

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 13.07.2010

Printing date 13.07.2010

**1 Identification of substance****Product details**

Trade name

**Deuterium bromide, 48% w/w in deuterium oxide**

Stock number:

42408

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification**

Hazard designation:



C Corrosive

Information pertaining to particular dangers for man and environment

R 34 Causes burns.  
R 37 Irritating to respiratory system.

GHS label elements

**Danger**

H314 - Causes severe skin burns and eye damage.

**Warning**

Prevention:

Response:

H335 - May cause respiratory irritation.  
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
 P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
 P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Storage:

Disposal:

**3 Composition/information on ingredients**

Chemical characterization:

Designation: (CAS#)

Deuterium bromide (CAS# 13536-59-9); 48%  
Deuterium oxide (CAS# 7789-20-0); 52%

Identification number(s):

EINECS Number:

236-894-6

**4 First aid measures**

General information

After inhalation

After skin contact

After eye contact

After swallowing

Instantly remove any clothing soiled by the product.  
 Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
 Seek immediate medical advice.  
 Instantly wash with water and soap and rinse thoroughly.  
 Seek immediate medical advice.  
 Rinse opened eye for several minutes under running water. Then consult doctor.  
 Seek immediate medical advice.

**5 Fire fighting measures**

Suitable extinguishing agents

Protective equipment:

Use fire fighting measures that suit the environment.  
 Wear self-contained breathing apparatus.  
 Wear full protective suit.

**6 Accidental release measures**

Person-related safety precautions:

Measures for environmental protection:

Measures for cleaning/collecting:

Additional information:

Wear protective equipment. Keep unprotected persons away.  
 Ensure adequate ventilation  
 Do not allow material to be released to the environment without proper governmental permits.  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 Use neutralizing agent.  
 Dispose of contaminated material as waste according to item 13.  
 Ensure adequate ventilation.  
 See Section 7 for information on safe handling  
 See section 8 for information on personal protection equipment.  
 See Section 13 for information on disposal.

**7 Handling and storage**

Handling

Information for safe handling:

Information about protection against explosions and fires:

Storage

Requirements to be met by storerooms and containers:

Information about storage in one common storage facility:

Further information about storage conditions:

Keep containers tightly sealed.  
 Store in cool, dry place in tightly closed containers.  
 Ensure good ventilation/exhaustion at the workplace.

The product is not flammable

Suitable material for containers and conduit: glass.

Store away from strong bases.  
 Store away from oxidizing agents.  
 Store away from metals.  
 Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Keep container tightly sealed.  
 Store in cool, dry conditions in well sealed containers.  
 Store in a locked cabinet or with access restricted to technical experts or their assistants.

**8 Exposure controls and personal protection**

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

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**Components with critical values that require monitoring at the workplace:**

Hydrogen bromide	
ppm	
ACGIH TLV	2-CEILING
Austria MAK	3
Belgium TWA	2
Denmark TWA	3
Finland TWA	3
Germany MAK	2-STEL
Ireland TWA	3
Netherlands MAC-TGG	2
Norway TWA	3
Poland TWA	7, 21-STEL (mg/m3)
Russia TWA	2-STEL (mg/m3)
Sweden NGV	
Switzerland MAK-W	3; 6-KZG-W
United Kingdom TWA	3-STEL
USA PEL	3

**Components with critical values that require monitoring at the workplace:****Additional information:**

No data

**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.

**Breathing equipment:****Eye protection:**

Avoid contact with the eyes and skin.  
Use breathing protection with high concentrations.

Safety glasses  
Tightly sealed safety glasses.

Full face protection  
Face protection

**Body protection:**

Protective work clothing.

**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Solution
<b>Colour:</b>	Clear
<b>Smell:</b>	Acidic

**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	126°C
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:**

Not applicable  
Not determined

**Ignition temperature:**

Not determined

**Decomposition temperature:**

Not determined

**Danger of explosion:**

Product is not explosive.

**Critical values for explosion:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Steam pressure:**

Not determined

**Density at 20°C**1.537 g/cm<sup>3</sup>**Solubility in / Miscibility with**

<b>Water:</b>	Fully miscible
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**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**Materials to be avoided:**

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Metal powders  
Bases  
Aluminum and aluminum alloys.

Oxidizing agents

Ammonia

Reacts with various metals

When diluting, always add acid to water, never vice versa

**Dangerous reactions:**

Hydrogen

Bromine

**Dangerous products of decomposition:****11 Toxicological information****Acute toxicity:****Primary irritant effect: on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant for skin and mucous membranes.

**on the eye:**

Strong corrosive effect.

Irritant effect.

**Sensitization:**

No sensitizing effect known.

**Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**12 Ecological information:****Additional ecological information:****General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

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**13 Disposal considerations**

**Product:**  
**Recommendation** Consult state, local or national regulations for proper disposal.  
Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.

**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.  
**Recommended cleaning agent:** Water, if necessary with cleaning agent.

**14 Transport information****Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

**ADR/RID-GGVS/E Class:** 8 (C1) Corrosive substances.  
**Kemler Number:** 80  
**UN-Number:** 1788  
**Packaging group:** II  
**Label:** 8  
**Designation of goods:** 1788 HYDROBROMIC ACID  
**Limited quantities (LQ):** LQ22  
**Transport category:** 2  
**Tunnel restriction code:** E

**Maritime transport IMDG/GGVSea:**

**IMDG/GGVSea Class:** 8  
**UN Number:** 1788  
**Label:** 8  
**Packaging group:** II  
**Marine pollutant:** No  
**Segregation groups:** Acids  
**Correct technical name:** HYDROBROMIC ACID

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 8  
**UN/ID Number:** 1788  
**Label:** 8  
**Packaging group:** II  
**Correct technical name:** HYDROBROMIC ACID

**UN "Model Regulation":** UN1788, HYDROBROMIC ACID, 8, II

**15 Regulatory information****Designation according to EC guidelines:**

**Code letter and hazard designation of product:**



C Corrosive

**Risk phrases:** 34 Causes burns.  
37 Irritating to respiratory system.

**Safety phrases:** 7/9 Keep container tightly closed and in a well-ventilated place.  
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**National regulations**

**Information about limitation of use:** For use only by technically qualified individuals.  
Employment restrictions concerning young persons must be observed.

**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

**Abbreviations and acronyms:** ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)