

## MATERIAL SAFETY DATA SHEET

### 1. Identification

1.1 GHS Product identifier  
Hydrobromic acid, 48%  
Code H 1505

### 2. Hazard identification

2.1 Classification of the substance or mixture  
Gases under pressure: Compressed gas  
Skin corrosion, Category 1A  
Specific target organ toxicity (single exposure), Category 3  
2.2 GHS label elements, including precautionary statements

#### Pictogram(s)



#### Signal word

Danger

#### Hazard statement(s)

H314 Causes severe skin burns and eye damage  
H335 May cause respiratory irritation

#### Precautionary statement(s)

##### Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash ... thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.

##### Response

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].  
P363 Wash contaminated clothing before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P310 Immediately call a POISON CENTER/doctor.  
P321 Specific treatment (see ... on this label).  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 Call a POISON CENTER/doctor if you feel unwell.

##### Storage

P410+P403 Protect from sunlight. Store in a well-ventilated place.  
P405 Store locked up.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

##### Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

### 3. Composition/information on ingredients

#### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
hydrogen bromide	hydrogen bromide	10035-10-6	none	100%

### 4. First-aid measures

#### 4.1 Description of necessary first-aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

#### In case of skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .

#### In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

Inhalation causes severe irritation of nose and upper respiratory tract, lung injury. Ingestion causes burns of mouth and stomach.

Contact with eyes causes severe irritation and burns. Contact with skin causes irritation and burns. (USCG, 1999)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. ... . Cover skin burns with dry sterile dressings after decontamination ... . /Bromine, methyl bromide, and related compounds/

#### 5. Fire-fighting measures

##### 5.1 Extinguishing media

##### Suitable extinguishing media

Extinguish fire using agent suitable for surrounding fire. Use flooding quantities of water. Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapors. /Hydrobromic acid solution/

##### 5.2 Specific hazards arising from the chemical

Behavior in Fire: Pressurized container may explode and release toxic, irritating vapor. (USCG, 1999)

##### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 6. Accidental release measures

##### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

##### 6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid. Remove gas with fine water spray.

##### 6.3 Methods and materials for containment and cleaning up

1) VENTILATE AREA OF LEAK TO DISPERSE GAS. 2) IF IN GASEOUS FORM, STOP FLOW OF GAS. IF SOURCE OF LEAK IS A CYLINDER & LEAK CANNOT BE STOPPED IN PLACE, REMOVE LEAKING CYLINDER TO A SAFE PLACE IN OPEN AIR, & REPAIR LEAK OR ALLOW CYLINDER TO EMPTY. 3) IF IN LIQUID FORM, ALLOW TO VAPORIZE & DISPERSE THE GAS.

#### 7. Handling and storage

##### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

##### 7.2 Conditions for safe storage, including any incompatibilities

Separated from incompatible materials. See Chemical Dangers. Cool. Dry. Ventilation along the floor. Store in a cool, dry, well-ventilated location. Separate from alkalis, oxidizing materials, amines, halogens, and metals. /Hydrobromic acid solution/

#### 8. Exposure controls/personal protection

##### 8.1 Control parameters

##### Occupational Exposure limit values

Recommended Exposure Limit: Ceiling Value: 3 ppm (10 mg/cu m).

##### Biological limit values

no data available

##### 8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

##### 8.3 Individual protection measures, such as personal protective equipment (PPE)

##### Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Respiratory protection

Wear dust mask when handling large quantities.

##### Thermal hazards

no data available

## 9. Physical and chemical properties

<b>Physical state</b>	colourless gas with a pungent, suffocating odour
<b>Colour</b>	Colorless gas
<b>Odour</b>	Sharp, irritating odor
<b>Melting point/ freezing point</b>	-15\u00b0C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	?67\u00b0C(lit.)
<b>Flammability</b>	Nonflammable GasNot combustible. Heating will cause rise in pressure with risk of bursting. no data available
<b>Lower and upper explosion limit / flammability limit</b>	
<b>Flash point</b>	65\u00b0C(lit.)
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	Aqueous solutions are strongly acidic
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	In water:soluble
<b>Partition coefficient n-octanol/water (log value)</b>	no data available
<b>Vapour pressure</b>	334.7 psi ( 21 \u00b0C)
<b>Density and/or relative density</b>	1.45g/mLat 20\u00b0C
<b>Relative vapour density</b>	2.8 (vs air)
<b>Particle characteristics</b>	no data available

## 10. Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Yellow color slowly darkens on exposure to air and light.

### 10.3 Possibility of hazardous reactions

The gas is heavier than air. HYDROGEN BROMIDE is an anhydrous (no water) strong acid. Reacts rapidly and exothermically with bases of all kinds (including amines and amides). Reacts exothermically with carbonates (including limestone and building materials containing limestone) and hydrogen carbonates to generate carbon dioxide. Reacts with sulfides, carbides, borides, and phosphides to generate toxic or flammable gases. Reacts with many metals (including aluminum, zinc, calcium, magnesium, iron, tin and all of the alkali metals) to generate flammable hydrogen gas. Reacts violently with acetic anhydride, 2-aminoethanol, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, 1,1-difluoroethylene, ethylenediamine, ethyleneimine, oleum, perchloric acid, b-propiolactone, propylene oxide, silver perchlorate/carbon tetrachloride mixture, sodium hydroxide, uranium(IV) phosphide, vinyl acetate, calcium carbide, rubidium carbide, cesium acetylide, rubidium acetylide, magnesium boride, mercury(II) sulfate, calcium phosphide, calcium carbide.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

The aqueous solution is a strong acid. Violent reaction with strong oxidizers, strong caustics, and many organic compounds causing fire and explosion hazard. Reacts with water forming hydrobromic acid. Incompatible with aliphatic amines, alkanolamines, alkylene oxides, aromatic amines, amides, ammonia, ammonium hydroxide, calcium oxide, epichlorohydrin, fluorine, isocyanates, oleum, organic anhydrides, sulfuric acid, sodium tetrahydroborate, vinyl acetate. Hydrobromic acid is highly corrosive to most metals forming flammable hydrogen.

### 10.6 Hazardous decomposition products

When heated to decomposition ... it emits toxic and corrosive fumes of /hydrogen bromide/.

## 11. Toxicological information

### Acute toxicity

Oral: no data available

Inhalation: LC50 Rat inhalation 2858 ppm/1 hr

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available  
 Reproductive toxicity  
 no data available  
 STOT-single exposure  
 no data available  
 STOT-repeated exposure  
 no data available  
 Aspiration hazard  
 no data available  
 12. Ecological information  
 12.1 Toxicity  
 Toxicity to fish: no data available  
 Toxicity to daphnia and other aquatic invertebrates: no data available  
 Toxicity to algae: no data available  
 Toxicity to microorganisms: no data available  
 12.2 Persistence and degradability  
 no data available  
 12.3 Bioaccumulative potential  
 no data available  
 12.4 Mobility in soil  
 no data available  
 12.5 Other adverse effects  
 no data available  
 13. Disposal considerations  
 13.1 Disposal methods

**Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

**14. Transport information**

**14.1 UN Number**

ADR/RID: UN1788                      IMDG: UN1788                      IATA: UN1788

**14.2 UN Proper Shipping Name**

ADR/RID: HYDROBROMIC ACID

IMDG: HYDROBROMIC ACID

IATA: HYDROBROMIC ACID

**14.3 Transport hazard class(es)**

ADR/RID: 8                              IMDG: 8                              IATA: 8

**14.4 Packing group, if applicable**

ADR/RID: II                              IMDG: II                              IATA: II

**14.5 Environmental hazards**

ADR/RID: no                              IMDG: no                              IATA: no

**14.6 Special precautions for user**

no data available

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

no data available

**15. Regulatory information**

**15.1 Safety, health and environmental regulations specific for the product in question**

Chemical name	Common names and synonyms	CAS number	EC number
hydrogen bromide	hydrogen bromide	10035-10-6	none
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Not Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.

**16. OTHER INFORMATION**

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based

on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product.