*The Absolute Deodorizer For Agricultural Chemicals*

# EPOLEON® N-100

## SPECIFICATIONS

EPOLEON is a deodorizer made from fine organic chemicals and complex compounds. EPOLEON is biodegradable, emulsifiable, and a dissolver and neutralizer of malodors. Being an "Amphi-Deodorizer" EPOLEON automatically and simultaneously reacts on gases from acidic to alkaline to remove the malodors by a method of chemical composition. EPOLEON has been tested both chemically and scientifically and is the result of many years of research. EPOLEON contributes to the clean air environment of our society by decomposing the malodors of gases. EPOLEON is a chemical product manufactured with substances that do not contain toxic or poisonous components.

EPOLEON N-100 was developed mainly for extra-strength deodorization of neutral odors. EPOLEON N-100 completely dissolves and neutralizes toxic and poisonous gases which include acidic odors (Hydrogen Sulfide, Methyl Mercaptan) and alkali odors (Ammonia, Trimethylamine).

Actually, the pure ingredients of insecticides such as chlorpyifos and pyrethroids have no odors themselves. Malodors occur from halogen substances which are impurities such as chlorine, fluoride, iodine and bromine. EPOLEON will not react with the actual insectide ingredient and, therefore, it does not change the efficacy of the insecticide's abilities.

**BY USING EPOLEON N-100 WE WILL BE LIVING IN A CLEAN AND HEALTHY ENVIRONMENT.**

However, toxic gas levels exceeding government regulations can cause serious ill-effects on a person's teeth and health. Many people may not notice high levels of toxic gas in water or the atmosphere because, after a certain period of time, they become accustomed to it. This is a serious problem that for a long time has been covered up with masking agents.

A deodorizer must have a dissolving and neutralizing reaction on toxic and poisonous gas. EPOLEON, which has a chemical dissolving and neutralizing reaction on toxic and poisonous gases, is the answer to solving this pollution problem.

### METHYL MERCAPTAN:

One (1) gram of EPOLEON N-100 reacts with 21.6 mgs. of methyl mercaptan.

### INHALATION TEST:

The acute inhalation toxicity studies were conducted with EPOLEON N-100 in the rat. The test atmospheres were generated in the breathing zone of the animals using a spray atomization system. The exposures were conducted in a 100 liter rectangular chamber. The actual exposure level was determined gravimetrically and expressed on a formulation basis. The exposure to EPOLEON N-100 was conducted at an actual exposure level of 5.69 ± 0.257 mg/L which was in agreement with the protocol-specified target level of 5 mg/L. The mass median aerodynamic diameter (MMAD) values in this exposure were 3.78 to 3.79 microns and indicated the test atmosphere was also respirable in size to the rat. All animals in both studies appear normal at present and are expected to survive to termination which will be 14 days after their exposure.

### MULTIPLE SPECIES GREENHOUSE SCREEN FOR PHYTOTOXICITY FROM EPOLEON N-100 CONCENTRATE:

Two flats, one containing Kentucky Bluegrass, lettuce, oats, tomato, and sweet corn, and the other containing cotton and potatoes were combined to create an experimental unit. The crops were planted using Pro-Mix BX as a medium. Each unit was watered to maintain optimal growing conditions.
EPOLEON N-100 when applied alone or in combination with Parathion 8E and Sevin XLR did not observe to cause crop injury under the conditions of this greenhouse study.

### CASE STUDY:

When EPOLEON was mixed with the leading insecticide, odors associated with that insecticide were reduced without a decrease in the residual efficacy of the product.

### EPOLEON DOSAGE/MIXTURE RATES:

10% or more against the insecticide weight and diluted with water.

The above EPOLEON dosage/mixture rates are general.

The dosage will vary depending on the type and the amount of insecticides, temperature, etc. To obtain better results, increase the amount of EPOLEON.

## *Dissolver And Neutralizer of Toxic And Poisonous Gases*

# EPOLEON® N-100

*For Agriculture Insecticides, Pesticides . . .*

**(Deodorization Process)**

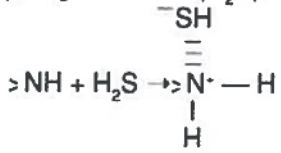
(1) Ammonia ($NH_3$)

$$-CH_2\ COOH + NH_3 \rightarrow -CH_2\ COONH_4$$

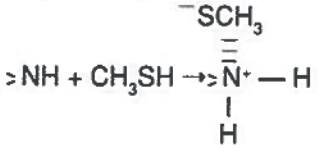
(2) Trimethylamine $(CH_3)_3N$

$$-CH_2\ COOH + (CH_3)_3N \rightarrow -CH_2\ COONH(CH_3)_3$$

(3) Hydrogen Sulfide ($H_2S$)



(4) Methyl Mercaptan ($CH_3SH$)



(5) Methyl Disulfide ($CH_3SSCH_3$), Methyl Sulfide ($CH_3SCH_3$), and fatty oils such as Indole and Skatole, etc. odors (which cannot be analyzed) are deodorized by including Betaine Compounds which are non-toxic and non-poisonous types. It is possible to deodorize approximately 20-25% of these odors.

The sulfide produced by the reaction of the above (5) and EPOLEON N-100 in the atmosphere, whether in solid or liquid state, is a neutral, stabilized, non-toxic, non-poisonous compound which dissolves in water. This stabilized compound will not be released into the atmosphere unless the water conditions are alkali (pH10 or over) or acidic (pH3 or below).

For more detailed information, please contact your distributor or EPOLEON CORPORATION OF AMERICA.

**TOLL FREE:** 1-800—HIT-ODOR (1-(800) 448-6367)


EPOLEON® CORPORATION OF AMERICA

18414 Doty Avenue,
Torrance, Ca 90504-4823 U. S. A

TEL:310. 327. 5801
FAX:310. 324. 6845


DISTRIBUTED BY:

**(Composition and Physical Properties)**

Organic and Salt of Organic Acids
Amine Compounds
Betaine Compounds
Water

| | |
|---|---|
| pH | 4.8 - 6.5 (At 25°C) |
| Boiling Point | 100°C |
| Freezing Point | 1.0°C |
| Vap. Press | Same as Water |
| Sol. in Water | Completely |
| Sp. Gravity | 1.17 ± 0.05 (At 25°C) |
| Range of Molecular Weight | 50 - 800 |
| Appearance | Transparent Sl. Yellow |
| Odor | None |

**HEAD SPACE DEODORIZATION TEST**

**(Test Procedure)**

One milliliter of deodorizer and 19ml of solution which includes odorous gas and water (total 20ml) is mixed then added into a 300ml triangle flask. The flask is shut with the rubber stopper and stirred for 10 minutes. Then the concentration of odorous gas (in the head space of the upper portion of the flask) is measured by a gas analyzer.

As a comparison, the same test procedure was done with only water and competitive products and water.

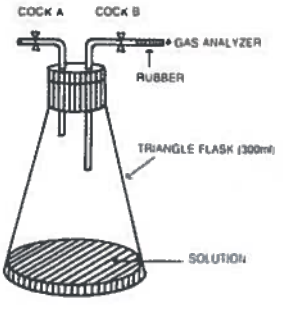
**(Test Specifications)**

| | |
|---|---|
| Triangle Flask: | 300ml |
| Time Period Before Measurement: | 10 minutes |
| Measurement Device: | Gas Analyzer |
| Amount Deodorizer: | 1ml |
| Amount of Solution: | 19ml |
| Temperature: | 25°C |

**(Rate of Elimination)**

| | Original Content | After Adding EPOLEON N-100 |
|---|---|---|
| Ammonia | 700ppm | 0ppm |
| Hydrogen Sulfide | 1000ppm | 0ppm |
| Methyl Mercaptan | 20ppm | under 1ppm |
| Trimethylamine | 120ppm | 0ppm |

By the simple Head Space Method of testing, it is easy to see EPOLEON's effectiveness on reducing and eliminating Ammonia and various other types of gases, compared to masking agents.



Conforms to HazCom 2012/United States

# SAFETY DATA SHEET

## N-100 Epoleon Odor Neutralizer – Fragrance Free

## Section 1. Identification

**GHS product identifier** : N-100 Epoleon Odor Neutralizer – Fragrance Free
**Trade name** : ODOR NEUTRALIZER, FRAGRANCE FREE
**Other means of identification** : Not available.
**Relevant identified uses of the substance or mixture and uses advised against** : Not available.
**Supplier's details** : J&R Business Enterprises Inc.
124 Woodmill Drive,
East Windsor, NJ 08512 USA

Tel: 609.218.0688 or 609.947.0129
Fax: 1-609-860-2921
Email contact: sales@jnrbei.com

**Emergency telephone number (with hours of operation)** : 800-698-6367 (24/7)

## Section 2. Hazards identification

**OSHA/HCS status** : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

**Classification of the substance or mixture** : Not classified.

**GHS label elements**

**Signal word** : No Signal word.
**Hazard statements** : No known significant effects or critical hazards.

**Precautionary statements**

**Prevention** : Not applicable.
**Response** : Not applicable.
**Storage** : Not applicable.
**Disposal** : Not applicable.

**Hazards not otherwise classified** : None known.

# Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

**Other means of identification** : Not available.

**CAS number/other identifiers**

**CAS number** : Not applicable.

**Product code** : N-100

There are no 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. Get medical attention if irritation occurs.

**Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Ingestion** : Wash out mouth with water. 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. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

**Potential acute health effects**

**Eye contact** : No known significant effects or critical hazards.

**Inhalation** : No known significant effects or critical hazards.

**Skin contact** : No known significant effects or critical hazards.

**Ingestion** : No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

**Eye contact** : No known significant effects or critical hazards.

**Inhalation** : No known significant effects or critical hazards.

**Skin contact** : No known significant effects or critical hazards.

**Ingestion** : No known significant effects or critical hazards.

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

**Notes to physician** : None.

**Specific treatments** : No specific treatment.

**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

**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** : None known.

**Specific hazards arising from the chemical** : No specific fire or explosion hazard.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
phosphorus oxides
metal oxide/oxides

**Special protective actions for fire-fighters** : No special protection is required.

**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** : Put on appropriate personal protective equipment.

**For emergency responders** : If specialized 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**

**Spill** : Stop leak if without risk. Move containers from spill area. 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. 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).

**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. 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. 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** : None

**Appropriate engineering controls** : No special ventilation requirements. 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.

### 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. 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.

### 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.

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

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

**Respiratory protection** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and Chemical properties

**Appearance**

| | |
|---|---|
| **Physical state** | : Liquid. [Fluid.] |
| **Color** | : Light to dark brown. |
| **Odor** | : Characteristic. |
| **Odor threshold** | : Not available. |
| **pH** | : 5.0 to 6.7 |
| **Melting point** | : Not applicable. |
| **Boiling point** | : 100°C (212°F) |
| **Flash point** | : Not applicable. |
| **Burning time** | : Not applicable. |
| **Burning rate** | : Not applicable. |
| **Evaporation rate** | : Not applicable. |
| **Flammability (solid, gas)** | : Not applicable. |
| **Lower and upper explosive (flammable) limits** | : Not applicable. |
| **Vapor pressure** | : Not applicable. |
| **Vapor density** | : Not applicable. |
| **Relative density** | : 1.06 to 1.20 |
| **Solubility** | : Miscible in water. |
| **Partition coefficient: n-octanol/water** | : Not available. |
| **Auto-ignition temperature** | : Product is not self igniting. |
| **Decomposition temperature** | : Not available. |
| **SADT** | : Not available. |
| **Viscosity** | : Not available. |

## 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** | : Reactive or incompatible with the following materials: oxidizing materials, reducing materials and acids. |
| **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** | : There is no data available. |
| **Irritation/Corrosion** | : There is no data available. |
| **Sensitization** | : There is no data available. |
| **Mutagenicity** | : There is no data available. |
| **Carcinogenicity** | : There is no data available. |
| **Reproductive toxicity** | : There is no data available. |
| **Teratogenicity** | : There is no data available. |
| **Specific target organ toxicity (single exposure)** | : There is no data available. |
| **Specific target organ toxicity (repeated exposure)** | : There is no data available. |
| **Aspiration hazard** | : There is no data available. |

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

## Potential acute health effects

| | |
|---|---|
| **Eye contact** | : No known significant effects or critical hazards. |
| **Inhalation** | : No known significant effects or critical hazards. |
| **Skin contact** | : No known significant effects or critical hazards. |
| **Ingestion** | : No known significant effects or critical hazards. |

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

| | |
|---|---|
| **Eye contact** | : No known significant effects or critical hazards. |
| **Inhalation** | : No known significant effects or critical hazards. |
| **Skin contact** | : No known significant effects or critical hazards. |
| **Ingestion** | : No known significant effects or critical hazards. |

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

### Short term exposure

| | |
|---|---|
| **Potential immediate effects** | : No known significant effects or critical hazards. |
| **Potential delayed effects** | : No known significant effects or critical hazards. |

### Long term exposure

| | |
|---|---|
| **Potential immediate effects** | : No known significant effects or critical hazards. |
| **Potential delayed effects** | : No known significant effects or critical hazards. |

### Potential chronic health effects

| | |
|---|---|
| **General** | : No known significant effects or critical hazards. |
| **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** : There is no data available.

## Section 12. Ecological information

**Toxicity** : There is no data available.

**Persistence and degradability** : There is no data available.

**Bioaccumulative potential** : There is no data available.

**Mobility in soil**

**Soil/water partition coefficient (Koc)** : There is no data 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 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. 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 |
|---|---|---|---|
| UN number | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | - | - | - |
| Transport hazard class(es) | - | - | - |
| Packing group | - | - | - |
| Environmental hazards | No | No | No |
| Additional 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 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: Not determined
United States inventory (TSCA 8b) : All components are listed or exempted.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : There is no data available.

**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** : No products were found.

**SARA 304 RQ** : Not applicable.

**SARA 311/312**

**Classification** : Not applicable.

**Composition/information on ingredients** : No products were found.

**State regulations**

**Massachusetts** : None of the components are listed.

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

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

**Pennsylvania** : None of the components are listed.

**California Prop. 65** : No products were found.

**Canada inventory** : All components are listed or exempted.

**International regulations**

**International lists** : Australia inventory (AICS) : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: Not determined.
Malaysia Inventory (EHS Register) : Not determined.
New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.
Philippines inventory (PICCS) : All components are listed or exempted.
Taiwan inventory (CSNN) : Not determined.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

## Section 16. Other information

**History**

**Date of issue mm/dd/yyyy** : 07/15/2015

**Version** : 1

**Revised Section(s)** : Not applicable..

**Prepared by** : J&R Business Enterprises Inc.

**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

**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.**

# SAFETY DATA SHEET

Hydrogen Sulfide

## Section 1. Identification

**GHS product identifier** : Hydrogen Sulfide

**Chemical name** : hydrogen sulphide

**Other means of identification** : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

**Product type** : Gas.

**Product use** : Synthetic/Analytical chemistry.

**Synonym** : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

**SDS #** : 001029

**Supplier's details** : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

**24-hour telephone** : 1-866-734-3438

## 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 GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas
ACUTE TOXICITY (inhalation) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC HAZARD (ACUTE) - Category 1

**GHS label elements**

**Hazard pictograms** :

**Signal word** : Danger

**Hazard statements** : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
Fatal if inhaled.
May cause respiratory irritation.
Very toxic to aquatic life.
Extended exposure to gas reduces the ability to smell sulfides.
May form explosive mixtures with air.

**Precautionary statements**

**General** : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Do not depend on odor to detect presence of gas. Approach suspected leak area with caution.

## Section 2. Hazards identification

**Prevention** : In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe gas.

**Response** : Collect spillage. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

**Storage** : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.

**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** : hydrogen sulphide

**Other means of identification** : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

**Product code** : 001029

**CAS number/other identifiers**

**CAS number** : 7783-06-4

| Ingredient name | % | CAS number |
|---|---|---|
| hydrogen sulfide | 100 | 7783-06-4 |

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 if irritation occurs.

**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.

**Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion** : As this product is a gas, refer to the inhalation section.

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

**Potential acute health effects**

**Eye contact** : No known significant effects or critical hazards.

## Section 4. First aid measures

**Inhalation** : Fatal if inhaled. May cause respiratory irritation.

**Skin contact** : No known significant effects or critical hazards.

**Frostbite** : Try to warm up the frozen tissues and seek medical attention.

**Ingestion** : As this product is a gas, refer to the inhalation section.

**Over-exposure signs/symptoms**

**Eye contact** : No specific data.

**Inhalation** : Adverse symptoms may include the following:, respiratory tract irritation, coughing

**Skin contact** : No specific data.

**Ingestion** : No specific data.

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

**Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**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.

**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** : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:
sulfur 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. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

**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** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

## Section 6. Accidental release measures

**For emergency responders** : If specialized 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** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### Methods and materials for containment and cleaning up

**Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

**Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. 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). Contains gas under pressure. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid release to the environment. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not breathe gas.

**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 a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Store locked up. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| hydrogen sulfide | **ACGIH TLV (United States, 3/2019).**<br>STEL: 5 ppm 15 minutes.<br>TWA: 1 ppm 8 hours.<br>**NIOSH REL (United States, 10/2016).**<br>CEIL: 15 mg/m³ 10 minutes.<br>CEIL: 10 ppm 10 minutes.<br>**OSHA PEL 1989 (United States, 3/1989).**<br>STEL: 21 mg/m³ 15 minutes.<br>STEL: 15 ppm 15 minutes.<br>TWA: 14 mg/m³ 8 hours. |

## Section 8. Exposure controls/personal protection

| | |
|---|---|
| | TWA: 10 ppm 8 hours.<br>**OSHA PEL Z2 (United States, 2/2013).**<br>AMP: 50 ppm 10 minutes.<br>CEIL: 20 ppm |

**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. 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: safety glasses with side-shields.

**Skin protection**

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

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

**Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

**Appearance**

**Physical state** : Gas. [Compressed gas.]

**Color** : Colorless.

**Odor** : Rotten eggs.

**Odor threshold** : Not available.

**pH** : Not available.

**Melting point** : -82°C (-115.6°F)

## Section 9. Physical and chemical properties

| | | |
|---|---|---|
| **Boiling point** | : | -60°C (-76°F) |
| **Critical temperature** | : | 100.5°C (212.9°F) |
| **Flash point** | : | Not available. |
| **Evaporation rate** | : | Not available. |
| **Flammability (solid, gas)** | : | Not available. |
| **Lower and upper explosive (flammable) limits** | : | Lower: 4.3%<br>Upper: 45% |
| **Vapor pressure** | : | 252 (psig) |
| **Vapor density** | : | 1.19 (Air = 1) |
| **Specific Volume (ft $^3$/lb)** | : | 11.236 |
| **Gas Density (lb/ft $^3$)** | : | 0.089 |
| **Relative density** | : | Not applicable. |
| **Solubility** | : | Not available. |
| **Solubility in water** | : | 5 g/l |
| **Partition coefficient: n-octanol/water** | : | Not available. |
| **Auto-ignition temperature** | : | 270°C (518°F) |
| **Decomposition temperature** | : | Not available. |
| **Viscosity** | : | Not applicable. |
| **Flow time (ISO 2431)** | : | Not available. |
| **Molecular weight** | : | 34.08 g/mole |

## 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** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

**Incompatible materials** : Oxidizers

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

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

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| hydrogen sulfide | LC50 Inhalation Gas. | Rat | 712 ppm | 1 hours |

#### Irritation/Corrosion

Not available.

#### Sensitization

## Section 11. Toxicological information

Not available.

**Mutagenicity**

Not available.

**Carcinogenicity**

Not available.

**Reproductive toxicity**

Not available.

**Teratogenicity**

Not available.

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

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| hydrogen sulfide | Category 3 | - | 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** : No known significant effects or critical hazards.

**Inhalation** : Fatal if inhaled. May cause respiratory irritation.

**Skin contact** : No known significant effects or critical hazards.

**Ingestion** : As this product is a gas, refer to the inhalation section.

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

**Eye contact** : No specific data.

**Inhalation** : Adverse symptoms may include the following:, respiratory tract irritation, coughing

**Skin contact** : No specific data.

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

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

## Section 11. Toxicological information

**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

| Route | ATE value |
|---|---|
| Inhalation (gases) | 356 ppm |

**Other information** : IDLH : 100 ppm

## Section 12. Ecological information

### Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| hydrogen sulfide | Acute EC50 62 µg/l Fresh water | Crustaceans - Gammarus pseudolimnaeus | 2 days |
| | Acute LC50 2 µg/l Fresh water | Fish - Coregonus clupeaformis - Yolk-sac fry | 96 hours |

### Persistence and degradability

Not available.

### Bioaccumulative potential

Not available.

### Mobility in soil

**Soil/water partition coefficient ($K_{OC}$)** : 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. Empty Airgas-owned pressure vessels should be returned to Airgas. 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. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

### United States - RCRA Toxic hazardous waste "U" List

| Ingredient | CAS # | Status | Reference number |
|---|---|---|---|
| Hydrogen sulfide; Hydrogen sulfide H2S | 7783-06-4 | Listed | U135 |

## Section 14. Transport information

| | DOT | TDG | Mexico | IMDG | IATA |
|---|---|---|---|---|---|
| **UN number** | UN1053 | UN1053 | UN1053 | UN1053 | UN1053 |
| **UN proper shipping name** | HYDROGEN SULFIDE | HYDROGEN SULFIDE; OR HYDROGEN SULPHIDE | HYDROGEN SULFIDE | HYDROGEN SULPHIDE | HYDROGEN SULPHIDE |
| **Transport hazard class(es)** | 2.3 (2.1)  | 2.3 (2.1)  | 2.3 (2.1)  | 2.3 (2.1)  | 2.3 (2.1)  |
| **Packing group** | - | - | - | - | - |
| **Environmental hazards** | No. | Yes. | Yes. The environmentally hazardous substance mark is not required. | Yes. | Yes. The environmentally hazardous substance mark is not required. |

**"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."**

**Additional information**

**DOT Classification** : Toxic - Inhalation hazard Zone B
**Reportable quantity** 100 lbs / 45.4 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
**Limited quantity** Yes.
**Quantity limitation** Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden.
**Special provisions** 2, B9, B14

**TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.13-2.17 (Class 2), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.
**Explosive Limit and Limited Quantity Index** 0
**ERAP Index** 0
**Passenger Carrying Vessel Index** Forbidden
**Passenger Carrying Road or Rail Index** Forbidden

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
**Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: Forbidden.

**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 IMO instruments** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

**Clean Water Act (CWA) 311**: hydrogen sulphide

**Clean Air Act (CAA) 112 regulated toxic substances**: hydrogen sulphide

**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) |
| hydrogen sulfide | 100 | Yes. | 500 | - | 100 | - |

**SARA 304 RQ** : 100 lbs / 45.4 kg

**SARA 311/312**

**Classification** : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

**SARA 313**

| | Product name | CAS number | % |
|---|---|---|---|
| **Form R - Reporting requirements** | hydrogen sulphide | 7783-06-4 | 100 |
| **Supplier notification** | hydrogen sulphide | 7783-06-4 | 100 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

**State regulations**

**Massachusetts** : This material is listed.

**New York** : This material is listed.

**New Jersey** : This material is listed.

**Pennsylvania** : This material is listed.

**California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

**International regulations**

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

Not listed.

**Montreal Protocol**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**

Not listed.

## Section 15. Regulatory information

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

| | | |
|---|---|---|
| **Australia** | : | This material is listed or exempted. |
| **Canada** | : | This material is listed or exempted. |
| **China** | : | This material is listed or exempted. |
| **Europe** | : | This material is listed or exempted. |
| **Japan** | : | **Japan inventory (ENCS)**: This material is listed or exempted.<br>**Japan inventory (ISHL)**: Not determined. |
| **New Zealand** | : | This material is listed or exempted. |
| **Philippines** | : | This material is listed or exempted. |
| **Republic of Korea** | : | This material is listed or exempted. |
| **Taiwan** | : | This material is listed or exempted. |
| **Thailand** | : | Not determined. |
| **Turkey** | : | Not determined. |
| **United States** | : | This material is active or exempted. |
| **Viet Nam** | : | This material is listed or exempted. |

## Section 16. Other information

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


**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 and the associated label are not required on SDSs or products leaving a facility 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 trademark and service mark of the American Coatings Association, Inc.**

**The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.**

### 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.**

### Procedure used to derive the classification

## Section 16. Other information

| Classification | Justification |
|---|---|
| FLAMMABLE GASES - Category 1 | Expert judgment |
| GASES UNDER PRESSURE - Liquefied gas | Expert judgment |
| ACUTE TOXICITY (inhalation) - Category 2 | On basis of test data |
| SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 | Expert judgment |
| AQUATIC HAZARD (ACUTE) - Category 1 | Expert judgment |

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**Key to abbreviations** : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

**References** : Not available.

**Notice to reader**

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**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.**