

ALFAAA14475

## Hydrogen bromide, 33% w/w solution in acetic acid

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: 氢溴酸  
Product Description: Hydrogen bromide, 33% w/w solution in acetic acid

Cat No. : A14475

Supplier Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
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Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.  
Uses advised against No Information available

### SECTION 2. HAZARD IDENTIFICATION

Physical State  
Liquid

Appearance  
Yellow

Odor  
pungent

#### Emergency Overview

Highly flammable liquid and vapor. Causes severe skin burns and eye damage. May cause respiratory irritation.

#### Classification of the substance or mixture

|                                                    |              |
|----------------------------------------------------|--------------|
| Flammable liquids.                                 | Category 3   |
| Skin Corrosion/Irritation                          | Category 1 A |
| Serious Eye Damage/Eye Irritation                  | Category 1   |
| Specific target organ toxicity - (single exposure) | Category 3   |

#### Label Elements



Signal Word

Danger

Hazard Statements

## Hydrogen bromide, 33% w/w solution in acetic acid

H226 - Flammable liquid and vapor  
 H314 - Causes severe skin burns and eye damage  
 H335 - May cause respiratory irritation

**Precautionary Statements****Prevention**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P243 - Take action to prevent static discharges  
 P240 - Ground and bond container and receiving equipment  
 P242 - Use non-sparking tools  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P310 - Immediately call a POISON CENTER or doctor  
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish  
 P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P362 + P364 - Take off contaminated clothing and wash it before reuse

**Storage**

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**

Highly flammable. Vapors may cause flash fire or explosion.

**Health Hazards**

Corrosive. Causes skin and eye burns. May cause respiratory irritation.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. . The product is water soluble, and may spread in water systems.

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Component        | CAS No     | Weight % |
|------------------|------------|----------|
| Acetic acid      | 64-19-7    | 67       |
| Hydrogen bromide | 10035-10-6 | 33       |

**Note**

Acetic acid, mixture with hydrobromic acid, CAS# 37348-16-6

**SECTION 4. FIRST AID MEASURES****General Advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

**Inhalation**

If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from

exposure, lie down. Call a physician immediately.

**Ingestion**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

**Most important symptoms and effects**

Causes burns by all exposure routes. . Difficulty in breathing. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe mist/vapors/spray. Keep away from

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open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

**Storage**

Corrosives area. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. Store indoors.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters**

| Component        | China                                                   | Taiwan                                   | Thailand    | Hong Kong                                                                              |
|------------------|---------------------------------------------------------|------------------------------------------|-------------|----------------------------------------------------------------------------------------|
| Acetic acid      | TWA: 10 mg/m <sup>3</sup><br>STEL: 20 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 25 mg/m <sup>3</sup> | TWA: 10 ppm | TWA: 10 ppm<br>TWA: 25 mg/m <sup>3</sup><br>STEL: 15 ppm<br>STEL: 37 mg/m <sup>3</sup> |
| Hydrogen bromide | Ceiling: 10 mg/m <sup>3</sup>                           | -                                        | TWA: 3 ppm  | Ceiling: 3 ppm<br>Ceiling: 9.9 mg/m <sup>3</sup>                                       |

| Component        | ACGIH TLV                   | OSHA PEL                                                                                                       | NIOSH                                                                                                  | The United Kingdom                                                                     | European Union                                                                                                   |
|------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Acetic acid      | TWA: 10 ppm<br>STEL: 15 ppm | (Vacated) TWA: 10 ppm<br>(Vacated) TWA: 25 mg/m <sup>3</sup><br>TWA: 10 ppm<br>TWA: 25 mg/m <sup>3</sup>       | IDLH: 50 ppm<br>TWA: 10 ppm<br>TWA: 25 mg/m <sup>3</sup><br>STEL: 15 ppm<br>STEL: 37 mg/m <sup>3</sup> | STEL: 37 mg/m <sup>3</sup><br>STEL: 15 ppm<br>TWA: 10 ppm<br>TWA: 25 mg/m <sup>3</sup> | TWA: 25 mg/m <sup>3</sup> (8h)<br>TWA: 10 ppm (8h)<br>STEL: 50 mg/m <sup>3</sup> (15min)<br>STEL: 20 ppm (15min) |
| Hydrogen bromide | Ceiling: 2 ppm              | (Vacated) Ceiling: 3 ppm<br>(Vacated) Ceiling: 10 mg/m <sup>3</sup><br>TWA: 3 ppm<br>TWA: 10 mg/m <sup>3</sup> | IDLH: 30 ppm<br>Ceiling: 3 ppm<br>Ceiling: 10 mg/m <sup>3</sup>                                        | STEL: 3 ppm 15 min<br>STEL: 10 mg/m <sup>3</sup> 15 min                                | STEL: 2 ppm (15min)<br>STEL: 6.7 mg/m <sup>3</sup> (15min)                                                       |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Exposure Controls****Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment**

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

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| Glove material | Breakthrough time                 | Glove thickness | EU standard | Glove comments        |
|----------------|-----------------------------------|-----------------|-------------|-----------------------|
| Butyl rubber   | See manufacturers recommendations | -               | EN 374      | (minimum requirement) |
| Natural rubber |                                   |                 |             |                       |
| Nitrile rubber |                                   |                 |             |                       |
| Neoprene       |                                   |                 |             |                       |
| PVC            |                                   |                 |             |                       |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use**

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Acid gases filter Type E Yellow conforming to EN14387

**Small scale/Laboratory use**

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

Prevent product from entering drains.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                |                                               |                                          |
|------------------------------------------------|-----------------------------------------------|------------------------------------------|
| <b>Appearance</b>                              | Yellow                                        |                                          |
| <b>Physical State</b>                          | Liquid                                        |                                          |
| <b>Odor</b>                                    | pungent                                       |                                          |
| <b>Odor Threshold</b>                          | No data available                             |                                          |
| <b>pH</b>                                      | < 1                                           |                                          |
| <b>Melting Point/Range</b>                     | No data available                             |                                          |
| <b>Softening Point</b>                         | No data available                             |                                          |
| <b>Boiling Point/Range</b>                     | No information available                      |                                          |
| <b>Flash Point</b>                             | 39 °C / 102.2 °F                              | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>                        | No data available                             |                                          |
| <b>Flammability (solid,gas)</b>                | Not applicable                                | Liquid                                   |
| <b>Explosion Limits</b>                        | <b>Lower</b> 5.4 vol%<br><b>Upper</b> 16 vol% |                                          |
| <b>Vapor Pressure</b>                          | 300 mmHg @ 20°C                               |                                          |
| <b>Vapor Density</b>                           | No data available                             | (Air = 1.0)                              |
| <b>Specific Gravity / Density</b>              | 1.420                                         |                                          |
| <b>Bulk Density</b>                            | Not applicable                                | Liquid                                   |
| <b>Water Solubility</b>                        | Miscible                                      |                                          |
| <b>Solubility in other solvents</b>            | No information available                      |                                          |
| <b>Partition Coefficient (n-octanol/water)</b> |                                               |                                          |
| <b>Component</b>                               | <b>log Pow</b>                                |                                          |
| Acetic acid                                    | -0.2                                          |                                          |

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|                           |                          |                                        |
|---------------------------|--------------------------|----------------------------------------|
| Autoignition Temperature  | 427 - °C / 800.6 - °F    |                                        |
| Decomposition Temperature | No data available        |                                        |
| Viscosity                 | No data available        |                                        |
| Explosive Properties      |                          | explosive air/vapour mixtures possible |
| Oxidizing Properties      | No information available |                                        |

## SECTION 10. STABILITY AND REACTIVITY

|                                  |                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Stability                        | Stable under normal conditions.                                                                                                    |
| Hazardous Reactions              | None under normal processing.                                                                                                      |
| Hazardous Polymerization         | Hazardous polymerization does not occur.                                                                                           |
| Conditions to Avoid              | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.                              |
| Materials to avoid               | Strong oxidizing agents.                                                                                                           |
| Hazardous Decomposition Products | Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). Thermal decomposition can lead to release of irritating gases and vapors. |

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

(a) acute toxicity;  
Toxicology data for the components

| Component        | LD50 Oral          | LD50 Dermal | LC50 Inhalation             |
|------------------|--------------------|-------------|-----------------------------|
| Acetic acid      | 3310 mg/kg ( Rat ) | -           | > 40 mg/L ( Rat ) 4 h       |
| Hydrogen bromide |                    |             | LC50 = 2858 ppm ( Rat ) 1 h |

|                                        |                                                           |
|----------------------------------------|-----------------------------------------------------------|
| (b) skin corrosion/irritation;         | Category 1 A                                              |
| (c) serious eye damage/irritation;     | Category 1                                                |
| (d) respiratory or skin sensitization; |                                                           |
| Respiratory                            | No data available                                         |
| Skin                                   | No data available                                         |
| (e) germ cell mutagenicity;            | No data available                                         |
| (f) carcinogenicity;                   | No data available                                         |
|                                        | There are no known carcinogenic chemicals in this product |
| (g) reproductive toxicity;             | No data available                                         |
| (h) STOT-single exposure;              | Category 3                                                |
| Results / Target organs                | Respiratory system                                        |

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(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity effects** Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

| Component   | Freshwater Fish                                                                          | Water Flea         | Freshwater Algae | Microtox                                                                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------|--------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acetic acid | Pimephales promelas:<br>LC50 = 88 mg/L/96h<br>Lepomis macrochirus:<br>LC50 = 75 mg/L/96h | EC50 = 95 mg/L/24h | -                | Photobacterium<br>phosphoreum: EC50 =<br>8.8 mg/L/15 min<br>Photobacterium<br>phosphoreum: EC50 =<br>8.8 mg/L/25 min<br>Photobacterium<br>phosphoreum: EC50 =<br>8.8 mg/L/5 min |

**Persistence and Degradability** No information available

**Bioaccumulative Potential** Bioaccumulation is unlikely

| Component   | log Pow | Bioconcentration factor (BCF) |
|-------------|---------|-------------------------------|
| Acetic acid | -0.2    | No data available             |

**Mobility in soil** The product is water soluble, and may spread in water systems

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13. DISPOSAL CONSIDERATIONS

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

## SECTION 14. TRANSPORT INFORMATION

## Hydrogen bromide, 33% w/w solution in acetic acid

**Road and Rail Transport**

UN-No UN2920  
 Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
 Technical Shipping Name Acetic acid, Hydrogen bromide  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

**IMDG/IMO**

UN-No UN2920  
 Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
 Technical Shipping Name Acetic acid, Hydrogen bromide  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

**IATA**

UN-No UN2920  
 Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
 Technical Shipping Name Acetic acid, Hydrogen bromide  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

Special Precautions for User No special precautions required

**SECTION 15. REGULATORY INFORMATION****International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component        | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL     |
|------------------|-----------------------------------------------------|-----------------------------------------|------|-------|-----------|------|-----|-------|------|------|------|----------|
| Acetic acid      | X                                                   | X                                       | X    | X     | 200-580-7 | X    | X   | X     | X    | X    | X    | X        |
| Hydrogen bromide | X                                                   | X                                       | X    | X     | 233-113-0 | X    | X   | X     | X    | X    | X    | KE-20187 |

**Note** Acetic acid, mixture with hydrobromic acid, CAS# 37348-16-6

**National Regulations****SECTION 16. OTHER INFORMATION**

Prepared By Health, Safety and Environmental Department  
 Creation Date 22-Apr-2010  
 Revision Date 08-May-2024  
 Revision Summary New emergency telephone response service provider.

**Training Advice**



**Hydrogen bromide, 33% w/w solution in acetic acid**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Legend**

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Physical hazards**

On basis of test data

**Health Hazards**

Calculation method

**Environmental hazards**

Calculation method

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**