

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/19/2007

Reviewed on 02/01/2007

1 Identification of substance:**Product details:****Product name:** Dihydrogen hexafluorosilicate, 23% w/w Aqueous solution**Stock number:** 69109**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#)**

Dihydrogen hexafluorosilicate (CAS# 16961-83-4), 23%
 Silicon (IV) oxide (CAS# 7631-86-9), 0.25%
 Water (CAS# 7732-18-5), 76.75%

Identification number(s):**EINECS Number:** 241-034-8**EU Number:** 009-011-00-5**3 Hazards identification****Hazard description:**

C Corrosive

Information pertaining to particular dangers for man and environment

R 34 Causes burns.

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

HEALTH	3
FIRE	0
REACTIVITY	1

Health (acute effects) = 3

Flammability = 0

Reactivity = 1

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.

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Seek immediate medical advice.

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**CO₂, sand, extinguishing powder. Do not use water.**For safety reasons unsuitable extinguishing agents** Water**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Hydrogen fluoride (HF)

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:**

Unsuitable material for container: ceramic, glass

Information about storage in one common storage facility:

Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

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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:

Silica, crystalline-quartz

mg/m³

ACGIH TLV	0.1
Austria MAK	0.15
Belgium TWA	0.1
Finland TWA	0.2
France VME	10/(X+2)
Germany MAK	0.15
Korea TLV	0.1
Netherlands MAC-TGG	0.075
Norway TWA	0.3 (total dust)
	0.1 (resp. dust)
Russia	14-STEL
Sweden NGV	0.1 (resp. dust)
Switzerland MAK-W	0.15
United Kingdom TWA	0.3 (respirable)
USA PEL	10/(% resp. SiO ₂ +2)
	30/(% SiO ₂ +2) (total dust)

Silica, crystalline-tridymite and cristobalite

mg/m³

ACGIH TLV	0.05 (respirable particulate)
Belgium TWA	0.05
Denmark TWA	0.05
Finland TWA	0.1
France TWA	10
Germany TWA	0.15 (respirable fraction of the aerosol)
Ireland TWA	0.4 (respirable)
Netherlands TWA	0.075 (respirable)
Sweden TWA	0.05
Switzerland TWA	0.15
USA PEL	0.5 (value calculated for quartz-respirable dust)

Silica, crystalline-tripoli

mg/m³

ACGIH TLV	0.1 (of contained respirable quartz)
Belgium TWA	0.1
Germany TWA	0.15 (respirable fraction of the aerosol)
Ireland TWA	0.4 (respirable)
USA PEL	See quartz

Silica, amorphous-diatomaceous earth

mg/m³

ACGIH TLV	10 (inhalable particulate)
	3 (respirable particulate)
Germany TWA	4 (inhalable fraction of the aerosol)
Ireland TWA	1.5
United Kingdom TWA	1.2 (respirable dust)

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USA PEL 20 mppcf

*Silica, amorphous*mg/m³

Ireland TWA 3 (respirable); 6 (total inhalable)

United Kingdom TWA 2.4 (respirable); 6 (total inhalable)

*Silica, amorphous-fused*mg/m³

ACGIH TLV 0.1 (respirable particulate)

Finland TWA 5

Germany TWA 0.3 (respirable fraction of the aerosol)

Ireland TWA 0.1 (respirable)

United Kingdom TWA 0.3 (respirable dust)

*Silica, amorphous-fume*mg/m³

ACGIH TLV 2 (respirable particulate)

Germany TWA 0.3 (respirable fraction of the aerosol)

*Silica, amorphous-precipitated and gel*mg/m³

ACGIH TLV 10 (inhalable particulate)

Germany TWA 4 (inhalable fraction of the aerosol)

USA PEL 20 mppcf

*Fluorides (as F)*mg/m³

ACGIH TLV 2.5

Austria MAK 2.5

Belgium TWA 2.5

Finland TWA 2.5

France TWA 2.5

Germany MAK 2.5

Hungary TWA 1; 2-STEL

Netherlands MAC-K 3.5

Norway TWA 0.6

Poland TWA 1; 3-STEL

Sweden NGV 2

Switzerland MAK-W 1.5; 3-KZG-W

United Kingdom TWA 2.5

Russia TWA 2

Denmark TWA 2.5

USA PEL 2.5

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.

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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**

Form:	Solution
Color:	Colorless
Odor:	Not determined

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	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:**

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not determined**Density at 20°C (68°F):** 1.25-1.30 g/cm³**Solubility in / Miscibility with Water:** Fully miscible**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:

Oxidizing agents

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

Dangerous reactions No dangerous reactions known**Dangerous products of decomposition:** Hydrogen fluoride**11 Toxicological information****Acute toxicity:****Primary irritant effect:****on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

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on the eye:*Strong corrosive effect.**Irritating effect.***Sensitization:** *No sensitizing effects known.***Subacute to chronic toxicity:***Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.***Subacute to chronic toxicity:***Prolonged inhalation of silica may cause silicosis, the formation of adhesions in the lungs progressing to the formation of a continuous mass of fibrous tissue. If the disease continues, death may occur. Tuberculosis is often found in people with silicosis. Some forms of silica are more fibrogenic than others. Some forms of crystalline silica have shown carcinogenic, tumorigenic and neoplastic effects in laboratory animals. Amorphous silica is less harmful by inhalation than crystalline forms. Amorphous silica may, however, contain small amounts of crystalline silica.**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.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agent:** *Water, if necessary with cleansing agents.*

USA

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14 Transport information

DOT regulations:



Hazard class: 8
Identification number: UN1778
Packing group: II
Proper shipping name (technical name): FLUOROSILICIC ACID
Label: 8

Land transport ADR/RID (cross-border)



ADR/RID class: 8 (C1) Corrosive substances
Danger code (Kemler): 80
UN-Number: 1778
Packaging group: II
Description of goods: 1778 FLUOROSILICIC ACID

Maritime transport IMDG:



IMDG Class: 8
UN Number: 1778
Label: 8
Packaging group: II
Proper shipping name: FLUOROSILICIC ACID

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 8
UN/ID Number: 1778
Label: 8
Packaging group: II
Proper shipping name: FLUOROSILICIC ACID

15 Regulations

Product related hazard informations:

Hazard symbols:

C Corrosive

Risk phrases:

34 Causes burns.

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Safety phrases:

- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 27 Take off immediately all contaminated clothing.
- 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.

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