Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/31/2011 Reviewed on 02/01/2007

1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Dihydrogen hexafluorosilicate, 23% w/w Aqueous solution

Stock number: 69109
CAS Number:
16961-83-4
EINECS Number:
241-034-8
Index number:
009-011-00-5
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

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

C; Corrosive

R34: Causes burns.

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:
C Corrosive

Risk phrases:
34 Causes burns.

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.
Hazard description:
WHMIS classification

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

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.

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vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
(CAS#) Description:
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
Index number: 009-011-00-5

4 First aid measures

Description of 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.
After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek immediate medical advice.

5 Firefighting measures

Extinguishing media
Suitable extinguishing agents CO2, sand, extinguishing powder. Do not use water.
For safety reasons unsuitable extinguishing agents Water
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
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.
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

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Information about storage in one common storage facility: Store away from oxidizing agents.
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:

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. SiO2+2) 30/(% SiO2+2) (total sust)

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)
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)

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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

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.
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:	Solution
Color:	Colorless
Odor:	Not determined
Odour threshold:	Not determined.
pH-value:	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
Flammability (solid, gaseous)	Not applicable.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.

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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 (34-10.849 lbs/gal)
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible
Segregation coefficient (n-octonol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

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 No dangerous reactions known
Incompatible materials:
Oxidizing agents
Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.
Hazardous decomposition products: Hydrogen fluoride

11 Toxicological information

Information on toxicological effects
Acute toxicity:
Primary irritant effect:
on the skin:
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:
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.

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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 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.
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.
Recommended cleansing agent: Water, if necessary with cleansing agents.

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
UN proper shipping name:	1778 FLUOROSILICIC ACID

Maritime transport IMDG:

IMDG Class:	8
UN Number:	1778
Label	8
Packaging group:	II
Marine pollutant:	No
Segregation groups	Acids

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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

UN "Model Regulation": UN1778, FLUOROSILICIC ACID, 8, 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:
C Corrosive

Risk phrases:
34 Causes burns.

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.
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)