

SILICON - HF

Date of issue: 2024/10/31
Revision No.: 2.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product Identifier

Product form	Liquid
Chemical Name	SILICON - HF
Index No.	Mixture
EC No.	Mixture
CAS No.	Mixture

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1	Relevant identified uses	Laboratory Chemical
1.2.2	Uses advised against	No additional information available.

1.3 Details of the supplier of the safety data sheet

De Bruyn Spectroscopic Solutions
70/145 Chattan Road
Glenferness
Midrand, 2191 Gauteng
South Africa

1.4 Emergency telephone number

(RSA): 086 100 0366
Namibia: 080 010 0366
Other: Local Emergency Services.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification Regulation (EC) No 1272/2008 (CLP):
Eye Irr 2, H320

Full text of hazard classes and H statements: see Section 16.

Adverse physicochemical, human health and environmental effects:

Causes eye irritation.

2.2 Label Elements

Labelling (Regulation (EC) No 1272/2008

Hazard Pictograms:



Signal word: WARNING

Hazard Statements:

H320 – Causes eye irritation.

Precautionary Statements:

P264 – Wash thoroughly after handling.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing.

P337+P313 – If eye irritation persists obtain medical attention.

Hazard determining components: Hydrofluoric acid.

Reduced Labelling (< = 125 ml)

Signal Word: WARNING

Hazard Statements:

Causes eye irritation.

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

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

2.3 Other hazards***Other hazards not contributing to the classification:***

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substance**

Not applicable.

3.2 Mixture

Name	Product Identifier	%	Classification according to Regulation (EC) No. 1272/2008 CLP]
Hydrofluoric acid	(CAS-No.) 7664-39-3 (EC-No.) 231-634-3 (EC Index-No.) 009-003-00-1	0.5	Ac tox 2, 300; Ac tox 2 330; Ac tox 1 310; Skin Corr. 1A, H314; Eye dam 1 318
Ammonium hexafluorosilicate (NH ₄) ₂ SiF ₆	(CAS No.) 16919-19-0 (EC No.) 240-968-3	0.01 – 10 000 µg/mL as Si	Actox 3 301; Actox3 311; Ac tox 3 331; AqChr 3 412

Specific concentration limits: HF
(≥7%) Skin Corr. 1A, H314;
(1-7%) Skin Corr. 1B, H314 ;
(0.1-1%) Skin Irr. 2, H319; Eye irr 319
(<0.1) Eye irr 320

SECTION 4: FIRST AID MEASURES**4.1 Description of First Aid Measures****First aid measures general****First aid measures after inhalation****First aid measures after skin contact****First aid measures after eye contact****First aid measures after ingestion**

Take off immediately all contaminated clothing.

Remove person to fresh air and keep comfortable for breathing.

Rinse skin with water/shower.

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, obtain medical attention.

Rinse mouth. Do not induce vomiting. Obtain medical attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact

May cause mild skin irritation.

Symptoms/effects after eye contact

Causes eye irritation.

Symptoms/effects after ingestion/inhalation

May cause mild irritation.

4.3 Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES**5.1 Extinguishing media**

Suitable extinguishing media

Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable

Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Fire hazard

Product not combustible.

Hazardous decomposition products in case of fire

Toxic fumes may be released. Hydrogen fluoride.

5.3 Advice for firefighters

Protection during firefighting

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

5.4 Further Information

No further information.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment, and emergency procedures****6.1.1 For non-emergency personnel**

Emergency procedures

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes.

6.1.2 For emergency responders

Protective equipment

Do not attempt to act without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2 Environmental precautions

Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up:

Take up liquid spill into non-combustible absorbent material.

Other Information

Dispose of materials or solid residues at an authorized site.

6.4 Reference to other sections

For further information refer to section 5, 8, 13.

SECTION 7: HANDLING AND STORAGE**7.1 Precautions for safe handling**

Precautions for safe handling

Wear recommended personal protective equipment. See section 8. Avoid contact with eyes and skin.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Immediately change contaminated clothing. Wash hands before breaks and at the end of workday. Do not eat, drink, or smoke while working.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a well-ventilated place. Keep container tightly closed. Keep only in original container. May cause decomposition by long-term light influence. Protect from UV radiation/sunlight, contact with air/oxygen. Recommended storage temperature: $20 \pm 5^\circ\text{C}$.

Incompatible materials

Strong alkali, various metals, combustible materials.

Packaging

Original container.

7.3 Specific end users

No additional information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Exposure Limits**

Hydrofluoric Acid (CAS: 7664-39-3)		
United Kingdom	WEL TWA (8 Hour)	1.8 ppm / 1.5 mg/m ³
	WEL STEL (15 min)	3 ppm / 2.5 mg/m ³
South Africa; HCA Regulations (Restricted Level)	TWA (8 Hour)	1 ppm
	STEL (15 min)	4 ppm

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation. Provide eyewash/shower facility.

Personal protective equipment

Hand protection

Protective gloves PVC, rubber

Eye protection

Tightly fitting safety goggles/face mask

Skin and body protection

Acid resistant protective clothing,

Respiratory protection

Not normally required.



Environmental exposure controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Product form	Liquid
Appearance	Colourless
Odour	No data available
Odour threshold	No data available
pH	3.0 – 3.5 @ 20°C
Relative evaporation rate (butylacetate = 1)	No data available
Melting point/Freezing Point	No data available
Initial Boiling point	~100°C
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Flammability (solid, gas)	Not applicable
Vapour pressure	No data available
Vapour density	No data available
Relative vapour density @ 20°C	No data available
Density	~1.01 g/cm ³ @ 20°C
Solubility (water)	Miscible
Log Pow	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Not classified as explosive
Explosive limits	Not applicable
Oxidising properties	None

9.2 Additional information

No additional data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The product is non-reactive under recommended conditions of use, storage and transport.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

UV radiation/sunlight. Keep away from heat.

10.5 Incompatible materials

Metals, alkali metals, strong bases, glass.

10.6 Hazardous decomposition products

No hazardous decomposition if stored and handled correctly. Thermal decomposition releases hydrogen fluoride gas, fatal if inhaled.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects.**

Acute toxicity (oral)

May be harmful if swallowed.

Acute toxicity (Dermal)

Product does not meet classification criteria.

Acute toxicity (Respiratory)

Product does not meet classification criteria.

Hydrofluoric acid (CAS 7664-39-3)		SILICON –HNO ₃ (ATE Calculated)
LD50 (oral)	10.63 mg/kg	3400 mg/kg
LD50 (dermal)	10.63 mg/kg	> 5000 mg/m ³
LD50 (inhalation) 4 hour	1.25 mg/l – vapour	1250 mg/l

Skin corrosion/irritation:

Not classified

Eye corr./irritation

Causes eye irritation.

Respiratory or skin sensitisation

Not classified

Germ cell mutagenicity

Not classified

Carcinogenicity

Not classified

Reproductive toxicity

Not classified

STOT-SE

Not classified

STOT RE

Not classified

Aspiration hazard

Not classified

11.2 Additional Information**Endocrine disrupting properties**

This substance/mixture does not contain components considered to have endocrine disrupting properties affecting human health, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

Ecology - general

Mixture/product does not meet classification criteria.

Acute aquatic toxicity

Mixture/product does not meet classification criteria.

Chronic aquatic toxicity

Mixture/product does not meet classification criteria.

12.2 Persistence and degradability

Not applicable for inorganic compounds.

12.3 Bioaccumulative potential

Not applicable for inorganic compounds.

12.4 Mobility

No data available.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bio accumulative or toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Assessment This substance/mixture does not contain components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

12.7 Other adverse effects

No additional information.

SECTION 13: DISPOSAL CONSIDERATIONS**Waste treatment methods: Product and packaging**

The generation of waste should be avoided or minimised wherever possible. This material and packaging must be disposed of in a safe way in consultation with licensed waste disposal company in accordance with local legal requirements.

SECTION 14: TRANSPORT INFORMATION

In accordance with ADR / IMDG / IATA

	ADR	IMDG	IATA	Class Diamond
UN Number	NOT REGULATED	NOT REGULATED	NOT REGULATED	
Proper Shipping Name	-	-	-	
Hazard Class	-	-	-	
Subsidiary hazard class	-	-	-	
Packing Group	-	-	-	
Marine pollutant	-	-	-	

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use:

This product does not contain a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006. Regulation (EU) 2019/1148 on the marketing and use of explosives precursors.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : No restrictions.

National Regulations:

Occupational Health and Safety Act 85 of 1993.
Hazardous Chemical Agents Regulations.
SANS 10228, 10229, 10232-4.

15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Full text of hazard classes and statements:

Eye irr 2 320	Eye irritation, Category 2, Causes eye irritation.
Sk cor. Cat 1A, H314	Skin corrosion, Category 1A, Causes severe skin burns and eye damage.
Eye Dam Cat 1, H318	Eye Damage Category 1, Causes serious eye damage
Ac tox 1 310;	Acute toxicity, Category 1, Fatal in contact with skin.
Ac tox 2, 300;	Acute toxicity, Category 2, Fatal if swallowed
Ac tox 2 330;	Acute toxicity, Category 2, Fatal if inhaled.
Ac tox 3 301	Acute toxicity, Category 3, Toxic if swallowed
Ac tox 3, H311	Acute toxicity, Category 3, Toxic in contact with skin.
Ac tox 3 331	Acute toxicity, Category 3, Toxic if inhaled
Ac tox 4, H302	Acute toxicity, Category 4, Harmful if swallowed.
STOT SE 3 335	Specific target organ toxicity, Single Exposure, May cause respiratory irritation.
AqChr 3 412	Aquatic chronic toxicity, Category 3, Harmful to aquatic life with long lasting effects.
WEL STEL	Workplace Exposure Limit; Short term Exposure Limit
TWA	Time weighted average

"DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. De Bruyn SPECTROSCOPIC Solutions MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the supplier's product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of the supplier's product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. The supplier provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, the supplier makes no representations as to its completeness or accuracy."

Revision history	Changes	Date
Revision 2.0	Document updated to GHS Standard	31-10-2024