

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 07/13/2009

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Hydrofluoric acid, 48-51%**Stock number:** 33258**CAS Number:**

7664-39-3

EINECS Number:

231-634-8

Index number:

009-003-00-1

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS06 Skull and crossbones

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H330 Fatal if inhaled.



GHS05 Corrosion

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T+; Very toxic

R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.



C; Corrosive

R35: Causes severe burns.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T+ Very toxic

Risk phrases:

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

35 Causes severe burns.

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.

36/37 Wear suitable protective clothing and gloves.

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

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Hazard description:
WHMIS classification



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

HEALTH	4
FIRE	0
REACTIVITY	1

Health (acute effects) = 4
Flammability = 0
Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Hydrogen fluoride (CAS# 7664-39-3), 48-51%

Water (CAS# 7732-18-5), 49-52%

Identification number(s):**EINECS Number:** 231-634-8**Index number:** 009-003-00-1**4 First aid measures****Description of first aid measures****General information**

Special First Aid training required.

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

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.

Rub in calcium gluconate solution or calcium gluconate gel immediately.

Seek immediate medical advice.

After eye contact

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

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**

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

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Hydrogen fluoride (HF)

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

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Environmental precautions:

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

Methods and material for containment and cleaning up:

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.

Reference to other sections

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****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: No special measures required.**Conditions for safe storage, including any incompatibilities****Storage****Requirements to be met by storerooms and receptacles:**

Unsuitable material for container: ceramic, glass

Provide acid-resistant floor.

Information about storage in one common storage facility:

Store away from metals.

Do not store together with alkalis (caustic solutions).

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls/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.

Control parameters**Components with limit values that require monitoring at the workplace:**

Hydrogen fluoride (as F)

ppm

ACGIH TLV	3-Ceiling
Austria MAK	3
Belgium	3-STEL
Denmark TWA	2
Finland	3-Ceiling (skin)
France	3-VLE
Germany MAK	3
Hungary TWA	0.5 mg/m ³ ; 1 mg/m ³ -STEL
Japan OEL	3
Korea TLV	3-Ceiling
Netherlands	3.3-MAC-K
Norway TWA	0.8
Poland TWA	0.5 mg/m ³ ; 4 mg/m ³ -STEL
Russia TWA	3; 0.5 mg/m ³ -STEL
Sweden	2-Ceiling
Switzerland MAK-W	1.8; 3.6-KZG-W
United Kingdom	3-STEL
USA PEL	3

Additional information: No data**Exposure controls****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.

Store protective clothing separately.

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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****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	Colorless
Odor:	Acrid
Odour threshold:	Not determined.

pH-value:	Not determined.
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Change in condition

Melting point/Melting range:	-36°C (-33 °F)
Boiling point/Boiling range:	108°C (226 °F)
Sublimation temperature / start:	Not determined

Flash point:	Not determined
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Flammability (solid, gaseous)	Product is not flammable.
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Ignition temperature:	Not determined
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Decomposition temperature:	Not determined
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Auto igniting:	Not determined.
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Danger of explosion:	Product does not present an explosion hazard.
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Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure at 20°C (68 °F):	33.25 hPa (25 mm Hg)
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Density at 20°C (68 °F):	1.15-1.18 g/cm ³ (34-9.847 lbs/gal)
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Relative density	Not determined.
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Vapour density	Not determined.
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Evaporation rate	Not determined.
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Segregation coefficient (n-octanol/water):	Not determined.
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Viscosity:

dynamic:	Not determined.
kinematic:	Not determined.

Other information	No further relevant information available.
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10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

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

Possibility of hazardous reactions

Reacts with metals forming hydrogen

Attacks materials containing glass and silicate

Reacts with strong alkali

Incompatible materials:

Alkali metals

Bases

Hazardous decomposition products: Hydrogen fluoride

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

INH-HMN LCLo: 50 ppm/30M (HF)

IHL-RAT LC50: 1276 ppm/1H (HF)

IHL-MUS LC50: 342 ppm/1H (HF)

INH-MKY LC50: 1774 ppm/1H (HF)

INH-GPG LC50: 4327 ppm/15M (HF)

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:**

Hydrofluoric acid is extremely irritating and corrosive. It is destructive of tissues it comes in contact with, either as a vapor or as a liquid. Skin burns caused by hydrofluoric acid may appear to be stable only to get much worse several hours after exposure. Skin contact with hydrofluoric acid has led to industrial fatalities. Dilute solutions have a reduced effect.

Additional toxicological information:

Danger through skin absorption.

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.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

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

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

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

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**14 Transport information****DOT regulations:****Hazard class:**

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Identification number:

UN1790

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Packing group: II
Proper shipping name (technical name): HYDROFLUORIC ACID
Label 8+6.1

Land transport ADR/RID (cross-border)

ADR/RID class: 8 (CT1) Corrosive substances
Danger code (Kemler): 86
UN-Number: 1790
Packaging group: II
UN proper shipping name: 1790 HYDROFLUORIC ACID

Maritime transport IMDG:

IMDG Class: 8
UN Number: 1790
Label 8+6.1
Packaging group: II
EMS Number: F-A,S-B
Marine pollutant: No
Segregation groups Acids
Proper shipping name: HYDROFLUORIC ACID

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 1790
Label 8+6.1
Packaging group: II
Proper shipping name: HYDROFLUORIC ACID

UN "Model Regulation": UN1790, HYDROFLUORIC ACID, 8 (6.1), II

Special precautions for user Warning: Corrosive substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

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

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

T+ Very toxic

Risk phrases:

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

35 Causes severe burns.

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.

36/37 Wear suitable protective clothing and gloves.

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 substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a)(2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721. This product is being sold for research and development use only for the significant new use listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 C. Holt
Global EHS Manager

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)

EINECS: European Inventory of Existing Commercial Chemical Substances

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

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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