SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

EPIKURE™ Curing Agent BPH 10

Section 1. Product and company identification

GHS product identifier	:	EPIKURE™ Curing Agent BPH 10
MSDS Number	:	300000036722
Product type	:	Curing Agent
Material uses	:	Epoxy Resin Systems
Manufacturer/Supplier/Importer	:	Westlake Epoxy Inc. 12650 DIRECTORS DR STE 100 Stafford, Texas 77477 USA
Contact person	:	epoxyservice@westlake.com
Telephone	:	For additional health and safety or regulatory information, call 1 888 443 9466.
Emergency telephone number	:	For Emergency Medical Assistance Call Health & Safety Information Services 1-866-303-6949 For Emergency Transportation Information CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887 CANUTEC CA Domestic (613) 996-6666

Section 2. Hazards identification

Classification of the substance or mixture	:	SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 SKIN SENSITISATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE [liver, thyroid] - Category 2

GHS label elements

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H373 May cause damage to organs through prolonged or repeated exposure. (liver, thyroid)

Precautionary statements

General : Not applicable.

Prevention : Wear protective gloves, protective clothing and eye or face protection.
Do not breathe vapor.
Wash thoroughly after handling.

Response : IF INHALED:
Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor.
IF SWALLOWED:
Immediately call a POISON CENTER or doctor.
Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair):
Take off immediately all contaminated clothing. Rinse skin with water.
Immediately call a POISON CENTER or doctor.
Wash contaminated clothing before reuse.
IF ON SKIN:
Wash with plenty of water.
If skin irritation or rash occurs:
Get medical advice or attention.
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.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% by weight	CAS number
Triethylenetetramine	10 - 25	112-24-3
Glass, Oxide	0 - 14	65997-17-3
Formaldehyde, polymers with diethylenetriamine and styrenated phenol	0 - 10	1293368-66-7
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	0 - 10	68082-29-1
1,3-Cyclohexanedimethanamine	0 - 7.7	2579-20-6
Isophorone Diamine	0 - 5	2855-13-2
m-Xylene-.a., .a.'-Diamine	0 - 5	1477-55-0
Salicylic Acid	0 - 3	69-72-7
Styrenated Phenol	0 - 3	61788-44-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and

get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	:	No specific treatment.
Protection of first aid personnel	:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	:	Use dry chemical, CO2, alcohol-resistant foam or water spray (fog).
Unsuitable extinguishing media	:	Do not use water jet.
Specific hazards arising from the chemical	:	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides
Special protective actions for fire-fighters	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Triethylenetetramine	**AIHA WEEL (1999-01-01)** **TWA - TLV and PEL** 1 ppm Notes: Absorbed through skin.
Glass, Oxide	**NIOSH REL (2010-09-01)** **TWA - TLV and PEL** 3 fibers per cubic centimeter **TWA - TLV and PEL** 5 mg/m3 Form: Total **NIOSH REL (1994-06-01)** **TWA - TLV and PEL** 3 fibers per cubic centimeter Form: Fibres of specific length **NIOSH REL (2010-09-01)** **TWA - TLV and PEL** 5 mg/m3 Form: Total **ACGIH TLV (1997-05-21)** **TWA** 1 fibers per cubic centimeter Form: respirable fibers: length> 5 .mu.m; length / diameter ratio (aspect) ³ 3: 1, determined by the membrane filter method at 400 - 450 x magnification (4mm objective) using illumination of phase contrast. **TWA** 5 mg/m3 Form: Inhalable fraction
Formaldehyde, polymers with diethylenetriamine and styrenated phenol	None.
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	None.
1,3-Cyclohexanedimethanamine	None.
Isophorone Diamine	None.
m-Xylene-.a., .a.'-Diamine	**ACGIH TLV (1994-09-01)** **CEIL** 0.1 mg/m3 Notes: Absorbed through skin. **OSHA PEL 1989 (1989-03-01)** **CEIL** 0.1 mg/m3 Notes: Absorbed through skin. **NIOSH REL (1994-06-01)** **CEIL** 0.1 mg/m3 Notes: Absorbed through skin.
Salicylic Acid	None.
Styrenated Phenol	None.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid

Color	:	Dark blue
Odor	:	Not available
Odor threshold	:	Not available
pH	:	Not available
Melting point/ Freezing point	:	Not available
Boiling point	:	Not available
Flash point	:	Not available
Burning time	:	Not available
Burning rate	:	Not available
Evaporation rate	:	Not available
Flammability (solid, gas)	:	Not available
Lower and upper explosive (flammable) limits	:	**Lower:** Not available **Upper:** Not available
Vapor pressure	:	Not available
Vapor density	:	Not available
Relative density	:	1.17
Solubility	:	Not available
Solubility in water	:	Not available
Partition coefficient: n-octanol/water	:	Not available
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
SADT	:	Not available
Viscosity	:	**Dynamic:** Not available **Kinematic:** Not available

Other information

No additional information.

Section 10. Stability and reactivity

Reactivity	:	Stable under normal conditions.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure

Triethylenetetramine				
	LD50 Oral	Rat	1,716 mg/kg	-
	LD50 Dermal	Rat	1,465 mg/kg	-
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine				
Remarks - Oral:	No applicable toxicity data.			
Remarks - Inhalation:	No applicable toxicity data.			
	LC50 Dermal	Rat - male and female	> 2,000 mg/kg OECD Test Guideline 402	-
Remarks - Dermal:	No applicable toxicity data.			
1,3-Cyclohexanedimethanamine				
	LD50 Oral	Rat	880 mg/kg	-
	LD50 Dermal	Rat	1,700 mg/kg	-
Isophorone Diamine				
	LD50 Oral	Rat	1,030 mg/kg	-
	LD50 Oral	Rat	1,030 mg/kg	-
Remarks - Inhalation:	No applicable toxicity data.			
Remarks - Dermal:	No applicable toxicity data.			
m-Xylene-.a., .a.'-Diamine				
	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation	Rat	3.89 mg/l	1 h
	LC50 Inhalation	Rat	2.4 mg/l	4 h
	LC50 Inhalation	Rat - Female	0.8 mg/l	4 h
	LD50 Dermal	Rabbit	2,000 mg/kg	-
Salicylic Acid				
	LD50 Oral	Rat	891 mg/kg	-
	LD50 Dermal	Rabbit	> 10,000 mg/kg	-
Styrenated Phenol				
	LD50 Oral	Rat	2,500 mg/kg	-
	LC50 Inhalation	Rat	> 2.5 mg/l	6 h
	LD50 Dermal	Rabbit	5,010 mg/kg	-

Conclusion/Summary **:** Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Triethylenetetramine	eyes - Moderate irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit			-
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	431 In Vitro Skin Corrosion: Human Skin Model Test	Human			-
Remarks:	Non-corrosive to skin.				
	O.E.C.D. 439	Human			-

Remarks:	Causes skin irritation.				
	OECD Guideline 437 (Bovine Corneal Opacity and Permeability Test Method for Identifying Ocular Corrosives and Severe Irritants)	Cattle			-
Remarks:	Non-irritating to the eyes.				
	eyes OECD-Guideline 405 (Acute Eye Irritation/Corrosion)	Rabbit			504 hrs
Remarks:	Causes eye irritation.				
m-Xylene-.a., .a.'-Diamine	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit		24 hrs	-
Styrenated Phenol	eyes - Mild irritant	Rabbit			-
	Skin - Mild irritant	Rabbit			-

Conclusion/Summary

Skin : Classification according to test study data of a similar product.

eyes : Not available

Respiratory : Not available

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	Skin	Mouse	Sensitizing OECD Guideline 429 (LLNA)

Conclusion/Summary

Skin : Not available

Respiratory : Not available

Mutagenicity

Product/ingredient name	Test	Experiment	Result

Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	OECD-Guideline 471 (Genetic Toxicology: Salmonella typhimurium, Reverse Mutation Assay)	In vitro; Bacteria; with and without	Negative
	487 In vitro Micronucleus Test	In vitro; Mammalian-Human; with and without	Negative
	Mouse Lymphoma Assay (OECD Guidline 476)	In vitro; Mammalian-Animal; with and without	Negative

Conclusion/Summary : Not available

Carcinogenicity

Conclusion/Summary : Not available

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	Negative	Negative	Negative	Rat	Oral: 1000 mg/kg/d 422 Combined Repeated Dose Toxicity Study with the Reproduction /Developmental Toxicity Screening Test	28 days 7 days per week

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Glass, oxide, chemicals This category encompasses the various chemical substances manufactured in the production of inorganic glasses. For purposes of this category, "glass" is defined as an amorphous, inorganic, transparent, translucent or opaque material traditionally formed by fusion of sources of silica with a flux, such as an alkali-metal carbonate, boron oxide, etc. and a stabilizer, into a	Category 3	-	Respiratory tract irritation

mass which is cooled to a rigid condition without crystallization in the case of transparent or liquid-phase separated glass or with controlled crystallization in the case of glass-ceramics. The category consists of the various chemical substances, other than by-products or impurities, which are formed during the production of various glasses and concurrently incorporated into a glass mixture. All glasses contain one or more of these substances, but few, if any, contain all of them. The elements listed below are principally present as components of oxide systems but some may also be present as halides or chalcogenides, in multiple oxidation states, or in more complex compounds. Trace amounts of other oxides or chemical compounds may be present. Oxides of the first seven elements listed* comprise more than 95 percent, by weight, of the glass produced.: Aluminum*; Boron; Calcium*; Magnesium*; Potassium*; Silicon*; Sodium*; Antimony; Arsenic; Barium; Bismuth; Cadmium; Carbon; Cerium; Cesium; Chromium; Cobalt; Copper; Germanium; Gold; Holmium; Iron; Lanthanum; Lead; Lithium; Manganese; Molybdenum; Neodymium; Nickel; Niobium; Nitrogen; Phosphorous; Praseodymium; Rubidium; Selenium; Silver; Strontium; Sulfur; Tellurium; Tin; Titanium; Tungsten; Uranium; Vanadium; Zinc; Zirconium			
Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs

Phenol, styrenated	Category 2	-	liver, thyroid

Aspiration hazard

Not available

Information on likely routes of exposure : Not available

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes severe burns. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
Ingestion : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available
Potential delayed effects : Not available

Long term exposure

Potential immediate effects : Not available
Potential delayed effects : Not available

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	NOAEL Oral	Rat	1,000 mg/kg/d 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	28 days 7 days per week

Conclusion/Summary : Not available

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral	Dermal	Inhalation (gases)	Inhalation (vapors)	Inhalation (dusts and mists)
EPIKURE™ Curing Agent BPH 10	2,803.4 mg/kg	3,958 mg/kg	N/A	N/A	27 mg/l
1,2-Ethanediamine, N1,N2-bis(2-aminoethyl)-	1,716 mg/kg	1,465 mg/kg	N/A	N/A	N/A
1,3-Cyclohexanedimethanamine	880 mg/kg	1,700 mg/kg	N/A	N/A	N/A
Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-	1,030 mg/kg	1,100 mg/kg	N/A	N/A	N/A
1,3-Benzenedimethanamine	930 mg/kg	N/A	N/A	N/A	1.5 mg/l
Benzoic acid, 2-hydroxy-	891 mg/kg	N/A	N/A	N/A	N/A
Phenol, styrenated	2,500 mg/kg	5,010 mg/kg	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Triethylenetetramine			
	Acute LC50 33,900 µg/l Fresh water	Aquatic invertebrates. Water flea	48 h
	Acute EC50 3,700 µg/l Fresh water	Aquatic plants - Green algae	96 h
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine			
	Acute LC50 7.07 mg/l Fresh water 203 Fish, Acute Toxicity Test	Fish - Zebra danio	96 h
Remarks - Acute - Fish:	No applicable toxicity data.		
	Acute EC50 7.07 mg/l Fresh water 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Aquatic invertebrates. Daphnia	48 h
	Acute EC50 7.07 mg/l Fresh water 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Aquatic invertebrates. Daphnia	48 h
Remarks - Acute - Aquatic invertebrates.:	Acute		

	Acute EC50 4.34 mg/l Fresh water 201 Alga, Growth Inhibition Test	Aquatic plants - Pseudokirchneriella subcapitata	72 h
Remarks - Acute - Aquatic plants:	No applicable toxicity data.		
	Acute EC50 384 mg/l Fresh water 209 Activated Sludge, Respiration Inhibition Test	Micro-organism - activated sludge, domestic (adaptation not specified)	3 h
Remarks - Chronic - Fish:	No applicable toxicity data.		
Remarks - Chronic - Aquatic invertebrates.:	No applicable toxicity data.		
3-aminomethyl-3,5,5-trimethylcyclohexylamine			
Remarks - Acute - Fish:	No applicable toxicity data.		
	Acute EC50 17.4 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h
	Acute EC50 17.4 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h
Remarks - Acute - Aquatic invertebrates.:	Acute		
Remarks - Acute - Aquatic plants:	No applicable toxicity data.		
Remarks - Chronic - Fish:	No applicable toxicity data.		
Remarks - Chronic - Aquatic invertebrates.:	No applicable toxicity data.		
salicylic acid			
	Acute EC50 870 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h
	Chronic No-observable-effect-concentration 5.6 mg/l Fresh water	Aquatic invertebrates. Daphnia	21 d

Conclusion/Summary **:** Not available

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Fatty Acids, C18-Unsatd., Dimers, Polymers with Tall-Oil Fatty Acids and Triethylenetetramine	OECD-Guideline 301 B (CO2 Evolution Test)	0 - 70 % - 74 d	9 mg/l	Activated sludge
	OECD-Guideline 301 D (Closed Bottle Test)	19 % - 60 d	1 mg/l	Activated sludge

Conclusion/Summary **:** Not available

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Triethylenetetramine	-1.66 - -1.4	-	low
1,3-Cyclohexanedimethanamine	0.783	-	low
3-aminomethyl-3,5,5-	0.99	-	low

trimethylcyclohexylamine			
m-phenylenebis(methylamine)	0.18	2.69	low
salicylic acid	2.21 - 2.26	-	low

Mobility in soil

Soil/water partition coefficient (KOC) : Not available

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR	2735	AMINES, LIQUID, CORROSIVE, N.O.S. (Triethylenetetramine, 1,3-Cyclohexanedimethanamine)	Class 8 II	
IMO/IMDG	2735	AMINES, LIQUID, CORROSIVE, N.O.S. (Triethylenetetramine, 1,3-Cyclohexanedimethanamine)	Class 8 II	
IATA (Cargo)	2735	AMINES, LIQUID, CORROSIVE, N.O.S. (Triethylenetetramine, 1,3-Cyclohexanedimethanamine)	Class 8 II	

*PG : Packing group

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

United States

U.S. Federal regulations : **United States - TSCA 12(b) - Chemical export notification:** None required.
United States - TSCA 5α2 - Final significant new use rules: Not listed
United States - TSCA 5α2 - Proposed significant new use rules: Not listed
United States - TSCA 5(e) - Substances consent order: Not listed
SARA 311/312 Classification - SKIN CORROSION, Category 1A
SARA 311/312 Classification - SERIOUS EYE DAMAGE, Category 1
SARA 311/312 Classification - SKIN SENSITISATION, Category 1
SARA 311/312 Classification - SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE, liver, thyroid, Category 2
SARA 311/312 Classification - Not applicable

California Prop. 65:

WARNING: This product may contain one or more chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

United States inventory (TSCA 8b) : All components are active or exempted.

International regulations

International lists : **Australia inventory (AICS):** Not determined.
Canada inventory: Not determined.
Japan inventory: Not determined.
China inventory (IECSC): Not determined.
Korea inventory (KECI): Not determined.
New Zealand Inventory (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.
Taiwan inventory (TCSI): Not determined.
United States inventory (TSCA 8b): All components are active or exempted.

Section 16. Other information

Full text of abbreviated H statements : Not applicable.

History

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Prepared by	:	Product Safety Stewardship
Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail UN = United Nations
References	:	Not available

Notice to reader

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.