: Black Mulberry leaf extract

Manufacturer: Guangzhou Baoyi Biotechnology Co., Ltd

Product use: personal care products and detergent active ingredients

Tel.: + 86-020-89602116

Emergency contact number: 15913132229

Note: The sample can be classified as a cosmetic product and is not within the safety technical specification as required by Regulation 1907 / 2006 / EC. This safety technical specification is intended for customer reference only.

Part two: Overview of the danger

Risk category of substance or mixture

Classification as per European Community (EC) Regulation No.1272/2008

This product is not classified according to the EU chemical classification, labeling and packaging related CLP regulations. Classification per EU Directive 67 / 541/EEC or Directive 1999 / 45 / EC is not applicable

Information about harmful to human beings and the environment:

The product is not required to be labeled as per EU Directive 67 / 548 / EEC, 1999 / 45 / EC and Regulation 1272 / 2008 / EC.classification system:

It is classified under the latest version of EU Directive 67 / 548 / EC, 1999 / 45 / C and Regulation 1272 / 2008 / C and expanded with company and literature data. label

As per Regulation (EC) No1272 / 2008 (Eu provisions for classification, marking and packaging of chemical substances), label marking is not applicable

Signal words do not apply

Disdangerous hazards on the label: not applicable

Warning words are not applicable

Other deleterious

PBT (residual, bioconcentration, toxic substance) and vPvB (high residual, high bioconcentration substance) evaluation results PBT (residual, bioconcentration, toxic substance) are not applicable

And vPvB (high residual, high bioconcentration): not applicable

Part three: Composition and component information

Mixture Description: A mixture consisting of the following ingredients containing harmless additions

<u>Chinese name</u>	<u>INCI Name</u>	<u>CAS</u>	<u>content%</u>
water	WATER	<u>No. 7732-18-5</u>	69.4
cis-butanediol	BUTYLENE GLYCOL	107-88-0	<u>20</u>
Black mulberry (MORUS NIGRA) leaf extract	MORUS NIGRA LEAF EXTRA CT	--	<u>10</u>
phenoxyethanol	PHENOXYETHANOL	122-99-6	<u>0.6</u>

Part four: First-aid measures

Inhalation: supply fresh air, the patient feels ill to ask the doctor.

Skin contact: rinse thoroughly with water and soap; consult doctor if skin irritation continues. **Eye contact:** Open your eyes for several minutes. If symptoms persist, consult your doctor.

Ineding: rinse your mouth with water; if symptoms persist, consult your doctor.

Part V: Fire protection measures

Appropriate fire extinguishing agent: recommend carbon dioxide, dry powder, water and other fire extinguishing measures suitable for the surrounding environment. Disable fire extinguisher: No.

Special hazard: No.



Specification for chemical safety data
MATERIAL SAFETY DATA SHEET
Effective Date: January 1, 2023

Protective equipment: wear fully protected clothing, oral respiratory protection device.

Part VI: Emergency treatment of leakage

Personal protective measures: wear protective clothing and wear anti-chemical gloves.

Environmental protection measures: No entry into the sewer / water surface or groundwater.

Methods and materials for collecting and removing leaks: absorbing liquid bonding raw materials (sand particles, diatomite, acid adhesives, universal adhesives, sawdust) for reuse or treatment.

Part VII: Operation, disposal and storage

Prevention for safe operation disposal: Keep storage sealed away from heat and direct sunlight, ensure good ventilation / exhaust in the workshop, and avoid contact with eyes and skin.

Safe storage conditions: the original package is protected from light, and the recommended storage temperature is: 10~25°C.

Storage: Store in a cool, ventilated warehouse. Stay away from the fire and heat sources. Should be stored separately with oxidant, reducing agent, etc., avoid mixed storage.

Part 8: Contact control and individual protection

Preventive measures: full ventilation.

Respiratory system protection: An appropriate respiratory protection device is recommended.

Hand protection: The material of the glove must be impermeable and resistant to the product / substance / additive. Eye protection: wear safety glasses.

Environmental exposure control: The control measures must comply with the environmental protection regulations.

Part 9: Physical and chemical characteristics

Appearance (25°C): transparent

or opaque liquid odor (25°C):

characteristic odor or

tasteless specific gravity

(D20/4): 0.90-1.10

Represent rate (N20/D): 1.3330-

1.4500PH (25°C, direct test

method): 4.0-8.0

Solubility: dissolve in water

Heavy metals: 10ppm

Part X: Stability and Reactivity

Stability: it is stable under the recommended storage conditions, the original packaging is protected from light, the storage temperature: 10~25°C, 24 months.

What should be avoided: avoid light, heat source, oxidant, reducing agent.

Part X: Toxicology information

Acute toxicity LD50: 22,500 mg / kg

Skin irritation: normal use

without irritation. Violent

reaction: No

Toxicological dynamics: no relevant information.

CMR role: No relevant information is available.

Part XII: Ecological information

Aquatic toxicity: no relevant information

Water hazard level: Class I (minor), do not expose large quantities of undiluted products to groundwater and soil.

Part XIII: Waste disposal methods

Suggestion: Disposal of the product according to the local regulations.

Part 14: Transportation information

Transportation information: transport by non-dangerous goods.

Part XV: Regulatory information

Regulatory information: None.

Part XVI: Other information

Additional information: The content and format of this safety technical specification for chemicals is prepared in accordance with EU Regulations 1272 / 2008 / EC, 1907 / 2006 / EC and 453 / 2010 / EC, and Directive 1999 / 45 / EC and 67 / 548 / EEC.

Disclaimer: The information in this chemical safety technical specification is obtained from sources we believe are reliable. However, we have no express or implied warranty as to the data presented. The handling, storage, use or disposal status and methods of this product are beyond our control and possibly beyond our knowledge. In no case shall we be liable for the loss, damage or associated costs of improper handling, storage, use or disposal of this chemical. This chemical safety technical specification is fabricated from this product and can only be applied to this product. If the product is used as a component of another product, this chemical safety technical description does not applicable.

Note: The sample can be classified as a cosmetic product and is not within the safety technical specification as required by Regulation 1907 / 2 006 / EC. This safety technical specification is intended for customer reference only.

Ganzhou Baizhentang Spice Co., LTD. Ganzhou Baizhentang Perfumery Co., LTD



Product safety technical manual ai leaf extract

Part I: Products and corporate identity

Product name or trade name:
mugwort leaf extract

Extraction: dried leaves of the
Afamily ae

INCI name:

WATER

water

ARTEMISIA ARGYI LEAF EXTRA CT

Ai (ARTEMISIA ARGYI)
leaf extract
cis-butanediol

BUTYLENE
GLYCOL1,2-
HEXANEDIOL

1,2-hexadiol

HYDROXYACETOPHENONE

parahydroxyacet-
ophenone

Company name: Ganzhou Baizhentang Fragrance Co., LTD

Address: Hongmen Industrial Zone,

Xingguo County, Ganzhou City,

Jiangxi Province Tel: 020-86087431

Fax: 020-37431801

Part II Composition / composition information

Composition information:

order number	Composition name	CAS number	content (%)	Typical concentrations of (%)
	Water	7732-18-5	95-97%	95.7%



2	Ai (ARTEMISIA ARGYI) in the leaf extract	not have	0.3-0.5%	0.5%
3	cis-butanediol	107-88-0	1-3%	3%
4	1,2-hexadiol	6920-22-5	0.2-0.5%	0.4%
5	parahydroxyacet- ophenone	99-93-4	0.2-0.5%	0.4%

The product is a mixture, free of any harmful ingredients

Part III: An Overview of the hazards

Product safety technical specification

Risk category: This product is non-dangerous goods

Invasive approach: inhalation, skin contact, causes no harm to the body

Health hazards: Acute, chronic toxicological tests indicate that the product causes no health harm

Environmental hazard: no hazard hazard: non-flammable and explosive items

Part IV First aid measures

Skin contact: Take off the contaminated clothes, and rinse the skin thoroughly with soapy water and clean water

Eye contact: immediately open the upper and lower eyelids and rinse with running water or normal saline

Inhalation: a small amount of inhalation is harmless to the body, a large number of inhalation should be evacuated from the site to the fresh air feeding: non-food, vomiting

Part V Fire protection measures

Hazardous characteristics: this product in open flame or high temperature, no oxidation and corrosion

Harmful combustion products: no fire extinguishing methods

and fire extinguishing agents: meaningless fire

extinguishing precautions: meaningless

Part VI Emergency treatment for leakage

Emergency treatment: if the leakage is in contact with the power supply, the power supply should be cut off before the leakage is removed

Elimination method: Clean with detergent and water until the product is clean

Part VII. Operation, Disposal and Storage

Operation precautions: No special precautions are required

Product safety technical specification

Part 8: Contact ContBody/protection

Maximum allowable

Monitoring method: This product does

not contain harmful ingredients, do

not need special monitoring

engineering control: avoid mixing with

articles that may cause pollution

Respiratory system protection: no irritationEye protection: no irritationAvoid splashing
into the eyes

Body protection: No special protection is required

Product safety technical specification

Other protection: no

Part IX Physicochemical properties

Appearance and characteristics: colorless and transparent liquid at room temperature, characteristic smell.

PH Value: 3.0~8.0

Rejection rate:

1.3335-1.3890 Water

essential oil

content%: 0.5%

Relative density (water =1):

0.900- -1.100 melting point

(°C): meaningless

Boiling point (°C): mixture, greater

than 100°C boiling relative vapor

density (air =1): no data

Saturated vapor pressure

(kPa): no data combustion

heat (kJ / mol):

meaningless critical

temperature (°C):

meaningless

Critical pressure (MPa): meaningless

Log value of octanol / water

distribution coefficient: no

data flash point (°C):

meaningless

% (V / V)): meaningless

ignition temperature (°C):

meaningless

Lower limit% (V / V)): meaningless

Solubility: This product is easily soluble in water / ethanol at room temperature

Main use: cosmetic efficacy additive



Product safety technical specification

Other physicochemical properties: None

Part X: Stability and reactivity

Stability: under normal temperature and pressure, this product is

Conditions to avoid contact: Avoid polymerization with contaminated products: do not occur

Decomposition product: no hazardous decomposition product

Part X Toxicology data

Product safety technical specification

Acute toxicity: nontoxicity	Subacute and chronic toxicity: none
Irritancy: no skin irritation	allergenicity: no
Mutagenicity: No	Tterogenicity: no
Oncogenic: no	Others: no

Part XII Ecological data

Ecotoxicity: no biodegradability: 100%

Non-biological degradability: no biological enrichment or bioaccumulation: not cumulative

Other harmful effects: none

Part XIII Waste disposal

Waste nature: non-hazardous waste

Waste disposal method: non-dangerous goods,

no need for harmless disposal Waste

precautions: product containers can be

recycled after water washing

Part XIV Transportation Information

Dangerous Goods Number: No

UN No.: No

Packaging mark: non-dangerous goods

Packaging category: Non-dangerous goods packaging

Packaging method: high-density polyethylene (HDPE) barrel, coat carton

Transportation precautions: prevent leakage during transportation

Part XV: Regulatory Information

Regulatory information: Regulations on the Safety Management of Chemical Hazardous Goods and Administrative Rules for the Transportation of Dangerous Goods

Part XVI Other Information

References: Regulations on the Safety Management of Chemical Hazardous Articles



Product safety technical specification

Catalogue of Used Cosmetic Raw
Materials (2021 edition), Technical
Specifications for Safe Production
of Cosmetics (2015 Edition), and
Management Rules for Transportation
of Dangerous Goods

Fill in the form time: March 11, 2022

Form filling department: Ganzhou Baizhentang Spice Co., LTD

Product safety technical specification

odification description: Modify the composition information items, content and expression method on March 11, 2022

Other information: No

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END



Ganzhou Baizhentang Spice Co., LTD. Ganzhou Baizhentang Perfumery Co., LTD

Product safety technical manual Ginseng root extra



Part I: Products and corporate id

Product name or trade name: Ginseng
root extract

Extraction site: dried root of
ginseng

INCI name:

	WATER
water	PROPYLENE GLYCOL
propanediol	PANAX GINSENG ROOT
Ginseng (PANAX	EXTRACT
GINSENG) Root extract	1,2- HEXANEDIOL
1,2-hexadiol	PHENOXYET HANOL
Phenoxy	ETHYLHEXYL GLYCERIN
ethanol in	
ethylhexylg	
lycerol	

Company name: Ganzhou Baizhentang
Fragrance Co., LTD

Address: Hongmen Industrial Zone,
Xingguo County, Ganzhou City, Jiangxi
Province

Tel.: 020-86087431

Fax: 020-37431801

Part II Composition / composition

Composition information:

order number	Composition name	CAS number	content (%)	Typical concentrations of (%)
1	water	7732-18-5	68-83.35	76.3
2	propanediol	57-55-6	15-25	20
3	Ginseng (PANAX GINSENG) Root extract	72480-62-7	1-5	2.5
4	1,2-hexadiol	6920-22-5	0.5-1.0	0.6
5	phenoxyethanol	122-99-6	0.1-0.9	0.54
6	Ethyl hexyl glycerol	70445-33-9	0.05-0.1	0.06

The product is a mixture, free of any harmful ingredients

Part III: An Overview of the hazards

Product safety technical specification

Risk category: This product is non-dangerous goods

Invasive approach: inhalation, skin contact, causes no harm to the body

Health hazards: Acute, chronic toxicological tests indicate that the product causes no health harm

Environmental hazard: no hazard hazard: non-flammable and explosive items

Part IV First aid measures

Skin contact: Take off the contaminated clothes, and rinse the skin thoroughly with soapy water and clean water

Eye contact: immediately open the upper and lower eyelids and rinse with running water or normal saline

Inhalation: a small amount of inhalation is harmless to the body, a large number of inhalation should be evacuated from the site to the fresh air feeding: non-food, vomiting

Part V Fire protection measures

Hazardous characteristics: this product in open flame or high temperature, no oxidation and corrosion

Harmful combustion products: no fire extinguishing methods

and fire extinguishing agents: meaningless fire

extinguishing precautions: meaningless

Part VI Emergency treatment for leakage

Emergency treatment: if the leakage is in contact with the power supply, the power supply should be cut off before the leakage is removed

Elimination method: Clean with detergent and water until the product is clean

Part VII. Operation, Disposal and Storage

Operation precautions: No special precautions are required

Product safety technical specification

Part 8: Contact ContBody/protection

Maximum allowable

Monitoring method: This product does

not contain harmful ingredients, do

not need special monitoring

engineering control: avoid mixing with

articles that may cause pollution

Respiratory system protection: no irritationEye protection: no irritationAvoid splashing
into the eyes

Body protection: No special protection is required

Product safety technical specification

Other protection: no

Part IX Physicochemical properties

Appearance and traits: brown transparent liquid at normal temperature, characteristic smell.

PH Value: 3.0~6.0

Represent rate:

1.120- -1.150 Total

solid content%: 20-

30

Relative density (water =1):

0.900- -1.100 melting point

(°C): meaningless

Boiling point (°C): mixture, greater

than 100°C boiling relative vapor

density (air =1): no data

Saturated vapor pressure

(kPa): no data combustion

heat (kJ / mol):

meaningless critical

temperature (°C):

meaningless

Critical pressure (MPa): meaningless

Log value of octanol / water

distribution coefficient: no

data flash point (°C):

meaningless

Max.% (V / V)): meaningless

ignition temperature (°C):

meaningless

Lower limit% (V / V)): meaningless

Solubility: This product is easily soluble in water / ethanol at room temperature

Main use: cosmetic efficacy additive



Product safety technical specification

Other physicochemical properties: None

Part X: Stability and reactivity

Stability: under normal temperature and pressure, this product is

Conditions to avoid contact: Avoid polymerization with contaminated products: do not occur

Decomposition product: no hazardous decomposition product

Part X Toxicology data

Product safety technical specification

Acute toxicity: nontoxicity	Subacute and chronic toxicity: none
Irritancy: no skin irritation	allergenicity: no
Mutagenicity: No	Tterogenicity: no
Oncogenic: no	Others: no

Part XII Ecological data

Ecotoxicity: no biodegradability: 100%

Non-biological degradability: no biological enrichment or bioaccumulation: not cumulative

Other harmful effects: none

Part XIII Waste disposal

Waste nature: non-hazardous waste

Waste disposal method: non-dangerous goods,

no need for harmless disposal Waste

precautions: product containers can be

recycled after water washing

Part XIV Transportation Information

Dangerous Goods Number: No

UN No.: No

Packaging mark: non-dangerous goods

Packaging category: Non-dangerous goods packaging

Packaging method: high-density polyethylene (HDPE) barrel, coat carton

Transportation precautions: prevent leakage during transportation

Part XV: Regulatory Information

Regulatory information: Regulations on the Safety Management of Chemical Hazardous Goods and Administrative Rules for the Transportation of Dangerous Goods

Part XVI Other Information

References: Regulations on the Safety Management of Chemical Hazardous Articles



Product safety technical specification

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Fill in the form time: March 11, 2022

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Product safety technical specification

odification description: Modify the composition information items, content and expression method on March 11, 2022

Other information: No

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END



Chongqing Haifan Biochemical
Technology Co., LTD.
Production and processing
center products factory
inspection report form

Report number: QC-08-24

product name: Hydrolysis of the keratin concentrate Product Quantity: 1000 KG Product No.: HFB-180-B
Production batch number: 20240819 Inspection date: 2024-08-19 Report date: 2024-08-24

Packaging Specification: 25 KG / Bucket Execution Standard: HF / CQ-05-2008 Reference Standard:

name of index	Index regulation	result
Sensory (appearance)	Light yellow	meet a criterion
Color Degree (chroma)	and clear	3.02
Total Nitrogen	liquid	18.87
Content 96 (nitrogen)	≥ 3.0	972
Protein 96 (protein)	≥ 18	33.00
Protein molecular weight (molecular weight)	≤ 1000	—
solublesolid form% (solublesolid)	≥ 28	5.57
Active Content 6 (activematter)	—	Meet
PH (PHvalue)	5.0—	with the
Total number of bacteria / gram (bacteria)	7.0 $\leq$ 1	standard
yeast / gram (microzyme)	00	s meet
mold / gram (mold)	≤ 100	with the
	≤ 100	standard

Shelf life: 18 months



24.8.19

Production date:
2024.08.19

Conclusion: This batch of products is tested according to our enterprise standard HF / CQ-05-2008 up to specification,
For qualified products.

Inspector: The Head of the Quality Department



MATERIAL SAFETY DATA SHEET

Guarsafe® JK-140

SECTION1 PRODUCT AND COMPANY IDENTIFICATION

Product name: Guarsafe® JK-140

Company: Jingkun Chemistry Company.

Address: No.210 Kuntai Road, Kunshan City

City, State, And Zip Code: Kunshan City, Jiangsu Province, 215337, P. R. China

Fax: +86-512-57665755

Emergency Phone: +86-512-57867213

E-mail: ivy@jingkun.cn

MSDS Number: 120218

MSDS Date: 18th, FEB. 2015

SECTION2 INFORMATION ON INGREDIENTS

Product name: Guarsafe® JK-140

Ingredient	Concentration	CAS No.
Guar Hydroxypropyl Trimonium Chloride	≥90%	65497-29-2
Water	≤10%	7732-18-5

SECTION 3 HAZARDS IDENTIFICATION

Hazards Identification: This substance is considered to be non-hazardous for transport.

Emergency Overview: Caution: Avoid contact and inhalation.

SECTION4 FIRST-AID MEASURES

Skin Exposure: Wash affected skin with soap and water. If irritation persists, get prompt medical attention.

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. If irritation persists, get prompt medical attention.

Inhalation Exposure: If inhaled, remove to fresh air. If necessary, get medical attention.

Oral Exposure : If conscious, immediately give large quantities of water and induce vomiting. Get immediate medical attention. Never give anything by mouth to unconscious person.



SECTION5 FIRE FIGHTING MEASURES

Extinguishing Media:

Suitable: Dry chemical, Sandy soil, Carbon dioxide or appropriate foam.

Firefighting:

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific hazards: Emit toxic fumes under fire conditions.

SECTION6 ACCIDENTAL RELEASE MEASURES

Procedures of Personal Precautions:

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

Methods for cleaning up:

Sweep up with spade, place in a dry, clean, lidded container for disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

SECTION7 HANDLING AND STORAGE

Handling:

Wear appropriate protective clothing and safety gloves. Avoid contact with eyes, skin. Avoid inhalation. Mechanical exhaust required. Keep away from ignition sources, heat and flame. Incompatibilities: strong oxidizing agents and foods. No smoking at working site.

Storage:

Store in a cool, well-ventilated area. Keep away from ignition sources, heat and flame. Store in a tightly closed container. Incompatibilities: strong oxidizing agents and foods.

SECTION8 EXPOSURE CONTROL/PPE

Engineering Controls: Mechanical exhaust required. Safety shower and eye bath.

Personal Protective Equipment:

Respiratory: Dust respirator.

Eye: Safety goggles.

Clothing: Wear appropriate protective clothing.

Hand: Protective gloves.

Other Protect: No smoking, drinking and eating at working site. Wash thoroughly after handling. Wash contaminated clothing before reuse.



SECTION9 PHYSICAL/CHEMICAL PROPERTIES

Appearance: Yellowish, pure and fine powder
Odor: Weak odor
MP/MP Range: >200℃ (carbonization)
Flash Point: Not necessity
Solubility: Slightly soluble in water

SECTION10 STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Materials to Avoid: Strong oxidizing agents.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen chloride gas, Nitrogen oxides.

SECTION11 TOXICOLOGICAL INFORMATION

Toxicity Data: No data available.

Irritation Data: May cause irritation to eyes.

SECTION12 ECOLOGICAL INFORMATION

No data available.

SECTION13 DISPOSAL CONSIDERATIONS

Appropriate Method of Disposal of substance:

Spent or discarded material is not belong to hazardous waste. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with and afterburner and scrubber. Observe all federal, state, and local environmental regulations.

SECTION14 TRANSPORT INFORMATION

DOT

Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

IMO

Non-Hazardous for Sea Transport: Non-hazardous for sea transport.

UN Number: None



京昆化学

JINGKUN CHEMISTRY COMPANY

210, Kuntai Road, Kunshan, Jiangsu, China

Tel: +86-512-57665261 Fax: +86-512-57665755

E-mail: ivy@jingkun.cn

SECTION15 REGULATORY INFORMATION

EU Additional Classification:

S 26 36

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Wear suitable protective clothing

SECTION16 OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.



SDS No.: B0098802
Issue Date: 09.09.2020
Revision Date:
Version #: 1.0

Product name:
EMAL 270S

CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

1. Identification of the substance or mixture and of the supplier

Product name:

益玛璐 270S

EMAL 270S

Recommended use and restriction on use

Recommended use: Anionic surfactant

Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer

Company Name: Kao (Shanghai) Chemical Industries Co., Ltd.
Address: No.345, Haijin Road, Jinshan District, Shanghai, 201512, P.R.China
Telephone: +86-21-3790-6503
Fax: +86-21-3790-6505
Division: -

Emergency telephone number: +86-21-3790-6503

Issue Date: 09.09.2020

Version #: 1.0

Revision Date:

Compiled On Date 09.09.2020

2. Hazard(s) identification

Emergency Overview: Pale yellow Odor: Slight characteristic odor. Hazard statements: May be harmful if swallowed or in contact with skin. Causes skin irritation. Causes serious eye damage. Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Notes to physician: Get medical attention if symptoms occur.

GHS classification

Health Hazards

Acute toxicity (Oral)	Category 5
Acute toxicity (Dermal)	Category 5
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1



SDS No.: B0098802
Issue Date: 09.09.2020
Revision Date:
Version #: 1.0

Product name:
EMAL 270S

Environmental Hazards

Acute hazards to the aquatic environment

Category 2

Chronic hazards to the aquatic environment

Category 3

Label Elements

Pictograms:



Signal Word:

Danger

Hazard Statement:

May be harmful if swallowed or in contact with skin.
Causes skin irritation.
Causes serious eye damage.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention:

Wash hands thoroughly after handling. Avoid release to the environment.
Wear protective gloves/eye protection/face protection.

Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF ON SKIN: Gently wash with plenty of water and soap. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention. Call a POISON CENTER/doctor if you feel unwell.

Storage:

-

Disposal:

Passed to a licensed waste contractor.

Physical and Chemical Hazards: None.

Health Hazards: None.

Environmental Hazards: None.

Other hazards which do not result in GHS classification:

None.

3. Composition/information on ingredients



Product name:
EMAL 270S

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates	68891-38-3	70%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Description of necessary first-aid measures

Inhalation:	Remove person to fresh air and keep comfortable for breathing.
Skin Contact:	Gently wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before re-use. Immediately call a POISON CENTER/doctor.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
Ingestion:	Call a POISON CENTER/doctor if you feel unwell.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Powder, alcohol-resistant foam, water spray, carbon dioxide, sand
Unsuitable extinguishing media:	No data available.

Specific hazards arising from the chemical:	Produce irritating or toxic gases in a fire.
--	--

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Keep away from sources of ignition and use appropriate extinguishing media. Fight fire from upwind position if possible. Do not flow the materials causing adverse effects into the environment with effluent fire extinguishing agents. Product itself is non-combustible.
Special protective equipment for fire-fighters:	Use goggles in combination with dust mask, and other protections as appropriate to situation. Risk of producing harmful gases such as carbon monoxide and sulfur oxides. Avoid inhalation of smoke or gases.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Use goggles and protective gloves. Large spills : Remove person to safety. Ensure adequate ventilation.
---	---



Product name:
EMAL 270S

Methods and material for containment and cleaning up:	Cool down to solid in case of melt (be careful of heat), and then sweep or vacuum spilled materials to drums or containers.
Environmental Precautions:	Avoid release to the environment.
Prevention of secondary hazards:	Risk of slipping. Spilled material forms slippery floor.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation):	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Safe handling advice:	Avoid contact with eyes. Use an adequate ventilation. Wash thoroughly after handling. Use personal protective equipment as required.
Contact avoidance measures:	No data available.
Hygiene measures:	No data available.

Storage

Safe storage conditions:	Keep container tightly closed. Store in a well-ventilated place.
Safe packaging materials:	No data available.
Storage Temperature:	No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
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Monitoring methods:	No data available.
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Individual protection measures, such as personal protective equipment

Eye/face protection:	Safety goggles
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Hand Protection:	Material: Rubber gloves
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Skin and Body Protection:	Full-body suit
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Product name:
EMAL 270S

Respiratory Protection: Use as appropriate to situation.

Hygiene measures: No data available.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	No data available.
Color:	Pale yellow
Odor:	Slight characteristic odor
Odor Threshold:	No data available.
pH:	7 (1% solution)
Freezing point:	20 °C
Boiling Point:	No data available.
Flash Point:	No data available.
Evaporation Rate:	No data available.
Flammability:	No data available.
Explosive limit - upper:	No data available.
Explosive limit - lower:	No data available.
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Density:	1.04 g/ml (30 °C) 1.035 g/ml (40 °C) 1.029 g/ml (50 °C)
Relative density:	No data available.
Solubility in Water:	Clear soluble
Solubility (other):	Soluble in ethyl alcohol
Partition coefficient (n-octanol/water):	No data available.
Self Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Kinematic viscosity:	No data available.
Dynamic viscosity:	9,500 mPa.s (30 °C) 8,800 mPa.s (40 °C) 7,600 mPa.s (50 °C)

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Stable in general.
Possibility of hazardous reactions:	Has no self-reactivity.
Conditions to avoid:	No data available.



Product name:
EMAL 270S

Incompatible Materials: No data available.

Hazardous Decomposition Products: No data available.

11. Toxicological information

Acute toxicity (list all possible routes of exposure)

Oral
Product: ATEmix: 4,100 mg/kg

Dermal
Product: ATEmix 3,571 mg/kg

Inhalation
Product: Dusts, mists and fumes: Classification not possible due to insufficient data.
Vapour: No data available.
Not classified based on available data of component(s).

Skin Corrosion/Irritation
Product: No data available.

Components:
Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates
Category 2: (96)

Serious Eye Damage/Eye Irritation
Product: No data available.

Components:
Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates
Category 1: (96)

Respiratory or Skin Sensitization
Product: Skin: Classification not possible due to insufficient data.
Respiratory: Classification not possible due to insufficient data.

Carcinogenicity
Product: Classification not possible due to insufficient data.

Germ Cell Mutagenicity

In vitro
Product: Classification not possible due to insufficient data.

In vivo
Product: Classification not possible due to insufficient data.

Reproductive toxicity
Product: Classification not possible due to insufficient data.



Product name:
EMAL 270S

Specific Target Organ Toxicity - Single Exposure

Product: Classification not possible due to insufficient data.

Specific Target Organ Toxicity - Repeated Exposure

Product: Classification not possible due to insufficient data.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:

Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates	Category 2: (96)
--	------------------

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Components:

Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates	Category 3: (96)
--	------------------

Persistence and Degradability

Biodegradation



SDS No.: B0098802
Issue Date: 09.09.2020
Revision Date:
Version #: 1.0

Product name:
EMAL 270S

Product: No data available.

Components:
Sodium polyoxyethylene(2.0) alkyl(C12-14) ethers sulfates 100 % (28 d, OECD TG301A) Readily biodegradable

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil: No data available.

Other adverse effects: No data available.

13. Disposal considerations

Disposal methods: Review "HANDLING AND STORAGE (Section 7)". Passed to a licensed waste contractor. Incinerate with little portions. Risk of producing harmful gases such as carbon monoxide and sulfur oxides.

Contaminated Packaging: No data available.

14. Transport information

IMDG

Not regulated.

IATA

Not regulated.

15. Regulatory information

China. Catalog of Hazardous Chemicals

Not Regulated

China. Precursor Chemicals (Decree No. 445 of the PRC on Regulation for Administration of Precursor Chemicals, Appendix: Categories 1-3)

Not Regulated

China: CWC. Controlled Chemicals List (Regulations on the Administration of Controlled Chemicals, Decree No. 190, Dec. 27, 1995, as amended)



SDS No.: B0098802
Issue Date: 09.09.2020
Revision Date:
Version #: 1.0

Product name:
EMAL 270S

Not Regulated

China. Explosive Precursor Hazardous Chemicals (Ministry of Public Safety, 2011 version)

Not Regulated

Inventory Status:

US TSCA Inventory:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
Australia AICS:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	Contact us for information
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
REACH (EU):	Contact us for information
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

Should comply with local regulations in respect of this product.

16. Other Information

Issue Date: 09.09.2020

Version #: 1.0

Revision Date:

Abbreviations and acronyms

No data available.

Training information: No data available.

Further Information: No data available.

References: No data available.

Revision Information Not relevant.



SDS No.: B0098802
Issue Date: 09.09.2020
Revision Date:
Version #: 1.0

Product name:
EMAL 270S

Disclaimer:

To the best of the manufacturer's knowledge, the information contained herein is accurate. However, neither the manufacturer, nor any of its affiliates, make any representations or warranties (expressed or implied), nor assumes any liability (including liability for any direct, incidental, consequential, or other damages) with respect to the accuracy or completeness of the information contained herein. Such information may be (without limitation) invalid if the specified material is used in combination with another, in a particular process, or under unusual conditions. Determination of suitability of any material for any given purpose is the sole responsibility of the user who assumes all risk and responsibility therefore. All materials may present unknown hazards and should be used with appropriate caution. The manufacturer cannot and does not guarantee that the hazards described herein are the only ones that exist. In the case of the product for fragrance, it's in accordance with the latest standard of IFRA within ordinary use. Contact with the supplier for detail information.

Reference:

(96): CESIO RECOMMENDATIONS for the harmonized classification and labelling of surfactants (March 2017)

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Creation Date: July 13, 2019

1. Identification

1.1 GHS Product identifier

Product name quinolin-8-ol

1.2 Other means of identification

Product number -
Other names 8-Hydroxyquinoline

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only.
Uses advised against no data available

1.4 Supplier's details

Company Guangzhou Haoliyang Chemical Co., Ltd
Address No.917-924, No.2 building, greenbelt international plaza, baiyun district, Guangzhou
Telephone 86-13360560806
Fax 86-020-86093643

1.5 Emergency phone number

Emergency phone number
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word	Warning
Hazard statement(s)	H302 Harmful if swallowed
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product.
Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell. P330 Rinse mouth.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
quinolin-8-ol	quinolin-8-ol	148-24-3	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.
Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.
Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and respiratory tract. It also causes irritation of the

gastrointestinal tract. ACUTE/CHRONIC HAZARDS: This compound is toxic by ingestion. It may be harmful by inhalation or skin absorption. It is an irritant of the skin, eyes, IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary Monitor for shock and treat if necessary For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal /Aromatic hydrocarbons and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher.

5.2 Specific hazards arising from the chemical

Flash point data for this chemical are not available; however, it is probably combustible.

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	white to pale yellow crystal
Colour	White crystals or white crystalline powder
Odour	Phenolic odor
Melting point/ freezing point	280°C(lit.)
Boiling point or initial boiling point and boiling range	267°C/752mmHg(lit.)
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	27°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:INSOLUBLE
Partition coefficient n-octanol/water (log value)	log Kow = 2.02
Vapour pressure	1.66X10-3 mm Hg @ 25°C
Density and/or relative density	1.03
Relative vapour density	no data available
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

DARKENS WHEN EXPOSED TO LIGHT.

10.3 Possibility of hazardous reactions

Combustible when exposed to heat or flame. 8-HYDROXYQUINOLINE darkens on exposure to light. This chemical readily forms stable metal chelates. It is incompatible with strong oxidizers. It is also incompatible with many metal ions.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

WHEN HEATED TO DECOMP EMITS HIGHLY TOXIC FUMES OF /NITROGEN
OXIDES/.

11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1200 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

No data are available in humans. Inadequate evidence of carcinogenicity in animals.
OVERALL EVALUATION: Group 3: The agent is not classifiable as to its
carcinogenicity to humans.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: 8-Hydroxyquinoline, concentration not specified, reached 0% of its theoretical BOD in 5 days using a sewage sludge inoculum and standard dilution method(1).

12.3 Bioaccumulative potential

An estimated BCF of 7 was calculated for 8-hydroxyquinoline(SRC), using a log Kow of 2.02(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 8-hydroxyquinoline can be estimated to be 3,000(SRC). According to a classification scheme(2), this estimated Koc value suggests that 8-hydroxyquinoline is expected to have slight mobility in soil.

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

14.2 UN Proper Shipping Name

ADR/RID: unknown

IMDG: unknown

IATA: unknown

14.3Transport hazard class(es)

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

14.4Packing group, if applicable

ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.

14.5Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
quinolin-8-ol	quinolin-8-ol	148-24-3	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16.Other information

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average

- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.

Safety Data Sheet

DOC CODE: TC-TE-RES-003:066 1/4

Version: 1.1 Last update: 2022-02-07

TC-CAB 35B

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY		
1.1	INCI Name:	COCAMIDOPROPYL BETAINE
1.2	CAS No:	61789-40-0
1.3	Chemical Classification:	Betaine
1.4	Dangerous Goods Classification:	Not assessed.
1.5	Company Details:	
	Manufacture/Supplier:	Guangzhou Tinci Materials Technology Co., Ltd
	Address:	8 th Kangda Road, Yunpu Industrial Zone, Huangpu District, Guangzhou, China
	Telephone Number:	(86 20) 66601159 fax No.(86 20) 82250169
	Emergency Telephone Number:	(86 20) 66601159
	Contact Person:	Technical support engineer
1.6	The date of taking effect:	August 2021
2. HAZARDS IDENTIFICATION		
2.1	Overall Hazard Classification:	Not hazardous.
2.2	GHS Hazard Classification	H hazards (H315 H319) E hazards (H412) Avoid contact with eyes, face and skin.
2.3	Label Elements	
	Hazard Pictograms:	 GHS05 GHS09 GHS07
	Signal Word:	Warning
	Hazard Statements:	H315: Causes skin irritation. H319: Causes serious eye irritation. H412: Harmful to aquatic life with long lasting effects. This substance causes serious eye irritation, is harmful to aquatic life with long lasting effects, causes skin irritation and may cause an allergic skin reaction.
	Precautionary Statements:	P264 - Wash exposed areas. thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective gloves, protective clothing, and eye protection.
	Incident response:	P302+P352 - If on skin: Wash with plenty of water. P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321 - Specific treatment (see section 4 on this SDS). P332+P313 - If skin irritation occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P391 - Collect spillage. P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations
	Safety storage:	Store in a cool, well-ventilated place.
2.4	Other Hazards	No Physical hazards
2.5	Possible Health Effects:	Skin Contact and Accidental Ingestion.
	<u>Acute</u>	
	Eyes:	Can cause serious eye damage.
	Skin:	Can causes skin irritation.
	Inhalation:	Inhalation not likely.
	Ingestion:	Practically non-toxic.
	<u>Chronic</u>	This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable or suspected human carcinogens.
3.COMPOSITION/INFORMATION ON INGREDIENTS		
3.1	Chemical characterization:	Mixture
3.2	Physical Form:	Liquid
3.3	Color:	Colorless to yellowish
3.4	Use:	Cosmetics additive, Surfactant
3.5	Ingredients Component:	

Safety Data Sheet

DOC CODE: TC-TE-RES-003:066 2/4

Version: 1.1 Last update: 2022-02-07

TC-CAB 35B

Chemical Name	CAS No	Content (%)	Target (%)
Cocamidopropyl Betaine	61789-40-0	28.0-30.0	29.5
Sodium Chloride	7647-14-5	≤6.0	4.5
Sodium Benzoate	532-32-1	0.4-0.6	0.5
Aqua/Water	7732-18-5	To 100	65.5
4. FIRST AID MEASURES			
4.1	Eyes:	Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek medical attention.	
4.2	Skin:	In case of contact, immediately wash with plenty of soap and water for at least 5 minutes. Seek medical attention. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.	
4.3	Inhalation:	Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.	
4.4	Ingestion:	If victim is conscious and alert, give 1-2 glasses of water to drink. Do not give anything by mouth to an unconscious person. Seek medical attention. Do not leave victim unattended.	
4.5	Comments:	Treat according to person’s condition and specifics of exposure. Skin contact may aggravate existing skin disease.	
4.6	Note to physicians:	Treat symptomatically.	
5. FIRE FIGHTING MEASURES			
5.1	Auto-ignition:	Not available.	
5.2	Flash point:	> 93.9°C (201 F).	
5.3	Extinguishing Media:	Recommended (small fires): dry chemical, carbon dioxide, Recommended (large fire): alcohol foam, universal foam, water spray, Not recommended: water jet (frothing possible).	
5.4	Special Fire Fighting Procedures:	Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.	
5.5	Fire & Explosion Hazards:	Product will burn under fire conditions. Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.	
5.6	Hazardous Combustion Products:	Oxides of nitrogen, oxides of sulfur, oxides of carbon.	
5.7	Lower Explosion Limit:	Not applicable.	
5.8	Upper Explosion Limit:	Not applicable.	
5.9	Flammability Hazard Class:	Non-flammable.	
6. ACCIDENTAL RELEASE MEASURES			
6.1	Personal Precaution:	Avoid eyes/face contact. Avoid skin contact. Do not take internally.	
6.2	Environmental Precautions:	Do not flush to drain.	
6.3	Spill and Leak Procedures:	Absorb with an inert absorbent. Sweep up and place in an appropriate closed container (see Section 7: Handling and Storage). Clean up residual material by washing area with water. Collect washings for disposal.	
7. HANDLING AND STORAGE			
7.1	Handling:	Avoid breathing vapors and mists. Avoid direct or prolonged contact with skin and eyes. DO NOT ALLOW TO FREEZE. If freezing occurs, thaw and remix before using. Frozen material may be thawed in a warm room. Avoid localized overheating. Vent drums while heating. Mix thoroughly to assure homogeneity.	
7.2	Storage Conditions:	Store in tightly closed containers. Store in an area should be ≤40°C that is dry, well-ventilated, away from incompatible materials (see Section 10. Stability and Reactivity), Expected shelf life if stored at recommended temperatures: 24 months.	
7.3	Unsuitable Packaging Materials:	None established.	
8. EXPOSURE CONTROLS/PERSONAL PROTECTION			
8.1	Industrial Hygiene Standards		
	<u>Ingredients</u>	<u>CAS No.</u>	<u>Exposure Limits</u>
	None known.		
8.2	Engineering Controls:		
	Local Ventilation:	Recommended.	
	General Ventilation:	Recommended.	
8.3	Respiratory protection:	When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. For reasonably foreseeable industrial end uses of this material, respiratory protection should not be necessary.	

Safety Data Sheet

DOC CODE: TC-TE-RES-003:066 3/4

Version: 1.1 Last update: 2022-02-07

TC-CAB 35B

Eye protection:	Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material. Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.
Hand protection:	Skin contact should be minimized through use of gloves and suitable long-sleeved clothing (i.e., shirts and pants). Consideration must be given both to durability as well as permeation resistance.
Clothing Requirements:	Uniforms, coveralls, or a lab coat should be worn.
Change/Removal Of Clothing:	Remove contaminated clothing and launder before reuse.
Wash Requirements:	Wash exposed areas with soap and water.
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Physical Form:	Liquid
9.2 Color:	Colorless to yellowish
9.3 Odor:	No abnormal odor
9.4 pH(10%):	4.5-6.0
9.5 Solubility in water:	Soluble
9.6 Specific Gravity:	Not Available
9.7 Melting Point Range:	Not Available
9.8 Freezing Point Range:	< 0°C
9.9 Vapor Density:	Not Available
9.10 Boiling Point Range:	> 100°C at 760 mmHg
The above information is not intended for use in preparing product specifications. Contact Tinci before writing specifications.	
10. STABILITY AND REACTIVITY	
10.1 Stability:	Stable.
10.2 Stability Detail:	Stable under normal temperature and pressure. Conditions To Be Avoided: heat, open flame, spark. Materials/Chemicals To Be Avoided: strong acids, strong oxidizing agents.
10.3 Reactivity Hazard Class:	Minimal. Hazardous polymerization will not occur.
11. TOXICOLOGICAL INFORMATION	
11.1 Acute toxicity	
Acute oral:	LD50 5 000 mg/kg bw (rat)
Acute dermal:	LD50 2 000 mg/kg bw (rat)
11.2 Irritation / corrosion:	Eye: Adverse effect observed (irritating) Skin: Adverse effect observed (irritating/sensitizing)
11.3 Repeated dose toxicity:	No adverse effect observed NOAEL 500 mg/kg bw/day (subacute, rat)
11.4 Genetic toxicity:	No adverse effect observed (negative)
11.5 Toxicity to reproduction:	Effect on fertility Oral route: No adverse effect observed NOAEL 1 000 mg/kg bw/day (subchronic, rat) Effect on developmental toxicity Oral route: No adverse effect observed NOAEL 950 mg/kg bw/day (subchronic, rat)
11.6 Carcinogenicity:	Not listed as carcinogenic according to IARC, NTP or OSHA.
11.7 Mutagenicity:	Testing has shown this product to be non-mutagenic (Ames test).
11.8 Other Health Hazard Information:	No data available
12. ECOLOGICAL INFORMATION	

Safety Data Sheet

DOC CODE: TC-TE-RES-003:066 4/4

Version: 1.1 Last update: 2022-02-07

TC-CAB 35B

12.1	Ecotoxicological Toxicity	<p>Short-term toxicity to fish LC50 (4 days) 2 mg/L LC0 (4 days) 1.7 mg/L LC100 (4 days) 2.4 mg/L Long-term toxicity to fish No data available</p> <p>Short-term toxicity to aquatic invertebrates EC50 (48 h) 6.4 mg/L Long-term toxicity to aquatic invertebrates NOEC (21 days) 900 µg/L LOEC (21 days) 3.6 mg/L</p> <p>Toxicity to aquatic algae and cyanobacteria EC50 (48 h) 30 mg/L</p> <p>Toxicity to microorganisms EC0 (16 h) 3 g/L EC0 (30 min) 3 g/L</p>
12.2	Stability and Biodegradation:	Readily biodegradable Not stability
12.3	Bioaccumulation:	Bioaccumulation Factor (BCF) - L/kg ww 70.79 L/kg ww
12.4	Adsorption/desorption:	Koc at 20 °C: 648
13. DISPOSAL CONSIDERATIONS		
13.1	Product Disposal:	Dispose of in accordance with local regulations.
13.2	Packaging Disposal:	Any containers or equipment used should be decontaminated immediately after use.
14. TRANSPORT INFORMATION		
14.1	Road and Rail Transport:	Not assessed.
14.2	Sea Transport(IMDG) :	Not subject to IMDG code.
14.3	Air Transport(ICAO) :	Not subject to ICAO regulations.
15. REGULATORY INFORMATION		
15.1	Applicable Laws:	Provisions of the Regulations for the Safe Handling of Chemicals in the Workplace, particularly those relating to the safe use, production, storage and transportation of dangerous chemicals.
15.2	Chemical Inventories:	
	AICS:	All ingredients listed or exempt.
	DSL:	All chemical substances in this material are included on or exempted from the DSL.
	IECSC:	All ingredients listed or exempt.
	MITI:	All components are listed on ENCS or its exempt rule.
	KECL:	All ingredients listed, exempt or notified.
	EINECS:	All ingredients listed or exempt.
	PICCS:	All ingredients listed or exempt.
	TSCA:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
16. OTHER INFORMATION		
	Contact Point:	Technical Services Engineer (86 20) 66601159
	Prepared by:	Guangzhou Tinci Materials Technology Co., Ltd
This information is offered in good faith as typical values and not as a product specification. No warranty, expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.		

WOODLAND FOOD INDUSTRIES PTE LTD

23 Choa Chu Kang North 6 #03-04 Singapore 689579 Tel: (065) 6763 1421 Fax: (065) 6769 0083
Email: marketing@woodland.com.sg GST Reg. No. M2-0110461-X RCB No. 199205553C

10 October 2024

CERTIFICATE OF QUALITY

Shipper : Woodland Food Industries Pte Ltd
Consignee : To Order
Notify Party :
Packing : In grey colour new steel drums each 200 kgs net.
Shipment marks : Lion Brand
Palm Kernelamide DEA
Type: Mamide-KDE/80-300
Batch No.U0209,U1809,U2409
Gross Wt: 216.5 Kgs
Net Wt : 200 Kgs
Tare Wt : 16.5 Kgs

Product 货名 : Palm Kernelamide DEA / 棕榈仁油酰胺 DEA

Batch Nos. : U0209
Production Date : 2024/9/2
Expiry Date : 2026/9/1

Results

<u>Batch Nos. 批号</u>	<u>U0209</u>	<u>Specifications 规格</u>
Amide content, PCT. 酰胺含量 %	87.7	80 PCT. Min
* Secondary Alkylamine, PCT. 仲链胺 %	4.15	5 PCT. Max
Colour (APHA) 颜色	250	300 Max
pH (1 PCT. SOLN) PH值	9.4	9-11
Moisture, PCT. 水分 %	0.11	1 PCT. Max
Glycerol, PCT. 甘油 %	8.0	10 PCT. Max
Diethylene Glycol, PCT 二乙二醇 %	Not detected 未检出	
Nitrosoamines 亚硝酸胺 %	Not detected 未检出	

* Can not be used with the nitrosylation system to avoid the formation of nitrosamines.
* 不能和亚硝基化体系一起使用, 避免形成亚硝酸胺。

The results were within the contractual specifications.

WOODLAND FOOD INDUSTRIES PTE LTD

Analyst

Product name: TY2002 1-Hydroxyethylidene-1,1-Diphosphonic Acid
Tongde chemical Co.,Ltd

CHANGZHOU YAO'S TONGDE CHEMICAL CO.,LTD

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: TY2002 1-Hydroxyethylidene-1,1-Diphosphonic Acid
Company Information:

China:

Company: CHANGZHOU YAO'S TONGDE CHEMICAL CO.,LTD

Add:changzhou city jiangsu 213111 P.R. CHINA.

TEL: +86-519-88733208 88732401

FAX: +86-519-88732040

<http://www.chinatongde.com>

E-mail:webmaster@chinatongde.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS NO.</u>	<u>Average Concentration</u> <u>Concentration</u>	<u>concentration</u> <u>range</u>	<u>Units</u>
etidronic acid	2809-21-4		58.0-62.0	%
phosphonic acid	13598-36-2		≤ 4.0	%
water	7732-18-5			%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Form: liquid
Colour: clear to yellow
Odour: characteristic

WARNING STATEMENTS

DANGER!

Causes eye burns

Corrosive to mild steel

POTENTIAL HEALTH EFFECTS

Likely routes of exposure: eye and skin contact

Eye contact: Causes eye burns . Injury may be permanent.
Skin contact : No more than slighty irritating to skin.
No more than slightly toxic if absorbed.
Inhalation: No information available.
Ingestion: No more than slightly toxic if swallowed.
Significant adverse health effects are not expected to develop if only small amounts(less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

If in eyes: Immediately flush with plenty of water for at least 15 minutes.
If easy to do, remove any contact lenses.
Get medical attention.
Remove material from skin and clothing.
If on skin: Immediate first aid is not likely to be required .
This material can be removed with water.
Wash heavily contaminated clothing before reuse.
If inhaled: Immediate first aid is not likely to be required.
If symptoms occur, remove to fresh air.
Remove material from eyes, skin and clothing.
If swallowed: Immediate first aid is not likely to be required.
A physician or poison Control Center can be contacted for advice.
Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Flash point: Non flammable aqueous solution
Hazardous products of combustion : carbon monoxide (CO); carbon dioxide; phosphines
Extinguishing media : Water spray, foam, dry chemical, or carbon dioxide
Unusual fire and explosion hazards: Decomposes in a fire giving off irritant fumes.
Fire fighting equipment: Fire fighters , and others exposed, wear self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protection recommended in section 8.
Environmental Keep out of drains and water courses.
Precautions:
Methods for cleaning up: Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste Container. Neutralize washings with soda ash or lime. Flush spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling

Do not get in eyes , on skin ,or on clothing.
Avoid breathing vapour or mist.

Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned , reconditioned or destroyed. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Storage

Temperature: >-10 C

Suitable materials of glass lining; PVC; polypropylene; glass reinforced plastic; polyethylene construction: mild steel ; carbon steel ; aluminium ; other metals.

Unsuitable materials of mild steel; carbon steel; aluminium; other metals

Construction:

General: Freeze sensitive.

Keep in a cool, dry, well ventilated place.

Stable under normal conditions of handling and storage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection: Wear chemical goggles.

Have eye wash facilities immediately available at any location where eye contact can occur.

Hand protection: Although this product does not present a significant skin concern , minimize skin contamination by following good industrial practice.

Wearing protective gloves is recommended.

Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application.

Body protection: Although this product does not present a significant skin concern , minimize skin contamination by following good industrial practice.

Wash thoroughly after handling..

Respiratory protection: Avoid breathing vapour or mist.

Use approved respiratory protection equipment when airborne exposure is excessive.

If used,full facepiece replaces the need for face shield and/or chemical goggles.

Consult the respirator manufacturer to determine the appropriate type of equipment for a given application.

Observed respirator use limitations specified by the manufacturer.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical , use local mechanical exhaust ventilation at sources of air contamination such as processing equipment.

Airborne exposure limits: (m1/m3=ppm)

TY2002G HEDP No specific occupational exposure limit has been established.

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure limits legislated for the province in which the substance will be used.

9.PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity: 1.45@20°C
PH: <2.0 Conditions 10g/l @25 °C
Freezing point: -25°C
Water solubility: completely miscible

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Conditions to avoid: Do not expose to extreme temperatures.

Materials to avoid- Attacks many metals.

Hazardous reactions: Corrosive to aluminum and mild steel.

Contact with strong oxidizing agents

Contact with strong bases.

Hazardous polymerization does not occur

Hazardous decomposition carbon monoxide(CO); carbon dioxide; Phosphorus oxides(PxOy); phosphines.

Products:

11. TOXICOLOGICAL INFORMATION

This product has been tested for toxicity

Acute animal toxicity data

Oral: LD50, rat, 2,400 mg/kg, Slightly toxic following oral administration.

Dermal: LD50, rabbit, 7,940 mg/kg, Practically nontoxic after skin application in animal studies.

Eye irritation: rabbit, Corrosive

Skin irritation: rabbit, Practically non irritating to skin(rabbit), 24h

Repeat dose toxicity : rat & dog, diet, subchronic

Minor effects(less than lesions) were present in some animals at the end of the observation period.

Repeat dose toxicity: rat & dog, diet, chronic,

Minor effects(less than lesions) were present in some animals at the end of the observation period.

Repeat dose toxicity: dog, subcutaneous, chronic,

Adverse effects observed in repeat dose studies.

Target effects observed in repeat dose studies.

Developmental toxicity: rat & rabbit, gavage, , No birth defects were noted in rats given the active ingredient orally during pregnancy.

Reproductive toxicity: rat, diet, 2 generation, This material had no effect on reproduction or fertility.

Mutagenicity: No genetic effects were observed in standard tests using bacterial and animal cells.

Components

Date from Solutia studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard(29 CFR 1910.1200) or the Canadian Hazardous Products Act are discussed below.

Phosphonic acid Slightly toxic following oral administration.

Slightly toxic after skin application in animal studies
Corrosive to eyes(rabbit)
Corrosive to skin(rabbit)
The weight of the evidence indicates that this material is not mutagenic
In in-vitro assays.

12.ECOLOGICAL INFORMATION

Environmental Toxicity:

Invertebrates 48h,EC50 Water flea(Daphnia magna) 527mg/L
Fish: 96 h, LC50 Rainbow trout(Oncorhynchus mykiss) 368 mg/L
96 h, LC50 Bluegill sunfish (Lepomis macrochirus) 868 mg/L
Algae: 96h ,EC50 Algae (Selenastrum capricornutum) 3mg/L
Algal growth inhibition is due to ability of this product to complex materials not to toxicity per se.

Environmental fate

Biodegradation Zahn-Wellens Dissolved Organic Carbon removed 33% 28d
Modified OECD Screening theoretical CO2 evolution 2% 70 d
Modified SCAS Dissolved Organic Carbon removed 90% Closed Bottle BOD 30/COD
5%
Degrades after acclimatization
Bioconcentration factor not expected to bioaccumulate.
(BCF):

13.DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This material when discarded is a hazardous waste as that term is defined by the Resource,Conservation and Recovery Act (RCRA), 40 CFR 261. See disposal considerations below for U.S. EPA disposal requirements.Consult regulatory officials for performance standards.

US EPA RCRA D002 Compound/Characteristic: Corrosivity

Hazardous waste number:

Disposal considerations: Incineration

Miscellaneous advice: Local, state,provincial, and national disposal regulations may be more or less stringent.

Consult your attorney or appropriate regulatory officials for information on such disposal.

This product should not be dumped , spilled, rinsed or washed into sewers or public waterways.

14.TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT

Proper shipping name: CORROSIVE LIQUID , ACIDIC, ORGANIC, N.O.S.

Phosphonic acid

Hazard Class: 8
Hazard Identification number: UN3265
Packing Group: Packing Group III
Transport label: Corrosive

Canadian TDG

Proper shipping name: CORROSIVE LIQUID ,ACIDIC, ORGANIC, N.O.S.
Phosphonic acid

Hazard Class: 8
Hazard Identification number: UN3265
Packing Group: Packing Group III
Transport label : Corrosive

15.REGULATORY INFORMATION

All components are on the following U.S. TSCA, Canadian DSL, EU EINECS, Japanese Inventories : ENCS, Australian AICS,Korean ,Phillipine PICCS,Chinese(Draft)

Canadian WHMIS classification: D2(B) – Materials Causing Other Toxic Effects
E – Corrosive Material

SARA Hazard Notification:
Hazard Categories Under Title III Immediate
Rules (40 CFR 370):

Section 302 Extremely Hazardous
Substances:
Section 313 Toxic Chemical(s):
CERCLA Reportable Quantity:
Not applicable

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section II for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

16.OTHER INFORMATION

Product use: Cleaning/washing agents and disinfectants, Complexing agents,other
Reason for revision: New software implementation.

	Health	Fire	Reactivity	Additional	Information
Suggested NFPA Rating	1	0	1		
Suggested HMIS Rating:	1	0	1	H	

Prepared by the Solutia Hazard Communication Group. Please consult Solutia if further information needed.



Disodium hydrogen phosphate safety technical specification

Part 1: Name of the chemical

The Chinese name disodium hydrogen phosphate

The English name Disodium phosphate

molecular formula $\text{Na}_2\text{HPO}_4 \cdot n\text{H}_2\text{O}$

executive standard HG/T2965-2009

CAS No.: 7558-79-4 (anhydrous); 10039-32-4 (12 water)

molar mass 358.0

Part 2: Composition / composition information

phosphoric anhydride (P_2O_5)

content, % 19.30

Main content, % 97.0

Part 3: Overview of the danger

Health hazards: irritation of the eyes, respiratory system, and skin.

GHS It is not a hazardous substance or mixture according to the Global Classification and Labelling System (GHS).

Part four: First-aid measures

skin Flush with soap and plenty of water.

eye Wash the eyes with water as a precaution.

Inhalation: If inhaled, move the patient to fresh air. If breathing stops, give to artificial respiration.

ingest Do not feed the unconscious person anything from his mouth. Wash your mouth with water.

Part V: Fire protection measures

Fire Put out the fire with water mist, alcohol-resistant foam, dry powder or carbon dioxide.

Special The oxide of phosphorus, the oxide of sodium

Fire If necessary, wear a subsistence respirator to fight the fire.

Part VI: Emergency treatment of leakage

Quarantine the leakage pollution area and restrict access. It is recommended that emergency handling personnel wear dust masks (full cover) and wear gas suits. emergency handling: Collect with a clean shovel in dry, clean and covered containers and transfer to a safe place. If a large amount of leakage, collection and recycling or transported to the waste disposal site for disposal.

Part VII: Operation, disposal and storage

Operational	Wear respirator, gloves, goggles and other equipment to ensure staff comfort and safety.
Storage considerations	Store in closedIn the container. Store in cool, dry, well-ventilated places away from incompatible substances. Storage favors protected moisture.

Part 8: Contact control / personal protection



Part 9: Physical

Part X: Stability and

Part X: Toxicology

Part XII: Ecological

Part 13: Waste disposal

Waste disposal method: refer to the relevant national and local regulations before disposal. Neutralized diluted, and then discharged into the sewer. High concentrations are harmful to aquatic organisms.

Part 14: Transportation information

Dangerous goods number: no information

Packaging category: no data

Packaging method: inside plastic and outside

The packing should be complete and the loading should be safe. During the transportation process, make sure that the container does not leak, collapse, fall or damage.

Transportation considerations:

It is strictly prohibited to mix loading and transport with edible chemicals.

Transportation should be exposed, rain, prevent high temperature. The vehicle shall be thoroughly cleaned after transportation.

Part XV: Regulatory information

Relevant administrative regulations: Regulations on the Safety Administration of Chemical Hazardous substances (issued by The State Council on February 17, 1987), Safety of chemical hazardous substances

Implementation Rules for the Full Management of Regulations ([1992] No.677), Regulations on the Safe Use of Chemicals in the Workplace ([1996] Ministry of Labor

No.423)

Safety Data Sheet

HYDROGEN PEROXIDE 50%≤CONCENTRATION<60% (APA)

Publication : 2021-07-30

Document type	Name	Last data update	Version	Page
Safety data sheets	HYDROGEN PEROXIDE 50%≤CONCENTRATION<60% (APA)	2021-07-27	1.0	<u>3</u>
Inventories	<u>Inventory</u>	2017-06-23	1.0	<u>11</u>

Quick-FDS [19570-68565-09906-010416] - 2021-07-30 - 19:02:45

Quick-FDS [19941-20697-11428-340001] - 2022-08-05 - 05:44:57

Product: **HYDROGEN PEROXIDE**
50%≤CONCENTRATION<60% (APA)

Page: 1 / 8

SDS No.: 006446-001 (Version 1.0)

Date 2021/07/27

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Generic Safety Data Sheet

Identification of the mixture: HYDROGEN PEROXIDE 50%≤CONCENTRATION<60% (APA)

Grades : Albone 55 CR2 / Albone® 50 (S) / Albone® 50 CR2 / Albone® 50 MS / Peroxal 50 DS (S) / Peroxal® 50 DM / Peroxal® 50 PF / Peroxal® 50 PG (S) / Valsterane® 50 AL2 /

Recommended use of the chemical and restrictions on use :

Use of the Substance/Mixture : Bleaching agent, Oxidation agent, Oxygen generator, Synthesis intermediate., Formulated product, Water treatment, Industrial cleaning, Disinfectants

Company/Undertaking Identification:

Manufacturer

Arkema Hydrogen Peroxide Co., Ltd. Shanghai
 555 Road, Shanghai, China Shuangbai
 201108 Shanghai, China
 Telephone: +86 (0) 21 64341928
 Telefax: +86 (0) 21 64345023

Emergency telephone number

+1-703-741-5970 (CHEMTREC International emergency phone number)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:

Oxidizing liquids, Category 2, H272
 Oral: Acute toxicity, Category 4, H302
 Inhalation: Acute toxicity, Category 4, H332
 Skin corrosion/irritation, Category 1B, H314
 Serious eye damage/eye irritation, Category 1, H318
 Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335
 Acute aquatic toxicity, Category 2, H401

Additional information:

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. Label elements:

GHS-Labeling

Hazard pictograms:



Signal word:

Danger

Hazard statements:

H272 : May intensify fire; oxidizer.
 H302 : Harmful if swallowed.
 H332 : Harmful if inhaled.
 H314 : Causes severe skin burns and eye damage.
 H335 : May cause respiratory irritation.
 H401 : Toxic to aquatic life.

Precautionary statements:

Prevention:

P220 : Keep away from clothing and other combustible materials.

P260 : Do not breathe gas/mist/vapours/spray.

P280 : Wear protective gloves/protective clothing/eye protection/face protection.

P273 : Avoid release to the environment.

Response:

P301 + P310 + P330 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.

P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P303 + P361 + P353 : IF ON SKIN (or hair): Remove or take off immediately all contaminated clothing. Rinse skin with water and shower.

P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P310 : Immediately call a POISON CENTER or doctor/ physician.

Storage:

P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.

Disposal:

P501 : Dispose of contents or container to an approved waste disposal plant.

2.3. Other hazards:**Potential health effects:**

Inhalation: At high vapour/fog concentrations : Irritating to respiratory system. Risk of pulmonary oedema

Skin contact: Effects of skin contacts may include: Oedema Erythema Discolouration

Eye contact: Causes serious eye damage.

Ingestion: Risk of burns to the mouth, oesophagus and stomach

Environmental Effects:

Harmful to fish. Toxic to daphnia. Toxic to aquatic flora. Not bioaccumulable.

Physical and chemical hazards:

Oxidizing agents Risk of fire or explosion when in mixtures with organic substances (above a certain concentration) Contact with combustible material may cause fire. Risk of decomposition when in contact with incompatible substances

Decomposition products: See chapter 10

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Chemical nature of the mixture¹:**Hazardous components:**

Chemical name ¹	EC-No.	CAS-No.	Concentration	Classification
Hydrogen peroxide	231-765-0	7722-84-1	50 - 60 %	Ox. Liq. 1; H271 Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Inhalation); H332 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3 (Inhalation); H335 Aquatic Acute 2; H401 Aquatic Chronic 3; H412

¹: See chapter 14 for Proper Shipping Name**SECTION 4: FIRST AID MEASURES****4.1. Description of necessary first-aid measures:****General advice:**

Under the shower: Take off immediately all contaminated clothing. including shoes.

Inhalation:

Move to fresh air. Oxygen or artificial respiration if needed. Keep under medical surveillance. In case of problems : Hospitalise.

Skin contact:

Wash off immediately with plenty of water. Consult a physician. In case of extensive burns, hospitalize.

Eye contact:

Wash open eyes immediately, abundantly and thoroughly for at least 15 minutes. Consult an ophthalmologist immediately.

Ingestion:

Do not induce vomiting, rinse mouth and lips with plenty of water if the subject is conscious, then hospitalize.

Protection of first-aiders:

Protective suit

4.2. Most important symptoms and effects, both acute and delayed: No data available.

4.3. Indication of any immediate medical attention and special treatment needed: No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

Suitable extinguishing media:

In case of fire involving the product :, Water spray

Unsuitable extinguishing media:

All other extinguishants

5.2. Specific hazards arising from the chemical:

Contact with combustible material may cause fire., Thermal decomposition gives :, Oxygen, that can enhance sites of combustion, Hazards of overpressurization in containers exposed to heat : explosion risk.

5.3. Advice for firefighters:

Specific methods:

Keep upwind and operate from safe distance In case of fire, remove exposed containers. Containers/tanks should be cooled with water spray.

Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Evacuate non-essential staff and those not equipped with individual protection apparatus. Prohibit contact with skin and eyes and inhalation of vapours. Prohibit all sources of sparks and ignition - Do not smoke. If safe to do so, plug or seal off leak. Remove all incompatible substances.

6.2. Environmental precautions:

Dam up with sand or inert earth (do not use combustible materials). Dilute with large quantities of water before discharging into sewers or into the environment

6.3. Methods and materials for containment and cleaning up:

Recovery:

Soak up with inert absorbent material. Never reintroduce the spilled product in another container : Risk of decomposition.

Neutralisation:

Dilute with water.

Elimination:

Dispose of rinse water as waste water.

6.4. Reference to other sections: None.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:

Storage and handling precautions applicable to products: Liquid. Corrosive. Harmful. Oxidizers. Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths. Provide high flow water point nearby. Provide self-contained breathing apparatus nearby (for emergency intervention).

Safe handling advice:

Do not let overpressurization develop. Do not confine the product between two doors. Avoid splashing when handling. Prohibit all sources of sparks and ignition - Do not smoke.

Hygiene measures:

Prohibit contact with skin and eyes and inhalation of vapours. In case of splashes, remove contaminated clothing and plunge it into water immediately. When using do not eat, drink or smoke.

Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Store away from combustible and oxidizable materials. Use only very clean containers and equipment free from traces of impurities. Never return unused material to storage receptacle. These containers should only be used for this product. Protect against light. Protect from contamination. Protect from heat. Check the temperature regularly. Regularly check containers, noting any signs of abnormality (corrosion, bulging, temperature increase). Provide vents equipped with filters on reservoirs to avoid ingress of impurities. Provide a catch-tank in a bunded area. Consult ARKEMA before storage design.

Incompatible products:
Combustible material Reducing agents Organic materials Metals Metallic oxides Bases Acetone

Packaging material:
Recommended: Stainless steel, Aluminium, (cleaned and passivated), Polyethylene, Boron glass, Polytetrafluoroethylene (PTFE) seals recommended
To be avoided: Any other material

7.3. **Specific end use(s):** None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. **Control parameters:**

Exposure Limit Values

Hydrogen peroxide

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
ACGIH (US)	02 2012	TWA	1	–	–

8.2. **Exposure controls:**

General protective measures: Ensure sufficient air exchange and/or exhaust in work areas

Personal protective equipment:

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. In case of spillage, wear a mask

Hand protection:

Protective gloves (PVC, neoprene)
Protective gloves complying with EN 374. Do not wear leather gloves.

Eye/face protection:

Safety glasses with side-shields

Skin and body protection:

Protective clothing (prohibited : textiles, leather)., Rubber or plastic boots

Environmental exposure controls: See chapter 6

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on basic physical and chemical properties**

Appearance:

Physical state (20°C):

liquid

Colour:

colourless

Odour:

pungent

Olfactory threshold:

No data available.

pH:

pH < 3

Melting point/range :

(Concentration: 50%) -52 °C

Boiling point/boiling range :

(Concentration: 50%) 114 °C

Flash point:

Non-flammable product

Evaporation rate:

No data available.

Flammability (solid, gas):

Flammability:

Not applicable

Vapour pressure:

(Concentration: 50%) 13 hPa , at 20 °C

Vapour density:

No data available.

Density:

(Concentration: 50%) 1.195 kg/m3 , at 20 °C

Water solubility:

completely soluble at 20 °C

Partition coefficient: n-octanol/water:

HYDROGEN PEROXIDE :
inorganic

Auto-ignition temperature:

Not applicable

Decomposition temperature:

No data available.

Viscosity, dynamic:

(Concentration: 50%) 1,17 mPa.s , at 20 °C

Explosive properties:

Explosivity: Not explosive (A14 Method)

Oxidizing properties:

Contact with combustible material may cause fire.

9.2. Other information:

Surface tension: 75,7 mN/m at 20 °C / 50 %

pKA: 11,62 - 11,65 at 25 °C Pure substance

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: No data available.

10.2. Chemical stability:

The product is stable under normal handling and storage conditions., Presence of a stabilizer

10.3. Possibility of hazardous reactions:

None under normal conditions of use.

10.4. Conditions to avoid:

Protect from light. Protect from heat. (Risk of explosion)

10.5. Incompatible materials to avoid:

Combustible material, Organic materials

Risk of :

- Explosive reaction with : Metals, Metallic oxides, Bases, Reducing agents, Acetone
- Dusts, (risk of self-accelerating exothermic decomposition)

10.6. Hazardous decomposition products:

Thermal decomposition gives : Oxygen, that can enhance sites of combustion

SECTION 11: TOXICOLOGICAL INFORMATION

All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:
Acute toxicity:
Inhalation:

- In man :
- In animals :

Harmful if inhaled.

At high vapour/fog concentrations : Risk of pulmonary oedema, Delayed effects possible
LC50/4 h/Rat: > 0,17 mg/l (Method: OECD Test Guideline 403), At high vapour/fog concentrations :
Maximum concentration technically possible (50 %)

Ingestion:

- In man :

Harmful by ingestion.

Risk of burns to the mouth, oesophagus and stomach, Through rapid liberation of oxygen : Risk of stomach dilation and haemorrhage, can cause severe lesions, Risk of mortality
LD50/Rat: 1.200 mg/kg (35 %)

- In animals : (as aqueous solution)

Dermal:

- In animals : (as aqueous solution)

Practically not harmful in contact with skin

No mortality/Rabbit: 6.500 mg/kg (Method: OECD Test Guideline 402) (70 %)

Local effects (Corrosion / Irritation / Serious eye damage):
Skin contact:

- In man :
- In animals : aqueous solution

Corrosive to skin

Effects of skin contacts may include: Discolouration , Erythema , Oedema
Superficial necrosis (After semi-occlusive contact, Rabbit, Exposure time: 4 h)
(35 %)
(After semi-occlusive contact, Rabbit, Exposure time: 1 - 4 h)
(50 %)

Eye contact:

- In man :
- In animals :

Corrosive to eyes

May cause irreversible eye damage.
Severe eye irritation (Rabbit)
(In solution in water, 35 %)

Respiratory or skin sensitisation:
Inhalation:

No data available.

Skin contact: **Not a skin sensitizer**

HYDROGEN PEROXIDE :
• In animals : Not a skin sensitizer (Guinea pig)

CMR effects :

Mutagenicity: **According to available experimental data: Not genotoxic**

In vitro
HYDROGEN PEROXIDE : Active

In vivo
HYDROGEN PEROXIDE :
Micronucleus test in vivo mouse: Inactive (Method: OECD Test Guideline 474)
DNA repair test on rats hepatocytes: Inactive (Method: OECD Test Guideline 486)

Carcinogenicity: **Experimentation on animals has not shown clear evidence of carcinogenic effect**

HYDROGEN PEROXIDE :
Experimental effects have been observed in animals at much higher doses than those which people come into contact with during normal use conditions.
Following repeated force-feeding with the product, stomach tumours have been found in rats due to local irritation of the gastric mucous membrane

Reproductive toxicity:

Fertility: **Based on the available data, the substance is not suspected of having reprotoxic potential.**

Foetal development: **Based on the available data, the substance is not suspected of having developmental toxicity potential.**

Specific target organ toxicity :

Single exposure : **May cause respiratory irritation.**

Inhalation:
• In man : At high vapour/fog concentrations : , Irritating to respiratory system.

Repeated exposure: **Studies of prolonged exposure in animals have not shown toxic effects.**

HYDROGEN PEROXIDE :
• In animals :
By oral route: Irritation of the gastric mucosa, NOAEL= 26mg/kg/d (Rat, 3 months) (drinking water)
inhalation: Irritation of upper respiratory system, Irritating to nose, Local effects due to an irritant effect, LOAEL= 0,0029 mg/l (Method: OECD Test Guideline 407, Rat, Repeated)

Aspiration hazard: No data available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available and relevant data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

Acute aquatic toxicity : Toxic to aquatic life.

12.1. Toxicity :

Fish: **From its composition, it must be considered as: Harmful to fish.**

HYDROGEN PEROXIDE :
LC50, 96 h (Pimephales promelas (fathead minnow)) : 16,4 mg/l (Method: US EPA)

Aquatic invertebrates: **From its composition, it must be considered as: Toxic to daphnia.**

HYDROGEN PEROXIDE :
LC50, 48 h (Daphnia pulex (Water flea)) : 2,4 mg/l (Method: US EPA)

Aquatic plants: **From its composition, it must be considered as: Toxic to algae.**

HYDROGEN PEROXIDE :
ErC50, 72 h (Skeletonema costatum (marine diatom)) : 1,38 mg/l Marine environment

Microorganisms:

HYDROGEN PEROXIDE :
EC50, 0,5 h (Activated sludge) : 466 mg/l (Method: OECD Test Guideline 209, Respiration inhibition)

Aquatic toxicity / Long term toxicity:

Aquatic invertebrates:

HYDROGEN PEROXIDE : NOEC, 21 d (Daphnia magna (Water flea)) : 0,63 mg/l (Reproduction inhibition)

Aquatic plants:

HYDROGEN PEROXIDE : NOEC r, 72 h (Skeletonema costatum) : 0,63 mg/l Marine environment

12.2. Persistence and degradability :

Biodegradation (In water): The methods for determining biodegradability are not applicable to inorganic substances.

HYDROGEN PEROXIDE : Not applicable, inorganic

12.3. Bioaccumulative potential :

Bioaccumulation: None of the product and /or main component quoted in section 3 and/or analogue substance/metabolite is expected to bioaccumulate.

HYDROGEN PEROXIDE : inorganic

12.4. Mobility in soil - Distribution among environmental compartments:

Vapor pressure: (Concentration: 50%) 13 hPa, 20 °C
Surface tension: 75,7 mN/m 20 °C /50 %

12.5. Results of PBT and vPvB assessment :

According to REACH regulation, annex XIII, this mixture contains no substance meeting PBT and vPvB criteria.

12.6. Other adverse effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Disposal of product: Dilute with water.

Disposal of packaging: Clean container with water. Recycle or incinerate at an approved waste disposal site. In accordance with local and national regulations.

SECTION 14: TRANSPORT INFORMATION

Regulation	14.1. UN number	14.2. UN proper shipping name	14.3. Class*	Label	14.4. PG*	14.5. Environmental hazards	14.6. Special precautions for user
IATA Cargo						no	Not permitted for transport
IATA Passenger						no	Not permitted for transport
IMDG	2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	5.1	5.1(8)	II	no	EmS Number: F-H, S-Q

*Description: 14.3. Transport hazard class(es)
14.4. Packing group

14.7. Maritime transport in bulk according to IMO instruments: Not applicable

SECTION 15: REGULATORY INFORMATION

Not listed
Not listed
Not listed

Stockholm Convention on Persistent Organic Pollutants (POPs)
Montreal Protocol. Substances that Deplete the Ozone Layer, as amended
Kyoto Protocol to the United Nations Framework Convention on Climate Change,
Annex A, Greenhouse Gases

Not listed	Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Not listed	International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors

INVENTORIES:

For the inventory details, see Appendix.

SECTION 16: OTHER INFORMATION

Full text of H, EUH-phrases referred to under sections 2 and 3

H271	May cause fire or explosion; strong oxidizer.
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H401	Toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Thesaurus:

NOAEL : No Observed Adverse Effect Level (NOAEL)

LOAEL : Lowest Observed Adverse Effect Level (LOAEL)

bw : Body weight

food : oral feed

dw : Dry weight

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).

Product: **HYDROGEN PEROXIDE 50%≤CONCENTRATION<60% (APA)**

Page: 1 / 1

SDS No.: 006446-001 (Version 1.0)

Date 23.06.2017

Name	Inventory	EINECS / REACH	TSCA	DSL / NDSL	IECSC	ENCS	ISHL	KECI	PICCS	AICS	NZIOC
Albone 55 CR2		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Albone® 50 (S)		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Albone® 50 CR2		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Albone® 50 MS		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Peroxal 50 DS (S)		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Peroxal® 50 DM		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Peroxal® 50 PF		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Peroxal® 50 PG (S)		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to
Valsterane® 50 AL2		Conforms to	Conforms to	Conforms to (F)	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to	Conforms to

(A) The product contains ELINCS substances.	(I) This product contains at least one component covered by an exemption available only for Arkema - Please consult Arkema for more information
(B) This substance has been registered according to Regulation (EC) No. 1907/2006 (REACH).	(J) This product contains at least one component covered by a polymer exemption available only for Arkema - Please consult Arkema for more information.
(C) This substance is exempt from registration according to Regulation (EC) No. 1907/2006 (REACH).	(K) Consult ARKEMA.
(D) This product contains at least one component registered according to Regulation (EC) N° 1907/2006 (REACH)	(L) This product contains a NLP (No Longer Polymer)
(E) This product contains at least one component exempt according to Regulation (EC) N° 1907/2006 (REACH)	(M) The mixture contains a polymer. The monomers for this polymer have been notified.
(F) All components of this product are on the Canadian DSL	(N) Consult ALTUGLAS
(G) This product contains one or several components listed in the Canadian NDSL list. All other components are on the DSL list.	(O) Based on alternate CAS number(s).
(H) This product contains one or several components that are not on the Canadian DSL nor NDSL lists.	
<i>In case of empty inventory, Consult ARKEMA.</i>	
ARKEMA 420 rue d'Estienne d'Orves - 92700 Colombes – FRANCE	

Industrial salt, the MSDS

Technical specification for chemical safety

Part I Chemicals and corporate identification

Chemical Chinese name: sodium chloride

Chemical English name: sodium chloride

National emergency telephone number: 0532-5811759

Part II Composition / composition information

Pure product oneself Mimixture &

Hazardous materials CAS

sodium chloride 100 7647-14-



Part III: An Overview of the hazards

Risk category:

Invof way: feeding,

Health hazards: a large number of food initiation has nausea, vomiting symptoms

Environmental hazard: this substance is mild

Burm danger: this product is not combustible

Part IV First aid measures

Skin contact; immediately remove contaminated clothing and rinse with plenty of running water for at least 15 minutes.seek medical advice. Eye contact: stand

That is, lift the face and rinse thoroughly with a large amount of flowing water or normal saline for at least 15 minutes.seek medical advice.

Inhalation: off from the site to fresh air. If breathing is difficult, give oxygen.seek medical advice.

Eat: Rinse with water and drink raw milk or egg white.seek medical advice.

Part V Fire protection measures

Hazardous characteristics: no special combustion and explosion characteristics.

Hazardous combustion products: Natural decomposition products are unknown.

Fire extinguishing method: fire personnel must wear all the acid and alkali resistant fire clothing.

Part VI Emergency treatment emergency treatment

Emergency treatment: isolate the leakage pollution area and restrict access. It is recommended that emergency handling personnel wear dust masks (full cover) and wear gas suits. Avoid dust, carefully sweep it up, put it in a bag and transfer it to a safe place. If a lot of leakage, cover with plastic cloth, canvas.collect

Recycling or transport to the waste disposal site for disposal.

Part VII: Operation, Disposal and Storage

Notes: before the contaminated area;

conf

The cleaning work is handled by the trainees

Clean-up personnel should take protective measures before entering the contaminated area

Storage precautions: store in a cool, ventilated warehouse. Stay away from the fire and heat sources. Should be stored separately with the acid class, do not mix store up. The storage area shall be equipped with suitable material for the leakage.

Part VIII: Contact Control / Personal Protection

Monitoring method:

Engineering control: the production process is closed, strengthen the ventilation.

Respiratory system protection: when the dust concentration in the air exceeds the standard, a self-suction filter dust mask must be worn. Emergency rescue or evacuation

When leaving, you should wear an air respirator.

Eye protection: Wear chemical safety protection glasses.

Body protection: wear antivirus penetration work clothes.

Hand protection: wear rubber gloves.

Other protection: change the washing work clothes in time. Maintain good hygiene habits.

Part IX Physicochemical properties

Appearance and characteristics: white powder or fine particles (pure product without water), astringent taste.

NaCl Molecular weight: 58.44

Value: 4.5- -7.0Melting point (°C): 800

Relative density (water =1): 2.16 Boiling point (°C): 1461

Relative vapor density (air =1): no data octanol / water distribution coefficient: no data

Flash point (°C): meaninglessIgnition temperature (°C): meaningless

Upper explosion limit [% (V / V)]: meaningless explosion lower limit [% (V / V)]: meaningless

Heat of burning (kJ / mol): meaninglessCritical temperature (°C): It makes no sense

Solubility: dissolve in water

Part X: Stability and reactivity

Stability: stability

Prohibited:

Conditions to avoid contact:

Polymerization hazard: no polymerization

Decomposition product: have hygroscopic properties

Part X, Toxicology Information

Acute toxicity: LD50:3000mg / kg (rat mouth)

: 2300 mg/m³, 2 hours (rat inhalation)

Irritant: eye contact is irritating to the eye, eating with nausea and vomiting symptoms

Part XII, Ecological data

Ecotoxicity: no data is available

biodegradability:

Non-biological degradability:

Other harmful effects: no data

Part XIII Waste disposal

Waste property:

Disposal method: refer to relevant national and local regulations before disposal. After neutralization, it was disposed of by the safe burial method.

Waste considerations:

Part XIV Transportation Information

Dangerous goods number: no information

No.: No data

Packaging mark: no information

Packaging category: Z01

Packaging method: no data.

Transportation precautions: the packaging should be complete and the loading should be safe. During the transportation process, make sure that the container does not leak, collapse, fall or damage. It is strictly prohibited to mix loading and transport with acid and edible chemicals. Transportation should be exposed, rain, high temperature.

The vehicle shall be thoroughly cleaned after transportation.

Part XV: Regulatory Information

Regulations information: Regulations on the Safety Administration of Hazardous chemicals (issued by The State Council on January 26, 2002), regulations on the Safe Use of Chemicals in Workplaces ([1996] No. 423 issued by the Ministry of Labor) and other regulations for the safe use, production, storage and transportation of hazardous chemicals

Handling and unloading and other aspects have made the corresponding provisions.

Part XVI Other Information

This information is only applicable to specified substances and may not apply to such substances when mixed with other substances or in use; this information

The information is that the product currently recognizes and believes in its accuracy and reliability. However, the company's accuracy of the data

No commitment or guarantee for sex and integrity. The user must according to their own application pair, the applicability and integrity of the data is negative

Liability and will not be liable for damage caused by the use or reliance on such information.



Appendix 2- Microbiological Quality Test Report of Cosmetic Product

1. Microbiological specification test report or data

See below report(s) if available.

2. Preservative challenge test report or data

See below report(s) if available.

Test Report

Number: SHAH01765069

Applicant: Shenzhen Langmi Technology Co., Ltd
303, No. 36, Tian'an Road, Bantian Comm
Bantian Street, Longgang District
Shenzhen, Guangdong, CHINA 518129

Date: Dec 17, 2024

Sample Description:

One group of submitted sample said to be :

Item Name : Dark Brown Hair Dye Shampoo
Batch No. / Manufacture Date : 20241104K01
Manufacturer : GUANGZHOU ZHONGYI COSMETICS CO., LTD
Test Type : Entrusted Test

Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

Conclusion:

Tested Sample	Standard	Result
Tested Sample	The SCCS Notes of Guidance for the Testing of Cosmetic Ingredients and their Safety Evaluation, 12th revision	Pass

To be continued

Authorized By:
For Intertek Testing Services Ltd., Shanghai

Shiny Ning

Shiny Ning
Manager



Test Report

Number: SHAH01765069

Tests Conducted
TEST ITEM(S):

To determine microorganisms in the submitted sample in accordance with: The SCCS Notes of Guidance for the Testing of Cosmetic Ingredients and Their Safety Evaluation, 12th Revision.

TEST METHOD(S):

European Pharmacopoeia 11.0 Edition, Chapter 2.6.12.: Microbiological examination of non-sterile products: microbial enumeration tests

European Pharmacopoeia 11.0 Edition, Chapter 2.6.13.: Microbiological examination of non-sterile products: test for specified microorganisms

British Pharmacopoeia Appendix XVI B. Microbiological Examination of Non-Sterile Products

TEST RESULT(S):

No.	Test items	SCCS Requirement	Test results	Single determination
1	Total Aerobic Microbial Count (CFU/g)	(1) + (2)	<10	Pass
2	Moulds and Yeasts Count (CFU/g)	$\leq 10^3$	<10	Pass
3	Escherichia coli (per g)	Absent	Absence	Pass
4	Pseudomonas aeruginosa (per g)	Absent	Absence	Pass
5	Staphylococcus aureus (per g)	Absent	Absence	Pass
6	Candida albicans(per g)	Absent	Absence	Pass
7	Salmonella (per 10g)	--	Absence	--
8	Clostridia (per g)	--	Absence	--
9	Bile-Tolerant Gram-Negative Bacteria(per g)	--	Absence	--

Remark: CFU = Colony Forming Unit

<10 = No colony was detected at the one-tenth dilution of the sample

Aerobic bacteria + Fungi = total viable aerobic count. The limit of the total viable aerobic count is reference to SCCS's Notes of Guidance for the Testing of Cosmetic Ingredients and Their Safety Evaluation, 12th Revision.

Category 1: Products specifically intended for children under 3 years, to be used in the eye area and on mucous membranes: should not exceed 10^2 cfu/g or 10^2 cfu/ml

Category 2: Other products except category 1: should not exceed 10^3 cfu/g or 10^3 cfu/ml

Due to inherent variability of the plate count method, thus the criteria recommended should be interpreted as follows:

- 10^2 : Maximum limit of acceptance count is 200 CFU/g or ml

- 10^3 : Maximum limit of acceptance count is 2000 CFU/g or ml

Microbial testing address: 6/F., Building 2, Comalong Industrial Park, No.889, Yishan Road, Shanghai, China

Date Sample Received: Nov 26,2024

Testing Period: Nov 26,2024 To Dec 16,2024

End of report

The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (Non-binary acceptance based on guard band $w = U$) except designation from the customer, regulation or test specification. This decision rule only applies to the numeric test results.

The sample(s) and sample information hereto are provided by the client who shall be solely responsible for the authenticity and integrity thereof. The results shown in this report relate only to the sample(s) received and tested. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct. This report shall not be reproduced unless with prior written approval from Intertek Testing Services Ltd., Shanghai



Test Report

Number: SHAH01765027

Applicant: Shenzhen Langmi Technology Co., Ltd
303, No. 36, Tian'an Road, Bantian Comm
Bantian Street, Longgang District
Shenzhen, Guangdong, CHINA 518129

Date: Jan 13, 2025

Sample Description:

One group of submitted sample said to be :

Item Name : Dark Brown Hair Dye Shampoo
Batch No. / Manufacture Date : 20241104K01
Manufacturer : GUANGZHOU ZHONGYI COSMETICS CO., LTD
Test Type : Entrusted Test

Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

Conclusion:

Tested Sample	Standard	Result
Submitted sample	European Pharmacopoeia Chapter 5.1.3 & British Pharmacopoeia, appendix XVI C, Efficacy of antimicrobial preservation Table 2B	Pass

To be continued

Authorized By:
For Intertek Testing Services Ltd., Shanghai

Shiny Ning

Shiny Ning
Manager



Test Report

Number: SHAH01765027

Tests Conducted
Test For Efficacy of Antimicrobial Preservation

According to Client's Requirement, The "Efficacy of Antimicrobial Preservation" is conducted according to European pharmacopoeia 5.1.3 (11.0) and British pharmacopoeia appendix XVI C.

Test organism	Initial Concentration (cfu/ml)	Log ₁₀ reduction		
		7 days	14 days	28 days
Staphylococcus aureus (ATCC NO. 6538)	4.6x10 ⁵	>4.7	>4.7	>4.7
Escherichia coli (ATCC NO. 8739)	6.7x10 ⁵	>4.8	>4.8	>4.8
Pseudomonas aeruginosa (ATCC NO. 9027)	1.7x10 ⁵	>4.2	>4.2	>4.2
Candida albicans (ATCC NO. 10231)	4.0x10 ⁵	>4.6	>4.6	>4.6
Aspergillus brasiliensis (ATCC NO. 16404)	1.6x10 ⁵	>4.2	>4.2	>4.2

Acceptance Criteria:

The criteria for evaluation of antimicrobial activity are given in below Tables in terms of the log₁₀ reduction in the number of viable micro-organisms against the value obtained for the inoculum.

(1) EP & BP Table 5.1.3-1 Parenteral preparations, eye preparations, intrauterine preparations and intramammary preparations

Criteria		Log ₁₀ reduction				
		6h	24h	7d	14 d	28 d
Bacteria	A	≥2	≥3	-	-	NR
	B	-	≥1	≥3	-	NI
Fungi	A	-	-	≥2	-	NI
	B	-	-	-	≥1	NI

(2) EP& BP Table 5.1.3-2 Ear preparations, nasal preparations, preparations for cutaneous application and preparation and preparations for inhalation

Criteria		Log ₁₀ reduction			
		2d	7d	14 d	28 d
Bacteria	A	≥2	≥3	-	NI
	B	-	-	≥3	NI
Fungi	A	-	-	≥2	NI
	B	-	-	≥1	NI

(3) EP & BP Table 5.1.3-3 Oral preparations, oromucosal preparations and rectal preparations

Criteria		Log ₁₀ reduction	
		14 d	28 d
Bacteria		≥3	NI
Fungi		≥1	NI

To be continued



Test Report

Number: SHAH01765027

Tests Conducted

Remark :

NR: no recovery.

NI = No increase in number of viable micro-organisms compared to the previous reading.

The A criteria express the recommended efficacy to be achieved. In justified cases where the A criteria cannot be attained, for example for reasons of an increased risk of adverse reactions, the B criteria must be satisfied.

Microbial testing address: 6/F., Building 2, Comalong Industrial Park, No.889, Yishan Road, Shanghai, China

Date Sample Received: Nov 26,2024

Testing Period: Nov 26,2024 To Jan 13,2025

End of report

The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (Non-binary acceptance based on guard band $w = U$) except designation from the customer, regulation or test specification. This decision rule only applies to the numeric test results.

The sample(s) and sample information hereto are provided by the client who shall be solely responsible for the authenticity and integrity thereof. The results shown in this report relate only to the sample(s) received and tested. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct. This report shall not be reproduced unless with prior written approval from Intertek Testing Services Ltd., Shanghai



Appendix 3- Stability Test Report or Data of Cosmetic Product

See below report(s) if available.

Product Name		Date of inspection											
		2024 09 09	2024 09 20	2024 09 28	2024 10 06	2024 10 18	2024 10 25	2024 11 07	2024 11 18	2024 11 27			
Quantity	100 boxes		Batch Number										
Test Standard	QB/T1978-2016		MFQ-08/09/2024 EXP-07/09/2027	MFQ-19/09/2024 EXP-18/09/2027	MFQ-27/09/2024 EXP-26/09/2027	MFQ-05/10/2024 EXP-04/10/2027	MFQ-17/10/2024 EXP-16/10/2027	MFQ-24/10/2024 EXP-23/10/2027	MFQ-06/11/2024 EXP-05/11/2027	MFQ-17/11/2024 EXP-16/11/2027	MFQ-26/11/2024 EXP-25/11/2027		
Inspection Item	Inspection Equipment	Standard Requirement	Inspection Result										
Appearance	Visual Inspection	No defects, No damage	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Odour	Smell	Meet the Requirements	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
		Coloring Agent 7.0-12.0	9.32	8.33	9.31	8.30	9.11	9.22	9.13	9.17	9.01		
pH value (25℃)	PH meter	Oxidizing Agent 2.0-5.0	3.17	3.19	3.16	3.15	3.18	3.17	3.15	3.16	3.17		
Cold-resistant	Low Temperature Test Chamber	Keep at (-8±2) °C for 24h, and no oil and water separation after returning to room temperature	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
		Keep at (40±1) °C for 6h, return to room temperature without oil and water separation	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Heat-resisting	Electrically Heated Drying Oven		PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Oxidizer Content (%)	Titration	≤12.0	4.53	4.50	4.51	4.60	4.53	4.61	4.55	4.56	4.63		
Dyeing Power	Visual Inspection	The hair dye to the specified color	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Matching/Sealing/ Assembly/Film collection	Visual Inspection	Good fit, no leakage, no less loading, shrinkage beautiful	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Appearance/Printing	Visual Inspection	No dirt, no misprints, no paint	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Print/press code	Visual Inspection	Font recognizable, error-free, error-free date	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Net content/weight per unit	Electronic Scales	Net content shortage and negative deviation of mean value are not allowed	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS		
Inspector: Fan meng ping Auditor: He guo jian													

Inspector: Fan meng ping

Auditor: He guo jian



Appendix 4- Packaging Compatibility Test Report and/or data

1. Container data

1.1 Basic information

No detailed information was provided.

2. Outer Packaging material

See below report(s) if available.

Test Report

Number: SHAH01765182

Applicant: Shenzhen Langmi Technology Co., Ltd
303, No. 36, Tian'an Road, Bantian Comm
Bantian Street, Longgang District

Date: Dec 17, 2024

Sample Description:

One group of submitted sample said to be :

Item Name : Dark Brown Hair Dye Shampoo
Batch No. / Manufacture Date : 20241104K01
Manufacturer : GUANGZHOU ZHONGYI COSMETICS CO., LTD
Test Type : Entrusted Test

Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

Conclusion:

Tested sample	Standard	Result
Tested components of submitted sample	European Directive 94/62/EC and Amendments 2004/12/EC & 2005/20/EC & 2013/2/EU on packaging and packaging waste for Toxic Elements Test	PASS

To be continued



Authorized By:
For Intertek Testing Services Ltd., Shanghai

Shiny Ning

Shiny Ning
Manager



Test Report

Number: SHAH01765182

Tests Conducted
Toxic Elements Analysis

As per European Directive 94/62/EC and Amendments 2004/12/EC & 2005/20/EC & 2013/2/EU on packaging and packaging waste, acid digestion method was used and total toxic elements and Hexavalent Chromium content were determined by Inductively Coupled Argon Plasma Spectrometry and by UV-Visible Spectrophotometry.

	<u>Result (ppm)</u>				<u>Limit (ppm)</u>
	(1)	(2)	(3)	(4)	
Lead (Pb)	<5	<5	<5	<5	--
Cadmium (Cd)	<1	<1	<1	<1	--
Mercury (Hg)	<5	<5	<5	<5	--
Chromium VI (Cr (VI))	<1	<1	<1	<1	--
Total	(0~12)	(0~12)	(0~12)	(0~12)	100

Remark: ppm = Parts per million = mg/kg

Tested Components:

- (1) Bottle
- (2) Lid
- (3) Hose
- (4) Pump head

The sample in this report is from the same batch as the sample with report number SHAH01765121. The test results in this report are quoted from SHAH01765121

Testing address: 4-5/F., Block C, No.1218, Wanrong Road, Jing'an District, Shanghai, China

Date Sample Received: Nov 26, 2024

Testing Period: Nov 26, 2024 To Nov 30, 2024

End of report

The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (Non-binary acceptance based on guard band $w = U$) except designation from the customer, regulation or test specification. This decision rule only applies to the numeric test results.

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Appendix 5- Serious/ Undesirable Effects of Cosmetic Product Declaration or Report

See below report(s) if available.

LETTER OF DECLARATION

To Whom It May Concern:

Product Name: Hair Dye Shampoo

Color: Dark Brown

1. Animal testing and toxicity studies:

The raw material(s) used in the product and the finish product itself have not been subjected to any animals testing in order to meet the requirements of EU Cosmetic Regulation (EC) No 1223/2009.

2. Undesirable effects (UEs) and serious undesirable effects (SUEs)

The product or, where relevant, other cosmetic products have not been involved to any undesirable effects or serious undesirable effects as defined in the Article 21 of Regulation (EC) No 1223/2009.

Undesirable effects (UEs): "adverse reactions for human health attributable to the normal or reasonably foreseeable use of a cosmetic product."

Serious Undesirable effects (SUEs): "undesirable effects which result in temporary or permanent functional incapacity, disability, hospitalisation, congenital anomalies or an immediate vital risk or death."

I hereby confirmed that all the above information is complete and accurate and agree to immediately notify in writing of any changes to the above details.

Name: He guo jian

Position: Quality supervisor

Date: November 8, 2024

Company Address: Floor 1 to 4, Factory Building B2, No. 21, Fucong Road, High-tech Industrial Park, Conghua District, Guangzhou, Guangdong



Appendix 6- Fragrance

1. IFRA Certificate

See below report(s) if available.

2. MSDS/SDS

See below report(s) if available.

3. Allergen declaration

See below report(s) if available.

馥优香料（佛山）有限公司
Fuyou Flavors (Foshan) Co., Ltd.

Flavor name:LK-5769DMSDate: 20241226

Certify that the above aromaticity meets the criteria for International Fragrance Association (Ifra-51Amendment)(notification date: 30 June 2024) , provided that it is used in the following applications, corresponding to the following IFRA classes, at maximum concentrations (%):

IFRA	Product type	Highest IFRA compliance level (%)
1	A product applied to the lips	0.00
2	Products for the armpit	1.75
3	Apply product to face/body with fingertips	3.9
4	Flavor-related products	33.07
5A	A lotion product applied to the body by hand (Palm) and left mainly on the skin	8.46
5B	Facial moisturizer is applied to the face by hand (palm of hand) and mainly stays on the face	5.18
5C	Hand cream products for use on the hand, mainly left in the hand	7.03
5D	Baby Cream, baby oil and baby talcum powder	1.75
6	Oral and lip exposure products	0.00
7A	Touch with your hand and rinse the product off your hair	6.20
7B	Products that touch hair with your hands	6.20
8	Products with anal and genital contact	1.75
9	The product is in contact with the body and hands and is mainly rinsed off	22.22
10A	Home care, excluding aerosol products (excluding aerosol/spray products)	22.22
10B	Household aerosol/spray products	61.11
11A	Products in contact with the skin, but the possibility of fragrance transfer from the air to the skin is extremely small, without UV radiation	1.75
11B	A product having desired skin contact but with the ability to transfer fragrance from an inert matrix of potential UV exposure to the skin	1.75
12	Non-direct contact skin products with little or no significant skin transfer	100

The use of IFRA was assessed by a panel of experts
Reviewed by the International Fragrance Association (IFRA) Scientific Committee.We got the data from the IFRA website: <http://www.ifraorg.org/>.The flavor ingredients we use have complied with the safety standards set out in Appendix I of the IFRA practice.Our ultimate responsibility to the customer is to ensure the safety of the final product (including this product).Further testing is possible if required.

广州乐客香精香料有限公司

MATERIAL SAFETY DATA SHEET

香精安全数据规格书

1. 产品与企业标识

产品型号名称: LK-5769悦动香精

用途: 该产品不能以浓缩形式使用。

1.2 供应商

广州乐客香精香料有限公司

地址: 广州是白云区北大路敏捷科创中心 3 栋 326 室

电话: 18588548821

2. HAZARDS IDENTIFICATION

危险性概述

2.1 General: Length or repeated contacts with the skin, eye, and/or inhalation may cause irritations

常规: 长期重复接触皮肤, 眼睛或吸入有可能引起刺激反应。

2.2 Environmental: Leakage in soil can result in surface and subterranean water contamination.

环境: 泄露会导致土壤及地下水受到污染。

3. COMPOSITION/INFORMATION ON INGREDIENTS

产品/成分信息

Type: Mixture 类型: 混合物

Mixture of natural, nature identical and synthetic aromatic products

天然和合成的芳香混合物

Contains: Undecan-4-olide (104-67-6), Undecan-4-olide (104-67-6), β -Ionone (14901-07-6), Bicyclohomofarnesal (3243-36-5), 1-acetoxy-2-tert-butylcyclohexane (88-41-5), P-Hydroxyphenyl butanone (5471-51-2), Tetrahydronalol (78-69-3) 主要原料组成: 桃醛, 乙位紫罗兰酮, 龙涎酮, 乙酸邻叔丁基环己酯, 覆盆子酮, 四氢芳樟醇, 三乙酸甘油酯。

CAS, EINECS, INCI, EIINCI number: Not applicable, this product is mixture

CAS, EINECS, INCI, EIINCI 号码: 不适用; 该产品是混合物

4. FIRST-AID MEASURES

急救措施

4.1 Skin contact: Remove contaminated clothes, Wash affected areas thoroughly with soap and water for at least 15 minutes. Contact a physician if necessary.

皮肤接触: 脱掉污染的衣服, 用大量的水及香皂清洗皮肤至少 15 分钟, 严重必须求助医生。

4.2 Eye Contact: Flush immediately with clean water for at least 10 minutes. Contact a physician if necessary.

眼睛接触: 立即用大量的水清洗皮肤至少 10 分钟, 严重必须求助医生。

4.3 Ingestion: Rinse the mouth. Contact a physician immediately.

摄取: 漱口, 立即求助医生

4.4 Excessive inhalation: Remove to fresh air. Contact a physician if necessary.

吸入: 过量吸入, 移动到空气流通的地方, 立即求助医生。

广州乐客香精香料有限公司

5. FIRE FIGHTING MEASURES

消防措施

5.1 Fire extinguishing measures : In case of fire ,use carbondioxide , foam or powder fire extinguisher,DO NOT use water.

火灾处理措施：一旦着火，必须使用二氧化碳泡沫灭火器灭火，不可用水喷。

5.2 Personal Protection: Avoid breathing the fumes and vapors produced

火灾个人防护，避免吸入烟和蒸汽

6. ACCIDENTAL RELEASE MEASURES

泄漏应急处理

6.1 Individual precautions: handle the product using adequate protective gloves resistant to the chemical agents of the material, Avoid contact with skin and inhalation of its vapors. If spilled, maintain adequate ventilation in the working area after spilling.

个人防护：使用合适的手套防止和化学物质直接接触，防止接触皮肤或者吸入烟雾，泄漏后应及时清洁工作环境。

6.2 Remove ignition sources. Do not smoke. Provide adequate ventilation.

严禁火源，禁止吸烟，保持通风。

6.3 Environmental precautions : Prevent contamination of soil, ground and surface water.

环境保护：严禁排入土壤，地下管道，水面。

7. HANDLING AND STORAGE

储存处置与操作

7.1 Handling: Keep away from all ignition sources. Avoid breathing concentrated fumes and vapors, work in well-ventilated areas.

禁止烟火，避免吸入烟雾，工作环境保持良好通风。

7.2 Storage: This product is sealed and stored in a cool, dark, dry storehouse, Avoid freezing, high temperature, gas, dust pollution, away from the fire source.

储存：本产品应密封储存在阴凉、避光，干燥的厂库内，避免冷冻、高温、杂气，粉尘污染，远离火源。

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

接触控制与个人防护

8.1 Breathing apparatus: use personal breathing apparatus whenever deemed necessary .

呼吸设备：务必配备个人供氧设备

8.2 Ventilation: the areas where the product is handled and stored should be adequately ventilated .

通风：生产车间和仓库应保持良好通风。

8.3 Skin protection: Avoid contact with skin and use protective gloves ,resistant to the chemical agents of the material, whenever deemed necessary.

皮肤保护：使用合适的手套，避免直接接触化学物质。

8.4 Eye protection: It is recommended to use safety spectacles at all times.

眼睛保护：推荐使用安全护目镜。

广州乐客香精香料有限公司

9. PHYSICAL AND CHEMICAL PROPERTIES

理化特性

9.1 Appearance:	Colourless to pale yellow clear liquid
外观:	淡黄色透明液体
9.2 Odour:	Aldehyde apple raspberry fruit, Rose jasmin flower, Power note
香气:	果香
9.3 PH:	
酸碱度:	<8
9.4 Flash Point (Closed cup) :	
闪点:	>70°C
9.5 Refractive Index (20°C) :	
折光:	1.4556±0.010
9.6 Relative density (25°C/25°C):	
相对密度:	0.9875±0.010
9.7 Freezing point:	not determined
凝固点	无需测
9.8 Melting point:	not determined
熔点	无需测
9.9 Boil point:	not determined
沸点	无需测
9.10 Solubility in water:	almost Insoluble
在水中的溶解度:	不溶
9.11 Solubility in ethanol :	soluble
在乙醇中的溶解度:	溶

10. STABILITY AND REACTIVITY

稳定性与反应性

10.1 Stability: Easy-see discoloration, taste, volatile

稳定性: 见光易变色, 变味, 易挥发。

10.2 Reactivity: It does not undergo reactions normal conditions.

可靠性: 在一般情况下不会发生危险。

11. TOXICOLOGICAL INFORMATION

毒理学信息

This product has not been through any toxicological tests, but its components have a well-established toxicological bibliography. This preparation has been in accordance to the recommendations of IFRA and RIFM.

本产品未经过任何毒理性测试, 但该产品的组成成分在毒理性参考书中均非常稳定, 这些原料都是经过 IFRA 和 RIFM 所推荐使用。

12. ECOLOGICAL INFORMATION

生物学信息

This product has not been submitted to any toxicological tests, it does not contain halogenated substances or similar products persistent to the environment.

本产品虽然没有经过毒理性测试, 但该产品不含有对环境有害的卤素及类似卤素的物质

广州乐客香精香料有限公司

13. DISPOSAL CONSIDERATIONS

废弃处理信息

This residual quantities of this prouct have to be treated according to the points 6,7and 8, mentioned above.

对产品的剩余物质进行处理请务必遵循上面提到的 6，7，8 三点。

14. TRANSPORT INFORMATION

运输

14.1Precautions during transport: in case of accidental leak or ignition during transport, refer to the instruction ,points6,7 and 8 mentioned above..

运输注意事项：在运输途中，一旦发生泄露意外或着火，请参考上面提到的 6，7，8 三点
14.2

Type of transport	Class	Packing group	UN.N	IMDG Page
运输工具				
Motorway(ADR/RID)				
汽运				
Air(LATA)				
空运				
Sea(TMDG)				
海运				

15. REGULATORY INFORMATION

法规信息

R36/38: Irritating to eyes and skin

R36/38: 对眼睛和皮肤有刺激。

16. OTHER INFORMATION

其他信息

The information of MSDS is based on our knowledge until the dare it is issued,This Safety Sheet gives information about the health and sefety conditions under which this product is transport,stored or handled. The receiver of this proucts has to obseve,under this responsibility, the corresponding regulations and standards, this document is not a guaranty for quality.

本安全使用说明是基于到目前为止我们所掌握的信息和发表的文献，这个安全使用说明是告诉在运输，储存和使用过程中需要注意的安全使用条件。使用者必须自觉遵守相应的法规及标准。这个文件对质量不是完全保证。

Date 0 5 /10/2024

uyou Fragrance (Foshan) Co., LTD

Allergy source report

No number: LK-5769 DMS

Raw material (CAS number)	source		amount to%
	natural%	compose%	
GG (101-85-9)	-	-	-
Pentyllauryl aldehyde (122-40-7)	-	-	-
Annel alcohol (105-13-5)	-	-	-
Benzyl alcohol (100-51-6)	-	-	-
Benzyl benzoate (120-51-4)	-	-	-
Benzyl cinnamate (103-41-3)	-	-	-
Benzyl methynate (118-58-1)	-	-	-
Cinalcohol (104-54-1)	-	-	-
Cinaldehyde (104-55-2)	-	-	-
Citral (5392-40-5)	-	-	-
Vanilla alcohol (106-22-9)	-	-	-
Coumarin (91-64-5)	-	-	-
Sygenol (97-53-0)	-	-	-
Hexer alcohol (4602-84-0)	-	-	-
Aananyol (106-24-1)	-	-	-
Hexyllauryl aldehyde (101-86-0)	-	-	-
Hydroxycitronral (107-75-5)	-	-	-
Isoeugenol (97-54-1)	-	-	-
Baldehyde (80-54-6)	-	-	-
Limene (5989-27-5)	-	-	-
Linalool (78-70-6)	-	-	-
New aldehyde (31906-04-4)	-	-	-
Methyl acid ester (111-12-6)	-	-	-
Iteromethyl Viololone (127-51-5)	-	-	-
Oak moss extract (90028-68-5)	-	-	-
Tree Moss Extract (90028-67-4)	-	-	-

The values of this document are obtained according to the formula of Fuyou

Fragrance (Foshan) Co., Ltd. within the specified date. Date: 2024 / 12 / 26

Appendix 7- Heavy Metal Test Report of Cosmetic Product

See below report(s) if available.

Test Report

Number: SHAH01765100

Applicant: Shenzhen Langmi Technology Co., Ltd
303, No. 36, Tian'an Road, Bantian Comm
Bantian Street, Longgang District
Shenzhen, Guangdong, CHINA 518129

Date: Dec 17, 2024

Sample Description:

One group of submitted sample said to be :

Item Name : Dark Brown Hair Dye Shampoo
Batch No. / Manufacture Date : 20241104K01
Manufacturer : GUANGZHOU ZHONGYI COSMETICS CO., LTD
Test Type : Entrusted Test

Tests Conducted:

As requested by the applicant, for details refer to attached page(s).

Conclusion:

Tested Sample	Standard	Result
Tested Component of Submitted Sample	With reference to the Notification of the German Federal Health Office Centre (BGA) on toxic element analysis for cosmetics	Meet

To be continued

Authorized By:
For Intertek Testing Services Ltd., Shanghai

Shiny Ning

Shiny Ning
Manager



Test Report

Number: SHAH01765100

Tests Conducted
Toxic Element Analysis

By acid digestion, followed by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Antimony (Sb), Arsenic (As), Cadmium (Cd), Lead (Pb) and Mercury (Hg); perspiration simulant extraction, followed by ICP-MS for soluble Nickel (Ni).

Test Item(s)	Unit	Method Detection Limit	Test Result(s)	Standard Requirement	Single Determination
Antimony (Sb) content	mg/kg	1.0	ND	10	Pass
Arsenic (As) content	mg/kg	0.1	ND	5	Pass
Cadmium (Cd) content	mg/kg	0.1	ND	5	Pass
Lead (Pb) content	mg/kg	0.5	ND	20	Pass
Mercury (Hg) content	mg/kg	0.1	ND	1	Pass
Soluble Nickel (Ni) content	mg/kg	0.5	ND	10	Pass

Remark: The limit is with reference to the Notification of the German Federal Health Office (BGA), Pg 28, No. 7, July 1985 and No. 7/1992 and No. 4/1996 for cosmetics.

ND = Not Detected

Testing address: 4-5/F., Block C, No.1218, Wanrong Road, Jing'an District, Shanghai, China

Date Sample Received: Nov 26,2024

Testing Period: Nov 26,2024 To Dec 10,2024

End of report

The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (Non-binary acceptance based on guard band $w = U$) except designation from the customer, regulation or test specification. This decision rule only applies to the numeric test results.

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Appendix 8- Human Volunteers Studies

1. Human volunteers' study for the cosmetic product

No existing studies from human volunteers for finishing product were provided.

2. Human volunteers' study for raw material

No existing studies from human volunteers for raw material(s) were provided.

Appendix 9- Assessor's credentials

Leshuai Zhang, Toxicologist, Intertek China
Professor, PhD, DABT, ERT, UKRT

Education

Ph. D., Comparative Biomedical Sciences **Aug 2005 – May 2010**
Center for Chemical Toxicology Research and Pharmacokinetics, College of Veterinary Medicine,
North Carolina State University, Raleigh, North Carolina, USA

M. S., Molecular Biology **Sept 2002 – June 2005**
Department of applied Biology, East China University of Science and Technology &
Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese
Academy of Science, Shanghai, China

B. S., Biochemistry **Sept 1998 – June 2002**
Department of applied Biology, East China University of Science and Technology

Certificate

ERT, Europe Registered Toxicologist **Aug 2018**

UKRT, UK Registered Toxicologist **Aug 2018**

DABT, Diplomate of American Board of Toxicology **Oct 2015**

Career Experience

Mar 2021 – Present, Toxicologist, Intertek China

February 2014 – Present, Professor in School of Radiation Medicine and Protection (SRMP),
Soochow University, Suzhou, Jiangsu Province, China

Research Interests: Polysaccharides from traditional medical herbs and tumor immunotherapy;
Bismuth compounds and nephrotoxicity; Hepatotoxicity and phospholipidosis by liver spheroids (3D
cell culture); Microcontact printing technology and cell backpack based drug delivery system

November 2012 – January 2014, Research Assistant Professor in the Nanotechnology Innovation
Center of Kansas State University.

Research Interests: Food safety (toxicity) on primary hepatocytes; Nanocorona and Nanotoxicology
studies

June 2010 – June 2012, Research Fellow in the Division for Drug Safety Research, Center for
Drug Evaluation and Research, Food and Drug Administration, supported by the Oak Ridge
Institute of Science and Education Fellowship Program. Under the supervision of Dr. Rodney
Rouse and Dr. Thomas Colatsky.

Research Description: Drug induced pancreatitis in vivo, biomarker evaluation and toxicity
mechanisms; Nanoparticle toxicity prediction in vitro; Calcium signaling in drug induced
cardiovascular injury

Aug 2005 – June 2010, Graduate Research Assistant, Center for Chemical Toxicology Research
and Pharmacokinetics, Department of Clinical Sciences, College of Veterinary Medicine, North
Carolina State University, Raleigh, North Carolina. Under the supervision of Nancy A. Monteiro-
Riviere.

Research Description: Quantum dot nanoparticle penetration and absorption in skin; Cytotoxicity of
nanoparticles via MTT/Cell Titer Blue/Cell Titer 96AQ/LDH assays, live/dead fluorescence markers
and apoptosis/necrosis markers, inflammatory factors release and reactive oxygen species (ROS);
Nanoparticle cellular uptake and mechanisms by human epidermal keratinocytes, dendritic cells
and mesenchymal stem cell derived adipose cells

Publications Citation > 1500

1. Wang Q, Zhang QH, Wen HR, Guo HX, **Zhang L***, Ma SC*. [Study on potential hepatotoxicity of main monomers of Polygonum multiflorum based on liver micro-tissue]. Zhongguo Zhong Yao Za Zhi. 2020 Jun;45(12):2954-2959.
2. Zhang X, Jiang T, Chen D, Wang Q*, **Zhang L***. Three-dimensional liver models: state of the art and their application for hepatotoxicity evaluation. Crit Rev Toxicol. 2020 Apr;50(4):279-309.
3. Pang G, Chen C, Liu Y, Jiang T, Yu H, Wu Y, Wang Y, Wang FJ*, Liu Z*, **Zhang L***. Bioactive Polysaccharide Nanoparticles Improve Radiation-Induced Abscopal Effect through Manipulation of Dendritic Cells. ACS Appl Mater Interfaces. 2019 Nov 13;11(45):42661-42670.
4. Wang J, Chen XY, Zhao Y, Yang Y, Wang W, Wu C, Yang B, Zhang Z, **Zhang L**, Liu Y, Du X, Li W, Qiu L, Jiang P, Mou XZ, Li YQ. pH-Switchable Antimicrobial Nanofiber Networks of Hydrogel Eradicate Biofilm and Rescue Stalled Healing in Chronic Wounds. ACS Nano. 2019 Oct 22;13(10):11686-11697.
5. Yu H, Yang Y, Jiang T, Zhang X, Zhao Y, Pang G, Feng Y, Zhang S, Wang F, Wang Y, Wang Y*, **Zhang L***. Effective Radiotherapy in Tumor Assisted by Ganoderma lucidum Polysaccharide-Conjugated Bismuth Sulfide Nanoparticles through Radiosensitization and Dendritic Cell Activation. ACS Appl Mater Interfaces. 2019 Aug 7;11(31):27536-27547.
6. Cao Y, Huang H, Chen L, Du H, Cui J, **Zhang L***, Lee B, Cao Q*. 2019. Enhanced Lysosomal Escape of pH-Responsive PEI-Betaine Functionalized Carbon Nanotube for the Co-delivery of Survivin siRNA and Doxorubicin. ACS Applied Materials & Interfaces 11(10):9763-9776.
7. Pang G, Zhang S, Yu H, Wu Y, Jiang T, Wang F*, Wang Y*, **Zhang L***. 2019. Immunoactive Astragalus Polysaccharide Functionalized Gold Nanocomposites Promote Dendritic Cell Stimulation and Anti-tumor Effect with Elicited Memory T-cell Responses. Nanomedicine 14(10):1291-1306.
8. Zhang S, Pang G, Chen C, Qin J, Yu H, Liu Y, Zhang X, Song G, Zhao J, Wang F*, Wang Y*, **Zhang L***. 2019. Effective Cancer Immunotherapy by Ganoderma Lucidum Polysaccharide-Gold Nanocomposites through Dendritic Cell Activation and Memory T cell Response. Carbohydrate Polymer 205:192-202.
9. Yan R, Chen J, Wang J, Rao J, Du X, Liu Y, **Zhang L**, Qiu L, Liu B, Zhao YD, Jiang P, Chen C, Li YQ. 2018. A NanoFlare-Based Strategy for In Situ Tumor Margin Demarcation and Neoadjuvant Gene/Photothermal Therapy. Small. e1802745.
10. **Zhang L***, Monteiro-Riviere NA Toxicity Assessment of Six Titanium Dioxide Nanoparticles in Human Epidermal Keratinocytes. 2018. Cutaneous and Ocular Toxicology. 2018 Sep 28:1-29. doi: 10.1080/15569527.2018.1527848.
11. Song ZT, **Zhang L**, Fan LQ, Kong JW, Mao JH, Zhao J, Wang FJ. 2018. Enhanced anticancer effect of MAP30-S3 by cyclosporin A through endosomal escape. Anti-cancer Drugs 29(8):736-747.
12. Pan G, Wang F*, **Zhang L***. 2018. Direct Killing or Immunoregulatory Effects of Natural Polysaccharides in Cancer Treatment. Carbohydrate Polymer 195: 243–256.
13. Liu Y, Yu H, Zhang X, Wang Y, Zhao J, Shi H, Li R, Wang Y*, **Zhang L***. 2018. The Protective Role of Autophagy in Nephrotoxicity Induced by Bismuth Nanoparticles Through AMPK/mTOR Pathway. Nanotoxicology 6:1-16.
14. Zhang X, Yang L, Liu Y, Song Z, Zhao J, Chen D, Yu Huan, Li R, Wang Y, Yang K, Chen Y, Xia M, **Zhang L***. 2018. Detection of Nanocarrier Potentiation on Drug Induced Phospholipidosis in Cultured Cells and Primary Hepatocyte Spheroids by High Content Imaging and Analysis. Toxicology and Applied Pharmacology 348: 54–66.
15. Chen D, Yang L, Chen X, Zhang X, Liu Y, Guo Z*, **Zhang L***. 2018. Automated contour analysis of multi-cellular spheroids spreading through high content imaging. Physical Biology 24: 15:026006

16. Liu Y, Shen C, Zhang X, Yu H, Wang F, Wang Y*, **Zhang L***. 2018. Exposure and Nephrotoxicity Concern of Bismuth with the Occurrence of Autophagy. *Toxicology and Industrial Health* 34:188–199
17. Yue C, Ji C, Zhang H, **Zhang L**, Tong J, Jiang Y, Chen T*. 2017. Protective effects of folic acid on PM2.5-induced cardiac developmental toxicity in zebrafish embryos by targeting AhR and Wnt/ β -catenin signal pathways. *Environmental Toxicology*. 32:2316-2322.
18. Pei W, Tao L, **Zhang L**, Zhang S, Cao J, Jiao Y, Tong J* and Nie J*. 2017. Circular RNA profiles in mouse lung tissue induced by radon. *Environmental Health and Preventive Medicine* 22:36.
19. Li J, He X, Zou Y, Chen D, Yang L, Rao J, Chen H, Chan M CW, Guo Z*, **Zhang L***, Chen C. 2017. Mitochondria-Targeted Platinum(II) Complex: Dual Inhibitory Activities on Tumor Cell Proliferation and Migration/Invasion via Intracellular Trafficking of β -catenin. *Metallomics* 9:726-733.
20. Liu Y, Zhuang J, Zhang X, Le C, Zhu N, Yang L, Wang Y, Chen T, Wang Y*, **Zhang L*** 2017. Autophagy Associated Cytotoxicity and Cellular Uptake Mechanisms of Bismuth Nanoparticles in Human Kidney Cells. *Toxicology Letters* 275: 39-48.
21. Chen D, Monteiro-Riviere NA, **Zhang L***. 2017. Intracellular imaging of quantum dots, gold, and iron oxide nanoparticles with associated endocytic pathways. *WIREs Nanomedicine and Nanobiotechnology* 9(2).
22. Yang L, Zhong X, Li Q, Zhang X, Wang Y, Yang K, **Zhang L***. 2017. From the Cover: Potentiation of Drug-Induced Phospholipidosis In Vitro through PEGlyated Graphene Oxide as the Nanocarrier. *Toxicological Sciences* 156:39–53.
23. Wang Y, Liu Y, Wu Y, Shen J, Lv L, Li L, Yang L, Zeng J, Wang Y, **Zhang L***, Li Z*, Gao M*, Chai Z. 2016. BSA-Mediated Synthesis of Bismuth Sulfide Nanotheranostic Agents for Tumor Multimodal Imaging and Thermoradiotherapy. *Advanced Functional Materials* 26: 5335–5344.
24. Zhu N, Lv X, Wang Y, Li J, Liu Y, Lu W, Yang L, Zhao J, Wang F, **Zhang L***. 2016. Comparison of immunoregulatory effects of polysaccharides from three natural herbs and cellular uptake in dendritic cells. *International Journal of Biological Macromolecules* 93:940–951.
25. Wang Y*, Zhu L, Wang Y, Li L, Lu Y, Shen L*, **Zhang L***. 2016. Ultrasensitive GSH-Responsive Ditelluride-Containing Poly(ether-urethane) Nanoparticles for Controlled Drug Release. *ACS Applied Materials & Interfaces* 8: 35106–35113
26. Lv X, Chen D, Yang L, Zhu N, Li J, Zhao J, Hu Z, Wang F*, **Zhang L***. 2016. Comparative Studies on the Immunoregulatory Effects of Three Polysaccharides Using High Content Imaging System. *International Journal of Biological Macromolecules* 86:28–42.
27. Xin L, Wang J, **Zhang L**, Che B, Dong G, Fan G, Cheng K. 2016. Development of HSPA1A promoter-driven luciferase reporter gene assays in human cells for assessing the oxidative damage induced by silver nanoparticles. *Toxicology and Applied Pharmacology* 304:9–17.
28. **Zhang L**, Koci J, Brett J, Riviere JE, Monteiro-Riviere NA. 2015. Safety Assessment of Potential Food Ingredients in Canine Hepatocytes. *Food and Chemical Toxicology* 78:105–15.
29. Rouse RL, **Zhang L**, Shea K, Zhou H, Xu L, Sharron S, Rosenzweig B, Zhang J. 2014. Extended Exenatide Administration Enhances Lipid Metabolism and Exacerbates Pancreatic Injury in Mice on a High Fat, High Carbohydrate Diet. *PLOS ONE*. 9(10):e109477
30. Tobin GA, Zhang J, Goodwin D, Stewart S, Xu L, Knapton A, González C, Bancos S, **Zhang L**, Lawton MP, Enerson BE, Weaver JL. 2014. The role of eNOS phosphorylation in causing drug-induced vascular injury. *Toxicologic Pathology* 42(4):709–24.
31. **Zhang L**, Shea KI, Xu L, Stewart S, Zhang J, Rouse RL. 2014. Autophagy in pancreatic acinar cells in caerulein treated mice: Immunolocalization of related proteins and their potential as markers of pancreatitis. *Toxicologic Pathology* 42, 435–457.
32. **Zhang L**, Monteiro-Riviere NA. 2013. Use of confocal microscopy for nanoparticle drug delivery through skin. *Journal of Biomedical Optics*. 18(6):061214

33. **Zhang L**, McMahon Tobin GA, Rouse RL. 2012. Oleic acid and glucose regulate glucagon-like peptide 1 receptor expression in a rat pancreatic ductal cell line. *Toxicology and Applied Pharmacology* 264: 274–283.
34. **Zhang L**, Bäumer W, Monteiro-Riviere NA. 2011. Cellular uptake mechanisms and toxicity of quantum dots in dendritic cells. *Nanomedicine*. 6: 777–791.
35. **Zhang L**, Monteiro-Riviere NA. 2010. Lectins modulate multi-walled carbon nanotubes cellular uptake in human epidermal keratinocytes. *Toxicology In Vitro* 24: 546–555.
36. **Zhang L**, Yang J, Barron AR, Monteiro-Riviere NA. 2009. Endocytic mechanisms and toxicity of a functionalized fullerene in human cells. *Toxicology Letters* 191: 149–157.
37. **Zhang L**, Monteiro-Riviere NA. 2009. Mechanisms of quantum dot nanoparticle cellular uptake. *Toxicological Sciences*. 110: 138–155.
38. Chen T, Li M, Ding Y, **Zhang L**, Xi Y, Pan WJ, Tao DL, Wang JY, Li L. 2009. Identification of zinc-finger bed domain containing 3 (ZBED3) as a novel axin-interacting protein that activates WNT/beta –catenin signalling. *The Journal of Biological Chemistry* 284: 6683–6689.
39. Monteiro-Riviere NA, Inman AI, **Zhang L**. 2009. Limitations and relative utility of screening assays to assess nanoparticle toxicity in a human cell line. *Toxicology and Applied Pharmacology* 234: 222–235.
40. **Zhang L**, Monteiro-Riviere NA. 2008. Assessment of quantum dot penetration into intact, tape-stripped, abraded and flexed rat skin. *Skin Pharmacology and Physiology* 21:166 –180.
41. **Zhang L**, Yu WW, Colvin VL, Monteiro-Riviere NA. 2008. Biological interactions of quantum dot nanoparticles in skin and in human epidermal keratinocytes. *Toxicology and Applied Pharmacology* 228:200–211.
42. **Zhang L**, Zeng L, Barron AR, Monteiro-Riviere NA. 2007. Biological interactions of functionalized single-wall carbon nanotubes in human epidermal keratinocytes. *International Journal of Toxicology* 26:103–113.
43. 李菁玲,曹建平,陈春英,郭正清,**张乐帅**. 新型铂配合物 Mor-platin 导致细胞凋亡及抑制细胞迁移. 科学通报, 2017, 62(4), 270–278.
44. 朱宁, **张乐帅**,王富军. 中药多糖类活性成份的纳米化应用. 中国新药杂志,2017, (01):60-65.
45. 吕小成, **张乐帅**,王富军. 中药多糖的免疫调节作用及研究进展. 上海中医药大学学报, 2016, (03): 97-101.
46. **张乐帅**,赵健.MST1 的酵母双杂交及与 Salvador 体外结合的研究[J].华东理工大学学报 (自然科学版),2006,32(4):407–410.

Book and Chapters

Zhang L, Chen D. 2017. Chapter 7. Cellular uptake mechanisms of nanoparticles for biomedical imaging. In Shi D, Zhang B (eds.): Nano Imaging: From Fundamental Principles to Translational Medical Applications. The World Scientific Encyclopedia of Nanomedicine and Bioengineering I. World Scientific., pp. 241-272.

Zhang L, Z Xuan, Xing T : Experimental Techniques for Radiation Nanomedicine and Nanotoxicology, 2016. ISBN 978-7-5605-9318-0.

Monteiro-Riviere NA, **Zhang LW**. 2008. Assessment of quantum dot penetration into skin in different species under different mechanical actions. In Linkov I, Steevens J (eds.): Nanomaterials: Risks and Benefits. Springer, Dordrecht, Netherlands, pp. 41-52.

Journal Reviewers

Journal Name	IF	Review #
Biomaterials	10.3	2
ACS Applied Materials & Interfaces	8.5	9
Nanoscale	7	3
Particle and Fibre Toxicology	6.6	2
Wiley Interdisciplinary Reviews-Nanomedicine and Nanobiotechnology	6.1	8
Carbohydrate Polymer	6	4
Nanotoxicology	6	1
Biomacromolecules	5.7	1
Nanomedicine-Nanotechnology Biology and Medicine	5.6	8
Science of the Total Environment	5.6	1
International Journal of Biological Macromolecules	4.8	7
ACS Biomaterials Science & Engineering	4.5	1
International Journal of Nanomedicine	4.5	23
Scientific Reports	4	3
Toxicological Sciences	3.6	2
Metallomics	3.6	1
Toxicology	3.5	6
Toxicology letters	3.5	22
Cellular Immunology	3.3	3
Toxicology in vitro	3.1	31
Journal of Applied Toxicology	3.1	1
Archives of Pharmacal Research	2.5	1
Cancer Management and Research	2.2	1
Frontiers in Veterinary Science	2	1
IET Nanobiotechnology	1.9	1
Toxicology and Industrial Health	1.6	20
Toxicologic Pathology	1.4	3
Animal Biotechnology	1.3	1
International Journal of Toxicology	1.2	16
Journal of Nanoscience and Nanotechnology	1.1	1
Cutaneous and Ocular Toxicology	1.1	2
Nanoimpact		3
Nanotoday		2
Nanoscale Advances		1
Applied In Vitro Toxicology		1
Theranostics		1
Total		195

Funding Support

1. Hepatotoxicity of copper sulfide nanoparticles. 31971319, 2020/01-2023/12
2. Bismuth nanomaterials and nephrotoxicity, 31771104, National Natural Science Foundation of China, 2018/01-2021/12
3. Influence of Graphene oxide Derivatives on phospholipidosis, 81401511, National Natural Science Foundation of China, 2015/01- 2017/12

4. Immunoregulatory function on herbal polysaccharide on dendritic cells, 81373950, National Natural Science Foundation of China, 2014/01 - 2017/12
-

Awards and Scholarships

1. Outstanding young scholars awarded by Chinese Society of Toxicology (2020)
 2. Battelle Memorial Research Award of the Dermal Toxicology Specialty Section at the 48th Annual Meeting of the National Society of Toxicology (SOT), Baltimore, MD, 2009. Research Proposal "Inhibition of multi-walled carbon nanotubes in human epidermal keratinocytes by lectin or niacinamide", \$2500.
 3. First place award for the MB Research Award, at the 47th Annual Meeting of the National Society of Toxicology (SOT), Seattle, Washington, 2008.
 4. Third place for best poster at the In Vitro and Alternative Methods Specialty Section at the 47th Annual Meeting of the National Society of Toxicology (SOT), Seattle, Washington, 2008.
 5. Toxicology and Applied Pharmacology, Certificate of Recognition for one of Elsevier's Top 10 Cited Articles on Scopus 2007-2008.
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Professional Associations and Activities

- | | |
|----------------|--|
| 2021 – Present | Associate Editor, Journal of Nanobiotechnology |
| 2016 – Present | Officer, Nanotoxicology Specialty Section, Chinese Society of Toxicology |
| 2012 – Present | Associate Editor, Toxicology and Industrial Health |
| 2012 – 2015 | Education Committee Officer, US Society of Toxicology |
| 2011 – 2012 | Officer, Nanotoxicology Specialty Section, US Society of Toxicology |
| 2009 – Present | Full membership, Sigma Xi Scientific Research Society |
| 2006 – Present | Membership in US Society of Toxicology |
-

Teaching and Training Experiences

- 2016.9 – Present, specialized optional course for overseas undergraduates “ Skin Toxicology and Chemicals”
- 2017.9 – Present, General Course “Photography – Remarkableness from ordinary lives”



EUROTOX

This is to Certify that

LESHUAI ZHANG

may use the title

ERT

**EUROPEAN
REGISTERED
TOXICOLOGIST**

whilst registered with the

UK

Register of Toxicology


Signature

June 26, 2018

Date

EUROTOX
Basle, SWITZERLAND

March 20, 2024

Re: EUROTOX ERT status

The following letter is to confirm that **LESHUAI ZHANG** has been a member of the EUROTOX European Register of Toxicologists since 2018. The title European Registered Toxicologist (ERT) is accorded by EUROTOX to individuals who have been accepted by their national register.

Once registered, toxicologists must re-affirm their registration credentials on a 5-yearly basis, and document their continued professional awareness and education, as well as their current activity in the subject. **According to our files, LESHUAI ZHANG was re-registered by the UK national register for the period 2023- 2028.**

The European Register of Toxicologists is a service of EUROTOX established in 1994. It constitutes a list of toxicologists who excel by high standards of education, skills, experience, and professional standing.

Please don't hesitate to contact me if further information is needed.

Cordially,

A handwritten signature in dark ink, appearing to read "M. Wilks", written in a cursive style.

Prof. Martin Wilks

Office of the Secretary-General

Prof. Martin Wilks, ERT
Swiss Centre for Applied Human Toxicology Universität Basel
Missionsstrasse 64
CH-4055 Basel (Switzerland)

Tel. +41 61 207 19 55
eMail: martin.wilks@unibas.ch
www.eurotox.com
eMail: secretariat@eurotox.com

This is to certify that

Leshuai Zhang

has been included within the

UK Register of Toxicologists

and is bound by the codes of conduct of the

Royal Society of Biology

and

British Toxicology Society

for the period

21 May 2023 to 20 May 2028



Mr Mark Hosford, ERT
(Panel Chair)



Incorporated by Royal Charter

Registered Charity No: 277981

This is to certify that

Leshuai Zhang

has been registered with the

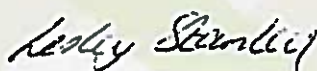
UK Register of Toxicologists

and is bound by the codes of conduct of the

**Royal Society of Biology
and
British Toxicology Society**

for the period

21st May 2018 to 20th May 2023



**Dr Lesley Stanley, ERT
(Panel Chair)**



The American Board of Toxicology



hereby declares that

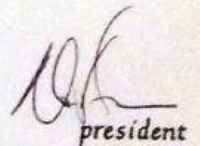
Leshuai Zhang

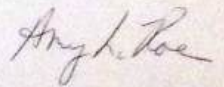
having fulfilled all the Board's requirements is

Certified in General Toxicology



October 29, 2015


president


corporate secretary



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Susie Masten

*Serving in a
personal capacity

August 2019

Dr. Leshuai Zhang
Guoliyuan Xincun 76-202
Nantong, 226001
China

Dear Dr. Zhang:

This letter is to inform you of the status of your recertification application.

Your application is in order and you passed the Literature Review assessment. Therefore, nothing further is required. In December of 2020 (**NOT 2019**) you will receive a letter and sticker affirming your recertification for five years.

Please note, Diplomates are strongly encouraged to record activities related to recertification on an ongoing basis via the ABT website.

If you have any questions, please contact the ABT office.

Sincerely,

Susie Masten
Executive Director