

# SAFETY DATA SHEET



GROTAN

## Section 1. Identification

**GHS product identifier** : GROTAN  
**Product code** : 30310  
**Chemical name** : 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol  
**Other means of identification** : Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine  
**Product type** : Liquid.  
**Material uses** : Not available.

### Identified uses

Bactericide for the Preservation of Adhesives, Metal Cutting Fluids and Coolants, Construction products-Cementitious and Polymeric Admixtures, Joint Cements, Resin Emulsions and Pigment Dispersions for Non-Paint Use.

**Supplier's details** : Troy Corporation.  
8 Vreeland Road  
PO Box 955  
Florham Park, NJ 07932-0955  
U.S.A.  
Phone: +1-973-443-4200  
Fax: +1-973-443-0258

**Emergency telephone number (with hours of operation)** : CHEMTREC - Tel: +1-800-424-9300 (24/7)

## 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  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
SKIN SENSITIZATION - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : Harmful if swallowed.  
Causes serious eye irritation.  
May cause an allergic skin reaction.

### Precautionary statements

**Prevention** : Wear protective gloves. Wear eye or face protection: Recommended: chemical splash goggles and/or face shield.. Avoid breathing 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** : IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. 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. If eye irritation persists: Get medical attention.

**Date of issue/Date of revision** : 4/7/2015. **Date of previous issue** : 12/23/2014. **Version** : 1.03 1/12

## Section 2. Hazards identification

- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Substance
- Chemical name** : 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol
- Other means of identification** : Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine

### CAS number/other identifiers

- CAS number** : Not available.

Ingredient name	%	CAS number
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	78.5	4719-04-4
2-aminoethanol	1 - 3	141-43-5

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

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

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

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : 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. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention if adverse health effects persist or are severe. 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** : 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. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : 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. Get medical attention. If necessary, call a poison center or 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

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## Section 4. First aid measures

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Irritating to mouth, throat and stomach.

### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### 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. 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.

**Remark** : Excessive heat >147°C (>297°F) will result in decomposition to formaldehyde.

## 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. Avoid breathing 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). 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 ingest. Avoid breathing vapor or mist. 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 between the following temperatures: -5 to 30°C (23 to 86°F). 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. 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

<b>Ingredient name</b>	<b>Exposure limits</b>
2-aminoethanol	<p><b>ACGIH TLV (United States, 1/2009).</b>            STEL: 15 mg/m<sup>3</sup> 15 minutes.            STEL: 6 ppm 15 minutes.            TWA: 7.5 mg/m<sup>3</sup> 8 hours.            TWA: 3 ppm 8 hours.</p> <p><b>NIOSH REL (United States, 6/2009).</b>            STEL: 15 mg/m<sup>3</sup> 15 minutes.            STEL: 6 ppm 15 minutes.            TWA: 8 mg/m<sup>3</sup> 10 hours.            TWA: 3 ppm 10 hours.</p> <p><b>OSHA PEL (United States, 11/2006).</b>            TWA: 6 mg/m<sup>3</sup> 8 hours.            TWA: 3 ppm 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            STEL: 15 mg/m<sup>3</sup> 15 minutes.            STEL: 6 ppm 15 minutes.            TWA: 8 mg/m<sup>3</sup> 8 hours.            TWA: 3 ppm 8 hours.</p>

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- 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. Recommended: chemical splash goggles and/or face shield.
- 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).
- 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.

## Section 8. Exposure controls/personal protection

**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.

**Personal protective equipment (Pictograms)** :



## Section 9. Physical and chemical properties

### Appearance

**Physical state** : Liquid.

**Color** : White to yellowish.

**Odor** : Characteristic. [Slight]

**Odor threshold** : Not available.

**pH** : 10.3 to 11.3

**Melting point** : Not determined.

**Boiling point** : 110.5°C (230.9°F)

**Flash point** : Closed cup: Not applicable.

**Evaporation rate** : Not determined.

**Flammability (solid, gas)** : Excessive heat >147°C (>297°F) will result in decomposition to formaldehyde.

**Lower and upper explosive (flammable) limits** : Not determined.

**Vapor pressure** : 1.3 to 2.4 kPa (10 to 18 mm Hg) [room temperature]

**Vapor density** : >1 [Air = 1]

**Relative density** : 1.145 to 1.16

**Solubility** : Easily soluble in the following materials: cold water and hot water.

**Dispersibility properties** : Not available.

**Partition coefficient: n-octanol/water** : -1.3

**Auto-ignition temperature** : Not determined.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): 60 to 100 mPa·s (60 to 100 cP)  
Kinematic (room temperature): 0.6 to 1 cm<sup>2</sup>/s (60 to 100 cSt)

**Volatility** : 100% (w/w)

## 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.

**Conditions to avoid** : No specific data.

**Incompatible materials** : No specific data.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
GROTAN	LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat Rat Rat - Female	0.37 mg/l >2000 mg/kg 1009 to 3950 mg/kg	4 hours nose only - -

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
GROTAN	Eyes - Cornea opacity Skin - Mild irritant	Rabbit Rabbit	59 -	- -	21 days -

#### Sensitization

Product/ingredient name	Route of exposure	Species	Result
GROTAN	skin	Mouse	Sensitizing

#### Mutagenicity

Product/ingredient name	Test	Experiment	Result
GROTAN	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

#### Carcinogenicity

Not available.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

#### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
2-aminoethanol	Category 3	Not applicable.	Respiratory tract irritation

#### 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 irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Irritating to mouth, throat and stomach.

#### Symptoms related to the physical, chemical and toxicological characteristics

## Section 11. Toxicological information

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### 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

Not available.

- 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
GROTAN	Acute EC50 10 to 100 mg/l Acute LC50 10 to 100 mg/l	Daphnia Fish	48 hours 96 hours

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-aminoethanol	-	>90 % - Readily - 21 days	-	-

  

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
GROTAN	-	-	Readily

### Bioaccumulative potential



## Section 12. Ecological information

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
GROTAN	-1.3	-	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

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

## Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-	-	-	-
<b>Transport hazard class(es)</b>	-	-	-	-	-	-
<b>Packing group</b>	-	-	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.	No.	No.
<b>Additional information</b>	-	-	-	-	-	-

**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** : TSCA 8(a) CDR Exempt/Partial exemption:  
All components are listed or exempted.

**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

**EPA** : Not applicable.

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**EPA Registration Number:** 365-76  
**EPA Signal Word:** DANGER  
**Symbol :** Not applicable.

**Precautionary statements:** Corrosive.  
Causes irreversible eye damage.

**Explanation for differences between EPA and OSHA classification** :

OSHA Signal word: Warning This is based on the following classification categories:  
ACUTE TOXICITY (oral) - Category 4  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
SKIN SENSITIZATION - Category 1

Based on additional dermal sensitization testing it has been determined that this product is NOT a skin sensitizer at concentrations less than 25%. Therefore, end use formulations containing this product will not be required to address skin sensitization on their label or SDS.

**Environmental hazards** : Not within OSHA jurisdiction therefore not required on SDS.

**EPA Signal Word:** DANGER This is based on the following EPA toxicity categories:  
Primary eye irritation-Category I

**Environmental hazards** : Not applicable.

### 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

## Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	78.5	No.	No.	No.	Yes.	No.
2-aminoethanol	1 - 3	No.	No.	No.	Yes.	No.

### State regulations

- Massachusetts** : The following components are listed: ETHANOLAMINE
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: ETHANOLAMINE; ETHANOL, 2-AMINO-
- Pennsylvania** : The following components are listed: ETHANOL, 2-AMINO-
- California Prop. 65**

This product does not contain any substances that are currently on list of Known Carcinogens and Reproductive Toxins at levels which would require a warning under the statute.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### International lists

#### National inventory

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : All components are listed or exempted.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.

## Section 16. Other information

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

Health	3
Flammability	0
Physical hazards	1

## Section 16. Other information

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](#)

**Date of printing** : 4/7/2015.

**Date of issue/Date of revision** : 4/7/2015.

**Date of previous issue** : 12/23/2014.

**Version** : 1.03

### [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

### [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.

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