

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 10/23/2009

Reviewed on 10/22/2009

**1 Identification of substance:****Product details:****Product name:** Sulfuric acid, 95-98%**Stock number:** 33273**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#)**

Sulfuric acid (CAS# 7664-93-9): 95-98%

Water (CAS# 7732-18-5): 2-5%

**Identification number(s):****EINECS Number:** 231-639-5**Index number:** 016-020-00-8**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

**GHS label elements**

Danger

3.2/1A - Causes severe skin burns and eye damage.

**Prevention:**

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see on this label).

Wash contaminated clothing before reuse.

**Storage:**

Store locked up.

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**Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**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.

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 (SOx)

**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.

Store away from reducing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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**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/m <sup>3</sup>
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.

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

<b>Form:</b>	Liquid
<b>Color:</b>	Clear
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	10.36°C (51°F)
<b>Boiling point/Boiling range:</b>	338°C (640°F)
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** Not determined

**Ignition temperature:** Not determined

**Decomposition temperature:** Not determined

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

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

**Vapor pressure at 145°C (293°F):** 1.3 hPa (1 mm Hg)

**Density at 20°C (68°F):** 1.841 g/cm<sup>3</sup>

**Solubility in / Miscibility with Water:**

Exothermic reaction with water

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**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

**Dangerous reactions** Exothermic reaction with water**Dangerous products of decomposition:**

Heat  
 Sulfur oxides (SOx)

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

Oral	LD50	2140 mg/kg (rat)
Inhalative	LC50	18 mg/m3 (guinea pig)
		320 mg/m3 (mouse)
		510 mg/m3 (rat)
	LC50/2H	320 mg/m3/2H (mouse)
		510 mg/m3/2H (rat)
	LC50/8H	18 mg/m3/8H (guinea pig)
	LCLo/30M	65 mg/m3 (guinea pig)
LCLo/7H	461 mg/m3/7H (mouse)	
Irritation of eyes	severe	250 ug (rabbit)

**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:**

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

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

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.

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## 13 Disposal considerations

**Product:**

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

**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

**Maritime transport IMDG:**

**IMDG Class:** 8  
**UN Number:** 1830  
**Label:** 8  
**Packaging group:** II  
**Marine pollutant:** No  
**Proper shipping name:** SULPHURIC ACID

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

**ICAO/IATA Class:** 8  
**UN/ID Number:** 1830  
**Label:** 8  
**Packaging group:** II  
**Proper shipping name:** SULPHURIC ACID

UN "Model Regulation": UN1830, SULPHURIC ACID, 8, II

## 15 Regulations

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

C Corrosive

**Risk phrases:**

35 Causes severe burns.

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**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).

**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:** 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

DOT: US Department of Transportation

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)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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