

Creation Date 02-Sep-2010

Revision Date 18-Oct-2023

Revision Number 9

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Hydrobromic acid 48%
Cat No. : H/0900/PB08, H/0900/PB17, H/0900/27
Synonyms Hydrogen bromide in aqueous solution.
Molecular Formula H Br
REACH registration number -

Unique Formula Identifier (UFI) T6RC-QUH4-UW0U-N1UR

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category PC21 - Laboratory chemicals
Process categories PROC15 - Use as a laboratory reagent
Environmental release category ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

EU entity/business name

Thermo Fisher Scientific
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

UK entity/business name

Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

Swiss distributor - Fisher Scientific AG

Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
e-mail - infoch@thermofisher.com

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

For customers in Switzerland:

Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

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Poison Centre - Emergency
information services

Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Substances/mixtures corrosive to metal

Category 1 (H290)

Health hazards

Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Specific target organ toxicity - (single exposure)

Category 1 B (H314)
Category 1 (H318)
Category 3 (H335)

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection
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
P310 - Immediately call a POISON CENTER or doctor/physician

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2.3. Other hazards

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

| Component | CAS No | EC No | Weight % | CLP Classification - Regulation (EC) No 1272/2008 |
|------------------|------------|-------------------|----------|--|
| Hydrobromic acid | 10035-10-6 | EEC No. 233-113-0 | 48 | Met. Corr. 1 (H290) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335) |
| Water | 7732-18-5 | 231-791-2 | 52 | - |

| Component | Specific concentration limits (SCL's) | M-Factor | Component notes |
|------------------|---|----------|-----------------|
| Hydrobromic acid | Eye Irrit. 2 (H319) :: 10%≤C<40% Skin Corr. 1B (H314) :: C≥40% Skin Irrit. 2 (H315) :: 10≤C<40% STOT SE 3 (H335) :: C≥10% | - | - |

| REACH registration number | | - |
|---------------------------|---------------------------|---|
| Components | Reach Registration Number | |
| Hydrogen bromide | 01-2119479072-39 | |

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|---|--|
| General Advice | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. |
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. |
| 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. |
| Ingestion | Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. |
| Inhalation | If not breathing, give artificial respiration. Remove from exposure, lie down. 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. Call a physician immediately. |
| 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. |

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4.2. Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. 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

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Halogenated compounds, Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice 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

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

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

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

Technical Rules for Hazardous Substances (TRGS) 510

Storage Class/LGK 8B

Storage Class (LGK) (Germany)

Switzerland - Storage of hazardous substances

(Acid)

<https://www.kvu.ch/de/themen/stoffe-und-produkte>

<https://www.kvu.ch/fr/themes/substances-et-produits>

<https://www.kvu.ch/it/temi/sostanze-e-prodotti> Storage class - SC 8

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

| Component | European Union | The United Kingdom | France | Belgium | Spain |
|------------------|--|---|--|--|--|
| Hydrobromic acid | STEL: 2 ppm (15min) STEL: 6.7 mg/m ³ (15min) | STEL: 3 ppm 15 min STEL: 10 mg/m ³ 15 min | STEL / VLCT: 2 ppm. indicative limit STEL / VLCT: 6.7 mg/m ³ . indicative limit | STEL: 2 ppm 15 minuten STEL: 6.7 mg/m ³ 15 minuten | STEL / VLA-EC: 2 ppm (15 minutos). STEL / VLA-EC: 7 mg/m ³ (15 minutos). |

| Component | Italy | Germany | Portugal | The Netherlands | Finland |
|------------------|---|---|--|--|--|
| Hydrobromic acid | STEL: 2 ppm 15 minuti. Short-term STEL: 6.7 mg/m ³ 15 minuti. Short-term | TWA: 6.7 mg/m ³ (8 Stunden). AGW - exposure factor 1 TWA: 2 ppm (8 Stunden). MAK TWA: 6.7 mg/m ³ (8 Stunden). MAK Höhepunkt: 2 ppm Höhepunkt: 6.7 mg/m ³ | STEL: 2 ppm 15 minutos STEL: 6.7 mg/m ³ 15 minutos Ceiling: 2 ppm | STEL: 6.7 mg/m ³ 15 minuten | STEL: 2 ppm 15 minuutteina STEL: 6.7 mg/m ³ 15 minuutteina |

| Component | Austria | Denmark | Switzerland | Poland | Norway |
|------------------|--|--|--|--------------------------------|--|
| Hydrobromic acid | MAK-KZGW: 2 ppm 15 Minuten MAK-KZGW: 6.7 mg/m ³ 15 Minuten MAK-TMW: 2 ppm 8 Stunden MAK-TMW: 6.7 mg/m ³ 8 Stunden | STEL: 2 ppm 15 minutter STEL: 6.7 mg/m ³ 15 minutter | STEL: 2 ppm 15 Minuten STEL: 6.7 mg/m ³ 15 Minuten TWA: 2 ppm 8 Stunden TWA: 6.7 mg/m ³ 8 Stunden | ceiling: 6.5 mg/m ³ | STEL: 2 ppm 15 minutter. value from the regulation;this value is also ceiling value STEL: 7 mg/m ³ 15 minutter. value from the regulation;this value is also ceiling value |

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| | Ceiling: 2 ppm Ceiling: 6.7 mg/m ³ | | | | Ceiling: 2 ppm Ceiling: 7 mg/m ³ |
|------------------|--|--|--|--|--|
| Component | Bulgaria | Croatia | Ireland | Cyprus | Czech Republic |
| Hydrobromic acid | STEL : 2 ppm STEL : 6.7 mg/m ³ | STEL-KGVI: 2 ppm 15 minutama. STEL-KGVI: 6.7 mg/m ³ 15 minutama. | STEL: 6.6 mg/m ³ 15 min STEL: 2 ppm 15 min | STEL: 2 ppm STEL: 6.7 mg/m ³ | TWA: 1 mg/m ³ 8 hodinách. Ceiling: 6 mg/m ³ |
| Component | Estonia | Gibraltar | Greece | Hungary | Iceland |
| Hydrobromic acid | STEL: 2 ppm 15 minutites. STEL: 6.7 mg/m ³ 15 minutites. | STEL: 2 ppm 15 min STEL: 6.7 mg/m ³ 15 min | STEL: 3 ppm STEL: 10 mg/m ³ TWA: 3 ppm TWA: 10 mg/m ³ | STEL: 6.7 mg/m ³ 15 percekben. CK | STEL: 2 ppm STEL: 6.7 mg/m ³ |
| Component | Latvia | Lithuania | Luxembourg | Malta | Romania |
| Hydrobromic acid | STEL: 2 ppm STEL: 6.7 mg/m ³ | Oda STEL: 2 ppm STEL: 6.7 mg/m ³ | STEL: 6.7 mg/m ³ 15 Minuten STEL: 2 ppm 15 Minuten | STEL: 2 ppm 15 minuti STEL: 6.7 mg/m ³ 15 minuti | STEL: 2 ppm 15 minute STEL: 6.7 mg/m ³ 15 minute |
| Component | Russia | Slovak Republic | Slovenia | Sweden | Turkey |
| Hydrobromic acid | MAC: 2 mg/m ³ | Ceiling: 6.7 mg/m ³ | TWA: 2 ppm 8 urah TWA: 6.7 mg/m ³ 8 urah STEL: 2 ppm 15 minutah STEL: 6.7 mg/m ³ 15 minutah | Binding STEL: 2 ppm 15 minuter Binding STEL: 7 mg/m ³ 15 minuter TLV: 1 ppm 8 timmar. NGV TLV: 3.5 mg/m ³ 8 timmar. NGV | STEL: 2 ppm 15 dakika STEL: 6.7 mg/m ³ 15 dakika |

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

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.

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|---------------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------------------|
| Hydrobromic acid 10035-10-6 (48) | DNEL = 6.7mg/m ³ | DNEL = 6.7mg/m ³ | DNEL = 6.7mg/m ³ | DNEL = 6.7mg/m ³ |

Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|---------------------------------------|------------------|----------------------|--------------------|------------------------------------|--------------------|
| Hydrobromic acid 10035-10-6 (48) | PNEC = 0.019mg/L | | | | |

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8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. 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

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

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, 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. gloves with care avoiding skin contamination.

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: Particulates filter conforming to EN 143 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

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | |
|---------------------------------|---------------------------------|--|
| Physical State | Liquid | |
| Appearance | Clear to yellow | |
| Odor | pungent | |
| Odor Threshold | No data available | |
| Melting Point/Range | -11 °C / 12.2 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 126 - 128 °C / 258.8 - 262.4 °F | @ 760 mmHg |
| Flammability (liquid) | No data available | |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | No data available | |
| Flash Point | No information available | Method - No information available |
| Autoignition Temperature | No data available | |

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| | | |
|---|--------------------------|-------------|
| Decomposition Temperature | No data available | |
| pH | < 1 | |
| Viscosity | No data available | |
| Water Solubility | Soluble | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Vapor Pressure | 8 mm Hg @ 25 °C | |
| Density / Specific Gravity | 1.480 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 2.8 | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |

9.2. Other information

| | |
|-------------------|------|
| Molecular Formula | H Br |
| Molecular Weight | 80.9 |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Light sensitive. Air sensitive.

10.3. Possibility of hazardous reactions

| | |
|--------------------------|--|
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

10.4. Conditions to avoid

Incompatible products. Excess heat. Exposure to air. Exposure to light.

10.5. Incompatible materials

Strong oxidizing agents. Metals.

10.6. Hazardous decomposition products

Halogenated compounds. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

| | |
|------------|--|
| Oral | No data available |
| Dermal | No data available |
| Inhalation | Based on available data, the classification criteria are not met |

Toxicology data for the components

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------|-----------|-------------|-----------------------------|
| Hydrobromic acid | - | - | LC50 = 2858 ppm (Rat) 1 h |
| Water | - | - | - |

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(b) skin corrosion/irritation; Category 1 B

(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.

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Based on available data, the classification criteria are not met

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.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|------------------|-----------------------|--------------------|---------------------|
| Hydrobromic acid | LC50 = 65.04 mg/L 96h | EC50 = 19 mg/L 48h | EC50 = 130 mg/L 72h |

12.2. Persistence and degradability

Persistence Soluble in water, Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

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12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance

This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

Switzerland - Waste Ordinance

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number

UN1788

14.2. UN proper shipping name

HYDROBROMIC ACID

14.3. Transport hazard class(es)

8

14.4. Packing group

II

ADR

14.1. UN number

UN1788

14.2. UN proper shipping name

HYDROBROMIC ACID

14.3. Transport hazard class(es)

8

14.4. Packing group

II

IATA

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| | |
|---|------------------|
| 14.1. UN number | UN1788 |
| 14.2. UN proper shipping name | HYDROBROMIC ACID |
| 14.3. Transport hazard class(es) | 8 |
| 14.4. Packing group | II |

| | |
|--|----------------------------------|
| 14.5. Environmental hazards | No hazards identified |
| 14.6. Special precautions for user | No special precautions required. |
| 14.7. Maritime transport in bulk according to IMO instruments | Not applicable, packaged goods |

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|------------------|------------|-----------|--------|-----|-------|------|----------|------|------|
| Hydrobromic acid | 10035-10-6 | 233-113-0 | - | - | X | X | KE-20187 | X | X |
| Water | 7732-18-5 | 231-791-2 | - | - | X | X | KE-35400 | X | - |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|------------------|------------|------|---|-----|------|------|-------|-------|
| Hydrobromic acid | 10035-10-6 | X | ACTIVE | X | - | X | X | X |
| Water | 7732-18-5 | X | ACTIVE | X | - | X | X | X |

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|------------------|------------|---|---|---|
| Hydrobromic acid | 10035-10-6 | - | Use restricted. See item 75. (see link for restriction details) | - |
| Water | 7732-18-5 | - | - | - |

REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

Seveso III Directive (2012/18/EC)

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|------------------|------------|---|--|
| Hydrobromic acid | 10035-10-6 | Not applicable | Not applicable |
| Water | 7732-18-5 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

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Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 1 (self classification)

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|------------------|---------------------------------------|-------------------------|
| Hydrobromic acid | WGK1 | |

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

| Component | Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81) | Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC) | Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure |
|---------------------------------------|--|---|---|
| Hydrobromic acid 10035-10-6 (48) | Prohibited and Restricted Substances | | |

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H335 - May cause respiratory irritation

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%

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

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Hydrobromic acid 48%

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NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

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

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

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

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

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

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

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (volatile organic compound)

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards On basis of test data

Health Hazards Calculation method

Environmental hazards Calculation method

Training Advice

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.

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Revision Summary SDS sections updated, 1, 3, 11, 12, 15.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

Disclaimer

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End of Safety Data Sheet