

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/19/2007

Reviewed on 02/06/2007

1 Identification of substance:**Product details:****Product name:** Deuteriosulfuric acid, 96-98% in D2O**Stock number:** 87857**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.
 After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Deuteriosulfuric acid (CAS# 13813-19-9), 96-98%
 Deuterium oxide (CAS# 7789-20-0), 2-4%

Identification number(s):**EINECS Number:** 237-464-0**3 Hazards identification****Hazard description:**

C Corrosive

Information pertaining to particular dangers for man and environment

R 35 Causes severe burns.

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	3
FIRE	0
REACTIVITY	2

Health (acute effects) = 3

Flammability = 0

Reactivity = 2

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

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If possible, because of the high heat of dilution, quickly wipe residual acid off the skin before starting water wash.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

For safety reasons unsuitable extinguishing agents Water

Special hazards caused by the material, its products of combustion or resulting gases:

Exothermic reaction with water

In case of fire, the following can be released:

Sulfur oxides (SO_x)

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

No special measures required.

Storage**Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility:

Do not store together with alkalies (caustic solutions).

Store away from oxidizing agents.

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Store away from reducing agents.

Store away from water/moisture.

Further information about storage conditions:

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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.

Components with limit values that require monitoring at the workplace:

Sulfuric acid

mg/m³

ACGIH TLV	0.2 (thoracic fraction)
Austria MAK	1
Belgium TWA	1; 3-STEL
Denmark TWA	1
Finland TWA	1; 3-STEL
France VME	1; 3-VLE
Germany MAK	0.1; 0.2-CEILING (inhalable fraction)
Hungary	1-STEL
Japan OEL	1
Korea TLV	0.2 (thoracic fraction)
Netherlands MAC-TGG	1
Norway TWA	1
Poland TWA	1; 3-STEL
Russia	1-STEL (skin)
Sweden NGV	1; 3-TKV
Switzerland MAK-W	1; 2-KZG-W
United Kingdom TWA	1
USA PEL	1

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves**Eye protection:**

Safety glasses

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing.

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9 Physical and chemical properties:

General Information	
Form:	Liquid
Color:	Clear
Odor:	Odorless
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	290°C (554°F)
Sublimation temperature / start:	Not determined
Flash point:	Not applicable Not determined
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68°F):	1.86 g/cm ³
Solubility in / Miscibility with Water:	Fully miscible Exothermic reaction with water

10 Stability and reactivity**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Bases
Oxidizing agents
Reducing agents
Organic materials
Metal powders
Sulfides
Cyanides
Water/moisture

Dangerous reactions Exothermic reaction with water

Dangerous products of decomposition:

Heat
Sulfur oxides (SO_x)

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11 Toxicological information**Acute toxicity:****LD/LC50 values that are relevant for classification:**

Sulfuric acid (CAS# 7664-93-9)

ORAL: LD50: 2140 MG/KG (RAT)

INHALATIVE: LC50/2H: 320 MG/M3/2H (MUS)

INHALATIVE: LC50/2H: 510 MG/M3/2H (RAT)

INHALATIVE: LC50: 18 MG/M3 (GPG)

IRRITATION OF EYES: SEVERE: 250 µG (RBT)

IRRITATION OF EYES: SEVERE: 20 MG/30S (RBT)

Primary irritant effect:**on the skin:**

Strong corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: No sensitizing effects known.**Subacute to chronic toxicity:**

Sulfuric acid is a very corrosive, extremely irritating acid which causes burns and rapid destruction of tissue on contact. Contact with the eyes may cause blindness and inhalation of fumes may cause respiratory tract damage. Very high heat of dilution may add thermal damage to the acid burns. Dilute solutions have a reduced effect and very dilute solutions have almost no corrosive or irritating effects.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus.

May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

Swallowing will lead to a strong corrosive 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:**General notes:**

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

Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations**Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

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Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.**14 Transport information****DOT regulations:**

Hazard class: 8
Identification number: UN1830
Packing group: II
Hazardous substance: 1000 lbs, 454 kg
Proper shipping name (technical name): SULPHURIC ACID
Label: 8

Land transport ADR/RID (cross-border)

ADR/RID class: 8 (C1) Corrosive substances
Danger code (Kemler): 80
UN-Number: 1830
Packaging group: II
Description of goods: 1830 SULPHURIC ACID

15 Regulations**Product related hazard informations:****Hazard symbols:**

C Corrosive

Risk phrases:

35 Causes severe burns.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

30 Never add water to this product.

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

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Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

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 MSDS: Health, Safety and Environmental Department.

Contact: Paul V. Connolly

USA