

# SAFETY DATA SHEET



Ethylenediamine, EDA

## Section 1. Identification

**GHS product identifier** : Ethylenediamine, EDA  
**Chemical name** : 1,2-Diaminoethane  
**Other means of identification** : Ethylenediamine; 1,2-Ethanediamine; Ethylenediamine, >25% in a non hazardous diluent; ETHYLENE DIAMINE; 1,2-Diaminoethane, hydrate  
**Product type** : Liquid.

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

**Product use** : Intermediate. Chemical synthesis.  
**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** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (oral) - Category 4  
ACUTE TOXICITY (dermal) - Category 3  
ACUTE TOXICITY (inhalation) - Category 4  
SKIN CORROSION - Category 1B  
SERIOUS EYE DAMAGE - Category 1  
RESPIRATORY SENSITIZATION - Category 1  
SKIN SENSITIZATION - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

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

## Section 2. Hazards identification

- Hazard statements** : Flammable liquid and vapor.  
Toxic in contact with skin.  
Harmful if swallowed or if inhaled.  
Causes severe skin burns and eye damage.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.
- Precautionary statements**
- Prevention** : Wear protective gloves: > 8 hours (breakthrough time): neoprene. Wear eye or face protection. Wear protective clothing. Wear respiratory protection: Recommended: ammonia filter (Type K) ammonia (Type K) and particulate filter. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. 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: If breathing is difficult, remove person to fresh air and keep 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: Take off immediately all contaminated clothing and wash it before reuse. 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. Store in a well-ventilated place. Keep cool.
- 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** : 1,2-Diaminoethane
- Other means of identification** : Ethylenediamine; 1,2-Ethanediamine; Ethylenediamine, >25% in a non hazardous diluent; ETHYLENE DIAMINE; 1,2-Diaminoethane, hydrate

### CAS number/other identifiers

- CAS number** : 107-15-3
- Product code** : Not available.

Ingredient name	Other names	%	CAS number
1,2-Diaminoethane	ethylenediamine	100	107-15-3

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

## Section 3. Composition/information on ingredients

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. 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.

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

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes severe burns. Toxic 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

## Section 4. First aid measures

- Inhalation** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### 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 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** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

**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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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. Use spark-proof tools and explosion-proof equipment. 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. Use spark-proof tools and explosion-proof equipment. 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 or asthma, allergies or chronic or recurrent respiratory disease 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. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. 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.

## Section 7. Handling and storage

**Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 11 to 50°C (51.8 to 122°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from acids. Separate from oxidizing materials. 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
1,2-Diaminoethane	<p><b>ACGIH TLV (United States, 4/2014).</b>  <b>Absorbed through skin.</b>            TWA: 10 ppm 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            TWA: 10 ppm 8 hours.            TWA: 25 mg/m<sup>3</sup> 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b>            TWA: 10 ppm 10 hours.            TWA: 25 mg/m<sup>3</sup> 10 hours.</p> <p><b>OSHA PEL (United States, 2/2013).</b>            TWA: 10 ppm 8 hours.            TWA: 25 mg/m<sup>3</sup> 8 hours.</p>

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**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

## Section 8. Exposure controls/personal 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- 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. [Viscous liquid.]
- Color** : Colorless.
- Odor** : Mild. Ammoniacal.
- Odor threshold** : Not available.
- pH** : 12 [Conc. (% w/w): 1%]
- Melting point** : 10.8 to 11°C (51.4 to 51.8°F)
- Boiling point** : 117°C (242.6°F)
- Flash point** : Closed cup: 38 to 42°C (100.4 to 107.6°F)
- Evaporation rate** : 0.91 (butyl acetate = 1)
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Lower: 2.7%  
Upper: 16.6%
- Vapor pressure** : 1.3 kPa (9.7508 mm Hg) [room temperature]
- Vapor density** : 2.07 [Air = 1]
- Relative density** : Not available.
- Solubility** : Not available.
- Solubility in water** : 1000 g/l
- Partition coefficient: n-octanol/water** : -2 to -1.3
- Auto-ignition temperature** : 385 to 405°C (725 to 761°F)
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Dynamic (room temperature): 1.265 mPa·s (1.265 cP)

## Section 9. Physical and chemical properties

**Density** : 0.897 g/cm<sup>3</sup> [20°C]

## Section 10. Stability and reactivity

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to avoid** : aerosol or mist formation.

**Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, metals and acids.  
Chlorinated hydrocarbon.

**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
1,2-Diaminoethane	LC50 Inhalation Vapor	Rat	14700 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rat	560 mg/kg	-
	LD50 Oral	Rat	866 mg/kg	-

**Conclusion/Summary** : No additional information.

#### Irritation/Corrosion

Not available.

#### Conclusion/Summary

**Skin** : Corrosive to the skin.

**Eyes** : Corrosive to eyes.

**Respiratory** : No additional information.

#### Sensitization

Product/ingredient name	Route of exposure	Species	Result
1,2-Diaminoethane	skin	Guinea pig	Sensitizing

#### Conclusion/Summary

**Skin** : May cause skin sensitization.

**Respiratory** : May cause sensitization by inhalation.

#### Mutagenicity



## Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result
1,2-Diaminoethane	-	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Negative

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

### Carcinogenicity

Not available.

**Conclusion/Summary** : Oral : Cannot be classified. NOAEL= 159 mg/kg bw/day  
Dermal: Cannot be classified. NOAEL= 8 mg/kg bw/day

### Reproductive toxicity

Not available.

**Conclusion/Summary** : Fertility Cannot be classified. NOAEL Oral= 500 mg/kg bw/day  
Developmental Toxicity: Cannot be classified. NOAEL Oral= 250 mg/kg bw/day

### Teratogenicity

Not available.

**Conclusion/Summary** : Cannot be classified.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

**Eye contact** : Causes serious eye damage.

**Inhalation** : Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Skin contact** : Causes severe burns. Toxic 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** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

## Section 11. Toxicological information

**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
1,2-Diaminoethane	Sub-chronic NOAEL Oral Sub-acute NOAEL Inhalation Vapor	Rat Rat - Male, Female	22 mg/kg 144 mg/m <sup>3</sup>	- 6 weeks

**Conclusion/Summary** : Cannot be classified.

**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.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
1,2-Diaminoethane	EC50 3.2 mg/l	Micro-organism	2 hours
	NOEC 0.5 mg/l	Micro-organism	2 hours
	Acute EC50 645 mg/l Fresh water	Algae	72 hours
	Acute EC50 16.7 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 640 mg/l Fresh water	Fish	96 hours
	Acute NOEC 3.2 mg/l Fresh water	Algae	72 hours
	Chronic NOEC 0.16 mg/l Fresh water	Daphnia	21 days
	Chronic NOEC 10 mg/l Fresh water	Fish	28 days

**Conclusion/Summary** : Not classified as dangerous  
PNEC Intermittent release= 0.167 mg/l

## Section 12. Ecological information

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
1,2-Diaminoethane	-	95 % - 28 days	-	-
	-	88 % - 15 days	-	-
	-	10 % - 5 days	-	-

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
1,2-Diaminoethane	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
1,2-Diaminoethane	-2 to -1.3	<2000	high

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : 4766

**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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

## Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1604	UN1604	UN1604
UN proper shipping name	Ethylenediamine RQ	ETHYLENEDIAMINE	Ethylenediamine
Transport hazard class(es)	8 (3)  	8 (3)  	8 (3)  
Packing group	II	II	II
Environmental hazards	No.	No.	No.
Additional information	<p><b>Reportable quantity</b> 5000 lbs / 2270 kg [668.53 gal / 2530.7 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 1 L</p> <p><b>Cargo aircraft</b> Quantity limitation: 30 L</p> <p><b>Special provisions</b> IB2, T7, TP2</p>	<p><b>Emergency schedules (EmS)</b> F-E, S-C</p>	<p><b>Passenger and Cargo Aircraft</b> Quantity limitation: 1 L Packaging instructions: 851</p> <p><b>Cargo Aircraft Only</b> Quantity limitation: 30 L Packaging instructions: 855</p> <p><b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 0.5 L Packaging instructions: Y840</p>

**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 to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 311:** 1,2-Diaminoethane  
**Clean Air Act (CAA) 112 regulated toxic substances:** 1,2-Diaminoethane

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
1,2-Diaminoethane	100	Yes.	-	-	-	-

**SARA 304 RQ** : Not applicable.

### SARA 311/312

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

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
1,2-Diaminoethane	100	Yes.	No.	No.	Yes.	No.

### SARA 313

Not applicable.

### State regulations

**Massachusetts** : The following components are listed: ETHYLENEDIAMINE

**New York** : The following components are listed: Ethylenediamine

**New Jersey** : The following components are listed: ETHYLENEDIAMINE; 1,2-ETHANEDIAMINE

**Pennsylvania** : The following components are listed: 1,2-ETHANEDIAMINE

### California Prop. 65

None of the components are listed.

## Section 16. Other information

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

Health	*	3
Flammability		2
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.)



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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

<b>Date of issue/Date of revision</b>	: 05/15/2015
<b>Date of previous issue</b>	: No previous validation
<b>Version</b>	: 1
<b>Key to abbreviations</b>	: 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

**References** : Not available.

☑ Indicates information that has changed from previously issued version.

### Notice to reader

## Section 16. Other information

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.