SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

GHS Product Identifier	: EPOXY 220A
Other means of identification	: None.
Recommended use	: All proper and legal purposes
Recommended restrictions	: None Known.

Manufacturer

Manufactured by Brenntag Great Lakes Inc. for
Hughes Associates LLC
18116 Minnetonka Blvd.
Wayzata, MN..55391

Telephone Number: 1-262-252-3550 (Brenntag)
Email : Unavailable for Brenntag
Hughes Associates LLC : hughesassociatesmn@gmail.com
Emergency Phone Number: Chemtrec 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Health Hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye Irritation.	Category 2
	Sensitization, Skin	Category 1
Environmental Hazard	Hazardous to the aquatic environment, long term hazard	Category 2
OSHA defined hazards	Not classified	

Label Elements

Signal Word	WARNING
Hazard statement	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention	Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves.
Response	If on skin: Wash with plenty of water. If in eyes : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs. Get medical advice/attention. If eye irritation persists, get medical advice/attention. Take off contaminated clothing and wash before reuse. Collect spillage.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards not otherwise classified (HNOC) None Known

Supplemtental information 24-86% of the mixture consists of compenents of unknown long-term hazards to the aquatic enivronment.

SECTION 3. COMPOSITION /INFORMATION ON INGREDIENTS

Chemical Name	Common name	CAS #	%
Phenol 4,4-(1-Methylethylidene) Bis- Polymer with 2-(Chloromethyl)oxirane		25068-38-6	75.14
Other components below reportable levels			24.86

Designates that a specific shemical identity and/ or percentage of composition has been withheld as a trade secrect.

SECTION 4. FIRST AID MEASURES

Inhalation	Move to freash air. Call a physician if symptions develp or persist.
Skin contact.	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczena or other skin disorders; seek medical attention and take along these instructions. . Wash contaminated clothing before reuse.
Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develpes and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging,tearing, redness, swelling and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
General Information	Ensure that medical personnel are aware of the materilas involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media	Water , Fog , Foam. Dry chemical powder. Carbon dioxide (CO2)
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical.	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

SECTION 6. ACCIDENTAL RELASE MEASURES

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up . Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS
Methods and material for containment and cleaning up	Large Spills; stop the flow of material, if this is withour risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills; Wipe up with absorbent material (e.g. cloth fleece) Clean surface thoroughly to remove residual contamintion. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling	Provide adequate ventilation. Avoid breathing mist or vapor. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilites	Store inoriginal tightly closed container. Store away from incompatible materials (see Section 10 of the SDS)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational esposure limits	No exposure limits noted for ingredients
Biological limit values	No biological exposure limits notef for the Ingredients .
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to and acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual proteciton measures, such as personal protective equipment.

Eye/face protection	Face shield is recommended . Wear safety glasses with side sheilds(or goggles)
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state;	Liquid
Form;	Liquid
Color:	Not Available
Odor;	Not Available
Odor Threshold;	Not Available
pH	Not Available
Melting point/freezing pt.	999 F (537.22 C)
Initial boiling pt. and boiling range	Not Available
Flash point	200.0 F (93.3 C)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or exposure limits	
Flammability limit-lower (%)	Not available
Flammability limit-upper (%)	Not available
Exposure limit-lower (%)	Not available
Exposure limit-upper (%)	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility	
Solubility water	Not available
Partition coeffiecient (n-octanol/water)	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Other information	
Explosive properties	Not an explosive
Flammability class	Combustible IIIB estimated
Oxidizing properties	Not Oxidizing

SECTION 10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal

	conditions of use, storage and trasport.
Chemical stability	Material is stable under normal conditions.
Possiblity of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the Physical, Chemical and Toxicological characterisitcs	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling and blurred vision. Skin irritation. May cause redness and pain . May cause an allergic skin reaction. Dermatitis . Rash.
Acute toxicity	May cause an allergic skin reaction.
Skin corrosion/irritation	Causes skin irritation
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer
Skin sensitization	May cause an allergic skin reaction
Germ cell mutagen city	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.

OSHA Specifically Regulate Substances (29CFR 1910.1001-1050)
Not Listed

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity -single exposure.	Not classified.
Specific target organ toxicity-repeated exposure	Not classifed

Aspiration hazard	Not an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	Toxic to aquatic life with long lasting effects.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available
Mobility in soil	No data available
Other adverse effects	No other adverse environmental effects(e.g. ozone depletion, photochemical ozone creation potential , endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with Chemical or used container. Dispose of contents/container in accordance with local/regional regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations
Hazardous waste code	The waste code should be assigned in discussion between the user , the producer and the waste disposal company.
Contaminated packaging	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner. (see Disposal instructions)

SECTION 14. TRANSPORT INFORMATION

DOT

Not regulated as dangerous goods

DOT information on packaging may be different from that listed

General information	IMDG Regulated Marin Pollutant.

SECTION 15. REGULATORY INFORMATION

US Federal regulations

This product is " Hazardous Chemical " as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. One or more components are not listed on TSCA.

TSCA Section 12(b) Esport Notification (40CFR 707, Supt. D)	Not regulated
CERCLA Hazardous Substance List (40CFR 302.4)	Not listed
SARA 304 Emergency release notification	Not regulated
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not listed

Superfund admendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard- Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance	Not listed
SARA 311/312 Hazardous Chemical	No
SARA 313 (TRI reporting)	Not Regulated

Other Federal regulations

Clean Air Act (CAA) Section 112 Hesoua IE polenta (HAPs) List Not Regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention CFR 68.130) Not Regulated

Safe Drinking Water Act (SDWA). Not Regulated

US state regulations

US. California Controlled Substances, CA Department of Justice (CA Health and Safety code Section 11100) .....Not Listed

US. Massachusetts RTK- Substance List.....Not Regulated

US. New Jersey Worker and Community Right to Know Act.....Not Listed

US. Pennsylvania Worker and Community Right to Know Act.....Not Listed

US Rhode Island RTK.....Not Regulated

US. California Proposition 66

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country or region	Inventory name	On inventory (yes/no)
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Phillippines	Phillippine Inventory of Chemicals and Chemical Substances	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country. A " No" indicates that one or more of the components of the product are not listed or exempt from listing on the inventory administered by the governing country.

SECTION 16. OTHER INFORMATION, INCLUDING DATE OF PREPERATION OR LAST REVISION.

Issue Date	04-04-2015
Revision Date	05-27-2015
Version Number	2
HMIS ratings	Health : 2 Flammability: 0 Physical hazard: 0
NFPA ratings	Health : 2 Flammability: 0 Instability: 0

DISCLAIMER BNA and HUGHES ASSOCIATES LLC cannot anticipate all conditions under which this information and its product or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling , storage and disposal of the product, and to assume liability for , injury,damage or expense due to improper use. The information in the sheet was written base on the best knowledge and experience currently available, it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and tdetermine the suitability of the product for its intended use. HUGHES ASSOCIATES LLC makes no warrenty, expressed or implied, concering the prduct or the merchantability or fitness thereof for any purpose or concerning the accuracy of any information provided by HUGHES ASSOCIATES LLC. The BUYER assumes all responsibility for the handling,

using and/or reselling of the Product in accordance with applicable Federal , State and Local Law.

SAFETY DATA SHEET

Section 1. Product and company identification

GHS product identifier	: EPOXY 220B
Other means of identification	: None.
Recommended use	: Curing Agent
Recommended restrictions	: None Known

Manufacturer
Manufactured by Hexion for
Hughes Associates LLC
18116 Minnetonka Blvd.
Wayzata, MN 55391

Emergency Telephone No# : Chemtrec 800-424-9300
Email: hughesassociatesmn@gmail.com
Telephone : 952-404-2626

Section 2. Hazards identification

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 1A
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
TOXIC TO REPRODUCTION - Category 2
TOXIC TO REPRODUCTION - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [eyes] - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) [skin, respiratory tract, kidneys, liver] - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H361f Suspected of damaging fertility.
H361d Suspected of damaging the unborn child.
H370 Causes damage to organs: (eyes)
H372 Causes damage to organs through prolonged or repeated exposure: (skin, respiratory tract, kidneys, liver)

Precautionary statements

General : Not applicable.

Prevention : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required.
Wear protective gloves.
Wear eye or face protection.
Wear protective clothing.
In case of inadequate ventilation wear respiratory protection.
Do not breathe vapor.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.

Response : Get medical attention if you feel unwell.
IF exposed:
Call a POISON CENTER or physician.
IF INHALED:
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or physician.
If experiencing respiratory symptoms:
Call a POISON CENTER or physician.
IF SWALLOWED:
Immediately call a POISON CENTER or physician.
Rinse mouth.
Do NOT induce vomiting.
IF ON SKIN (or hair):
Take off immediately all contaminated clothing.
Rinse skin with water or shower.
Wash contaminated clothing before reuse.
Immediately call a POISON CENTER or physician.
IF ON SKIN:
Wash with plenty of soap and water.
If skin irritation or rash occurs:
Get medical 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 physician.

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

Ingredient name	CAS #
Epikure 3125: Fatty acid, C18 unsatd.dimers, reaction Products with polyehylenepolyamines	68410-23-1
Triethylenetetramine	112-24-3
Nonyl Phenol	84852-15-3
Benzyl Alcohol	100-51-6

The 220B cuing agent is a mixture of the above four components. The percentage of each of these ingredients I proprietary information. 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.

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. In the event of any complaints or symptoms, avoid further exposure.

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 an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

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

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 materials 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 or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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

Triethylenetetramine	**AIHA WEEL (1999-01-01)** Time Weighted Average (TWA) 1 ppm **NIOSH REL (2005-09-30)**

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 : Use only with adequate ventilation. 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	:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	:	Viscous liquid.
Color	:	Reddish-brown
Odor	:	amine.
Odor threshold	:	Not available
pH	:	Not available
Melting point/ Freezing point	:	Not available
Boiling point	:	Not available
Flash point	:	Setaflash Closed Cup: 220 °C (428.00 °F) (ASTM D 3278)
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	:	0.013 mbar @ 20 °C (68.00 °F)
Vapor density	:	1 [Air = 1]
Relative density	:	Not available

Density	:	970 kg/m3
Solubility	:	Not available
Solubility in water	:	Slightly
Partition coefficient: n-octanol/water	:	3
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
SADT	:	Not available
Viscosity	:	**Dynamic:** 8,000 - 12,000 mPa·s @ 40 °C (104.00 °F) **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	:	Avoid exposure - obtain special instructions before use. Extremes of temperature and direct sunlight.
Incompatible materials	:	strong oxidizing agents,
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Other hazards		Heating this substance above 300 deg. F in the presence of air may cause slow oxidative decomposition; above 500 deg. F polymerization may occur. Some combinations of resins and curing agents can produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants Fumes and vapors from the thermal and chemical decompositions vary widely in composition and toxicity.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines				
	LD50 Oral	Rat	> 5,000 mg/kg	-
Triethylenetetramine				

	LD50 Oral	Rat	2,500 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			-

Conclusion/Summary
Skin : Not available
eyes : Not available
Respiratory : Not available

Sensitization

Conclusion/Summary
Skin : Not available
Respiratory : Not available

Mutagenicity

Conclusion/Summary : Not available

Carcinogenicity

Conclusion/Summary : Not available

Reproductive toxicity

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	Category 3		Respiratory tract irritation
Triethylenetetramine	Category 1		eyes

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	Category 2		skin

Triethylenetetramine	Category 1 Category 2		respiratory tract skin liver kidneys

Aspiration hazard
Not available

Information on the likely routes of exposure : Not available

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact : Causes severe burns. May cause an allergic skin reaction.
Ingestion : May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness
Inhalation : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma
reduced fetal weight
increase in fetal deaths
skeletal malformations
Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
Ingestion : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also 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

Conclusion/Summary : Not available

General : Causes 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 : Suspected of damaging the unborn child.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Not available

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
3,6-diazaoctanethylenediamin			
	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

Conclusion/Summary : Not available

Persistence/degradability

Conclusion/Summary : Not available

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines		492.00	low
Triethylenetetramine	-1.66 - -1.4	-	low
EPIKURE™ Curing Agent 3125	3	-	high

Mobility in soil

Soil/water partition coefficient : Not available

(KOC)
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		Non-regulated		
TDG		Non-regulated		
IMO/IMDG		Non-regulated		
IATA (Cargo)		Non-regulated		

*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 5(a)2 - Final significant new use rules: Not listed

United States - TSCA 5(a)2 - Proposed significant new use rules: Not listed
United States - TSCA 5(e) - Substances consent order: Not listed

California Prop. 65: : None required.

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

Canada

WHMIS (Canada) : Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : None required.

CEPA Toxic substances : None required.

International regulations

International lists : **Australia inventory (AICS):** All components are listed or exempted.
Canada inventory: All components are listed or exempted.
Japan inventory: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
United States inventory (TSCA 8b): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System III (U.S.A.) :

Health	*	2
		1
		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.
The customer is responsible for determining the PPE code for this material.

Full text of abbreviated H statements : Not applicable.

History

Date of printing	:	04/16/2015
Date of issue/Date of revision	:	02/08/2015
Date of previous issue	:	05/28/2014
Version	:	21.0
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 73/78 = 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

NOTICE: The information provided herein was believed by HUGHES ASSOCIATES AND HEXION to be accurate at the time of preparation from sources believed to be reliable ,but it is the responsibility of the USER to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. HUGHES ASSOCIATES makes no warranty, expressed or implied, concerning the product or the merchantability or fitness thereof for any purpose or concerning the accuracy of any information provided by HUGHES ASSOCIATES. The BUYER ASSUMES ALL RESPONSIBILITY FOR HANDLING, USING AND/OR RESELLING THE PRODUCT IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL LAW.