

# SAFETY DATA SHEET



Pentaethylenehexamine, PEHA

## Section 1. Identification

**GHS product identifier** : Pentaethylenehexamine, PEHA  
**Chemical name** : 3,6,9,12-tetra-azatetradecamethylenediamine  
**Other means of identification** : 3,6,9,12-tetraazatetradecamethylenediamine; Pentaethylenehexamine; 3,6,9,12-Tetraazatetradecane-1,14-diamine; pentacthylenehexamine  
**Product type** : Liquid.

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

**Product use** : Adhesives, binding agents Dye. Pigments. Complexing agents Fuel. Fuel additive. Impregnation agents Intermediate. Lubricants and additives Laboratory activities Pharmaceuticals. Surface-active agents  
**Area of application** : Industrial applications.

**Supplier's details** : DELAMINE B.V.  
Barchman Wuytierslaan 10  
3818 LH Amersfoort  
The Netherlands  
Tel.:31-334676897

**e-mail address of person responsible for this SDS** : SDS.Delamine@delamine.com

**Emergency telephone number (with hours of operation)** : GBK/Infotrac ID 104075 : (USA domestic) 1 800 535 5053 or international (001) 352 323 3500 (24 hours per day)

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : ACUTE TOXICITY (oral) - Category 4  
ACUTE TOXICITY (dermal) - Category 4  
SKIN CORROSION - Category 1B  
SERIOUS EYE DAMAGE - Category 1  
SKIN SENSITIZATION - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : Harmful if swallowed or in contact with skin.  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.

**Date of issue/Date of revision** : 05/15/2015 **Date of previous issue** : No previous validation **Version** : 1 1/14

## Section 2. Hazards identification

### Precautionary statements

- Prevention** : Wear protective gloves: > 8 hours (breakthrough time): neoprene. Wear eye or face protection. Wear protective clothing. Avoid breathing vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
- Response** : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately 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. Call a POISON CENTER or physician if you feel unwell. Wash contaminated clothing before reuse. 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.
- Supplemental label elements** : Do not taste or swallow. Wash thoroughly after handling.
- Hazards not otherwise classified** : Causes digestive tract burns.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Substance
- Chemical name** : 3,6,9,12-tetra-azatetradecamethylenediamine
- Other means of identification** : 3,6,9,12-tetraazatetradecamethylenediamine; Pentaethylenehexamine; 3,6,9,12-Tetraazatetradecane-1,14-diamine; pentachylenhexamine

### CAS number/other identifiers

- CAS number** : 4067-16-7
- Product code** : Not available.

Ingredient name	Other names	%	CAS number
3,6,9,12-tetra-azatetradecamethylenediamine	3,6,9, 12-tetraazatetradecamethylenediamine	100	4067-16-7
3,6,9,12-tetra-azatetradecamethylenediamine	3,6,9, 12-tetraazatetradecamethylenediamine	60-100	4067-16-7
amines, polyethylenepoly-Tetraethylenepentamine	Amines, polyethylenepoly-3,6, 9-triazaundecamethylenediamine	10-30 5-10	68131-73-7 112-57-2

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 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.
- 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.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

#### Over-exposure signs/symptoms

- 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

## Section 4. First aid measures

### 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-aiders** : 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. Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam. Dry sand or other suitable absorbent.
- Unsuitable extinguishing media** : Halones

**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).

## Section 6. Accidental release measures

### 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). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). 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. Keep away from acids. 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) and food and drink. Store locked up. Separate from acids. 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
Tetraethylenepentamine	AIHA WEEL (United States, 10/2011). Absorbed through skin. Skin sensitizer. TWA: 5 mg/m <sup>3</sup> 8 hours.

- 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.

## Section 8. Exposure controls/personal protection

**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. > 8 hours (breakthrough time): neoprene

**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. Recommended: neoprene Boots.

**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. Recommended: ammonia filter (Type K) ammonia (Type K) and particulate filter

## Section 9. Physical and chemical properties

### Appearance

**Physical state** : Liquid. [Clear.]  
**Color** : Yellow. [Light]  
**Odor** : Odorless.  
**Odor threshold** : Not available.  
**pH** : 12.6  
**Melting point** : <-70°C (<-94°F)  
**Boiling point** : 426°C (798.8°F)  
**Flash point** : Closed cup: 183°C (361.4°F)  
**Evaporation rate** : Not available.

## Section 9. Physical and chemical properties

<b>Flammability (solid, gas)</b>	: Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Not available.
<b>Vapor pressure</b>	: 0.0000017 kPa (0.0000126 mm Hg) [room temperature]
<b>Vapor density</b>	: Not available.
<b>Relative density</b>	: Not available.
<b>Solubility</b>	: Not available.
<b>Solubility in water</b>	: >500 g/l
<b>Partition coefficient: n-octanol/water</b>	: -3.67
<b>Auto-ignition temperature</b>	: 335°C (635°F)
<b>Decomposition temperature</b>	: Not available.
<b>SADT</b>	: Not available.
<b>Viscosity</b>	: Not available.
<b>Density</b>	: 1.003 g/cm <sup>3</sup> [20°C]

## Section 10. Stability and reactivity

<b>Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.  Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Conditions to avoid</b>	: Keep away from sources of ignition - No smoking. aerosol or mist formation.
<b>Incompatible materials</b>	: Reactive or incompatible with the following materials: oxidizing materials, metals and acids. Chlorinated hydrocarbon.
<b>Hazardous decomposition products</b>	: 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
3,6,9,12-tetra-azatetradecamethylenediamine	LD50 Oral	Rat	1600 mg/kg	-
3,6,9,12-tetra-azatetradecamethylenediamine	LD50 Oral	Rat	1600 mg/kg	-

## Section 11. Toxicological information

**Conclusion/Summary** : Oral Harmful if swallowed.  
Dermal Harmful in contact with skin.  
Inhalation No applicable toxicity data Not classified as dangerous

### Irritation/Corrosion

Not available.

### Conclusion/Summary

**Skin** : Corrosive to the skin.  
**Eyes** : Corrosive to eyes.  
**Respiratory** : No data available for this end-point, hence this classification is not considered to be applicable.

### Sensitization

Product/ingredient name	Route of exposure	Species	Result
3,6,9,12-tetra-azatetradecamethylenediamine	skin	Guinea pig	Sensitizing

### Conclusion/Summary

**Skin** : May cause skin sensitization.  
**Respiratory** : No data available for this end-point, hence this classification is not considered to be applicable.

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
3,6,9,12-tetra-azatetradecamethylenediamine	-	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Negative

**Conclusion/Summary** : No mutagenic effect.

### Carcinogenicity

Not available.

**Conclusion/Summary** : skin No carcinogenic effect.

### Reproductive toxicity

Not available.

**Conclusion/Summary** : Fertility : No data available for this end-point, hence this classification is not considered to be applicable.  
Developmental Toxicity: No data available for this end-point, hence this classification is not considered to be applicable.

### Teratogenicity

Not available.

**Conclusion/Summary** : No known significant effects or critical hazards.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard



## Section 11. Toxicological information

Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral.

### Potential acute health effects

**Eye contact** : Causes serious eye damage.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.  
**Ingestion** : Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

### 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 and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : No specific data.  
**Potential delayed effects** : No specific data.

#### Long term exposure

**Potential immediate effects** : No specific data.  
**Potential delayed effects** : No specific data.

#### Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
3,6,9,12-tetra-azatetradecamethylenediamine	Sub-chronic LOAEL Oral	Rat	52 mg/kg	-

**Conclusion/Summary** : Not classified as dangerous  
**General** : 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.

## Section 11. Toxicological information

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
3,6,9,12-tetra-azatetradecamethylenediamine	EC50 164 mg/l	Micro-organism	2 hours
	Acute EC50 0.7 mg/l Fresh water	Algae	72 hours
	Acute EC50 17.5 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 180 mg/l Fresh water	Fish	96 hours
	Acute NOEC 0.25 mg/l Fresh water	Algae	72 hours
	Chronic NOEC 0.8 mg/l Fresh water	Daphnia	14 days

**Conclusion/Summary** : Dangerous for the environment.  
PNEC Intermittent release= 0.025 mg/l

### Persistence and degradability

**Conclusion/Summary** : Not readily biodegradable. This substance is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
3,6,9,12-tetra-azatetradecamethylenediamine	-	-	Not readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
3,6,9,12-tetra-azatetradecamethylenediamine	-3.67	-	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : >3000

**Mobility** : No specific data.






**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

	DOT Classification	IMDG	IATA
<b>UN number</b>	UN2735	UN2735	UN2735
<b>UN proper shipping name</b>	Polyamines, liquid, corrosive, n. o.s.(3,6,9,12-tetra-azatetradecamethylenediamine)	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(3,6,9,12-tetra-azatetradecamethylenediamine). Marine pollutant (Amines, polyethylenepoly-)	Polyamines, liquid, corrosive, n. o.s.(3,6,9,12-tetra-azatetradecamethylenediamine)
<b>Transport hazard class(es)</b>	8 	8  	8  
<b>Packing group</b>	III	III	III
<b>Environmental hazards</b>	No.	Yes.	Yes.
<b>Additional information</b>	<p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 5 L</p> <p><b>Cargo aircraft</b> Quantity limitation: 60 L</p> <p><b>Special provisions</b> IB3, T7, TP1, TP28</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b>Emergency schedules (EmS)</b> F-A, S-B</p> <p><b>Special provisions</b> 223, 274</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p><b>Passenger and Cargo Aircraft</b> Quantity limitation: 5 L Packaging instructions: 852</p> <p><b>Cargo Aircraft Only</b>Quantity limitation: 60 L Packaging instructions: 856</p> <p><b>Limited Quantities - Passenger Aircraft</b>Quantity limitation: 1 L Packaging instructions: Y841</p> <p><b>Special provisions</b> A3, A803</p>

## Section 14. Transport information

**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.

**Transport in bulk according** : Not available.

to Annex II of MARPOL

73/78 and the IBC Code

## Section 15. Regulatory information

**U.S. Federal regulations** : **United States inventory (TSCA 8b):** All components are listed or exempted.

**Clean Air Act Section 112** : Not listed

(b) Hazardous Air  
Pollutants (HAPs)

**Clean Air Act Section 602** : Not listed

Class I Substances

**Clean Air Act Section 602** : Not listed

Class II Substances

**DEA List I Chemicals** : Not listed

(Precursor Chemicals)

**DEA List II Chemicals** : Not listed

(Essential Chemicals)

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
3,6,9,12-tetra-azatetradecamethylenediamine	100	No.	No.	No.	Yes.	No.
3,6,9,12-tetra-azatetradecamethylenediamine	60-100	No.	No.	No.	Yes.	No.
amines, polyethylenepoly-	10-30	No.	No.	No.	Yes.	No.
Tetraethylenepentamine	5-10	No.	No.	No.	Yes.	No.

### SARA 313

Not applicable.

### State regulations

**Massachusetts** : The following components are listed: TETRAETHYLENE PENTAMINE

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: TETRAETHYLENEMPENTAMINE; 1, 2-ETHANEDIAMINE, N-(2-AMINOETHYL)-N'- [2- [(2-AMINOETHYL)AMINO]ETHYL]-

## Section 15. Regulatory information

**Pennsylvania** : The following components are listed: 1,2-ETHANEDIAMINE, N-(2-AMINOETHYL)-N'-[2-(2-AMINOETHYL)AMINO]ETHYL]-

### California Prop. 65

None of the components are listed.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		1
Physical hazards		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 SDSs 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.

### National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### History

**Date of issue/Date of revision** : 05/15/2015

**Date of previous issue** : No previous validation

**Version** : 1

### 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)  
 UN = United Nations

## Section 16. Other information

**References** : Not available.

✔ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.