

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

1 Identification

- **Product identifier**
- **Trade name:** KL™ Silica
- **Other means of identification:** No other identifiers
- **Recommended use and restriction on use**
- **Recommended use:** Membrane Cleaner
- **Restrictions on use:** No relevant information available.

- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
King Lee Technologies
8949 Kenamar Drive. Bldg 107
San Diego, CA 92121
858-693-4062
klt@kingleetechnology.com

- **Emergency telephone number:**
VelocityEHS
800-255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
Met. Corr.1 H290 May be corrosive to metals.
Acute Tox. 4 H302 Harmful if swallowed.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

· **Label elements**

- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS05 GHS07

- **Signal word:** Danger
- **Hazard statements:**
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
- **Precautionary statements:**
P234 Keep only in original container.
P260 Do not breathe dust.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection.
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

(Cont'd. on page 2)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 1)

- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

1341-49-7	ammonium bifluoride ⚠ Acute Tox. 3, H301 ⚠ Met. Corr. 1, H290; Skin Corr. 1B, H314	25-50%
	Trade Secret sulfate ⚠ Eye Dam. 1, H318	<25%
12125-01-8	ammonium fluoride ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331	<2%

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.
Additional non-hazardous chemical components are not required to be listed.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.
Provide oxygen treatment if affected person has difficulty breathing.

· **After skin contact:**

Immediately remove any clothing soiled by the product.
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
Seek immediate medical help for blistering or open wounds.

· **After eye contact:**

Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

(Cont'd. on page 3)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 2)

- Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed:**
 - Coughing
 - Breathing difficulty
 - Strong irritant with the danger of severe eye injury.
 - Caustic effect on skin and mucous membranes.
 - Gastric or intestinal disorders when ingested.
 - Nausea
 - Diarrhea.
 - Vomiting.
- **Danger:**
 - Harmful if swallowed.
 - Danger of gastric perforation.
- **Indication of any immediate medical attention and special treatment needed:**
 - Use calcium gluconate solution for eye, skin or oral exposure.
 - Monitor circulation.
 - Later observation for pneumonia and pulmonary edema.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
 - Foam
 - Fire-extinguishing powder
 - Carbon dioxide
- **For safety reasons unsuitable extinguishing agents:** No relevant information available.
- **Special hazards arising from the substance or mixture**
 - Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
 - Wear self-contained respiratory protective device.
 - Wear fully protective suit.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 - Avoid formation of dust.
 - Avoid breathing dust.
 - Wear protective equipment. Keep unprotected persons away.
 - For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
 - Ensure adequate ventilation.
- **Environmental precautions**
 - Avoid release to the environment.
 - Damp down dust with water spray.
 - Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up**
 - Pick up mechanically.
 - Send for recovery or disposal in suitable receptacles.

(Cont'd. on page 4)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 3)

· **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:**

- Open and handle receptacle with care.
- Use only in well ventilated areas.
- Prevent formation of dust.
- Avoid breathing dust.
- Avoid contact with the eyes and skin.

· **Conditions for safe storage, including any incompatibilities**

· **Requirements to be met by storerooms and receptacles:**

- Storage area should be dry and well-ventilated.
- Store in cool, dry conditions in well sealed receptacles.
- Store only in the original receptacle.

· **Information about storage in one common storage facility:**

- Store away from foodstuffs.
- Protect from humidity and water.
- Store away from metals.

· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**

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

1341-49-7 ammonium bifluoride

PEL (USA)	Long-term value: 2.5 mg/m ³ as F
REL (USA)	Long-term value: 2.5 mg/m ³ as F
TLV (USA)	Long-term value: 2.5 mg/m ³ as F, BEI
EL (Canada)	Long-term value: 2.5 mg/m ³ as F
LMPE (Mexico)	Long-term value: 2.5 mg/m ³ A4, IBE; as F

12125-01-8 ammonium fluoride

PEL (USA)	Long-term value: 2.5 mg/m ³
-----------	--

(Cont'd. on page 5)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 4)

REL (USA)	as F Long-term value: 2.5 mg/m ³ as F
TLV (USA)	Long-term value: 2.5 mg/m ³ as F, BEI
EL (Canada)	Long-term value: 2.5 mg/m ³ as F
LMPE (Mexico)	Long-term value: 2.5 mg/m ³ A4, IBE; as F

Ingredients with biological limit values:

1341-49-7 ammonium bifluoride

BEI (USA)	2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific)
	3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific)

12125-01-8 ammonium fluoride

BEI (USA)	2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific)
	3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific)

Exposure controls

General protective and hygienic measures:

- The usual precautionary measures for handling chemicals should be followed.
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes and skin.

Engineering controls: Provide adequate ventilation.

Breathing equipment:

- NIOSH or EU approved dust respirator should be used for operations generating dust.
- Particulate mask should filter at least 99% of airborne particles.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Eye protection:

(Cont'd. on page 6)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 5)



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**
No relevant information available.
- **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

Form: Crystalline powder
 Color: Colorless to tan

· **Odor:** Not determined.

· **Odor threshold:** Not determined.

· **pH-value:** 4.1±1.1 (1% solution)

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** Not determined.

· **Flash point:** The product is not flammable.

· **Flammability (solid, gaseous):** Not applicable.

· **Auto-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.

· **Oxidizing properties:** Not determined.

· **Vapor pressure:** Not determined.

· **Density:**

Relative density: Not determined.

Vapor density: Not determined.

Evaporation rate: Not determined.

· **Solubility in / Miscibility with**

Water: Fully miscible.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**

Dynamic: Not determined.

Kinematic: Not determined.

· **Other information** No relevant information available.

(Cont'd. on page 7)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 6)

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
Reacts with strong oxidizing agents.
Reacts with strong acids and alkali.
Corrosive action on metals.
Reacts with metals forming hydrogen.
- **Conditions to avoid**
Moisture.
Prevent formation of dust.
- **Incompatible materials**
Oxidizers, strong bases, strong acids
Metals.
- **Hazardous decomposition products**
Under fire conditions only:
Carbon monoxide and carbon dioxide
Sulfur oxides (SOx)
Hydrogen fluoride
Ammonia

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:** Based on available data, the classification criteria are not met.
 - **LD/LC50 values that are relevant for classification:**
- | | | |
|--------------------------------------|------|------------|
| ATE (Acute Toxicity Estimate) | | |
| Oral | LD50 | >300 mg/kg |
- | | | |
|--------------------------------------|------|-----------------|
| 1341-49-7 ammonium bifluoride | | |
| Oral | LD50 | 130 mg/kg (rat) |
- **Primary irritant effect:**
 - **On the skin:** Irritant to skin and mucous membranes.
 - **On the eye:** Causes serious eye irritation.
 - **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**

(Cont'd. on page 8)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 7)

Ingestion.
Inhalation.
Eye contact.
Skin contact.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No 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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|--|---|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA | <p>UN3260</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT, IATA | <p>Corrosive solid, acidic, inorganic, n.o.s. (Ammonium hydrogendifluoride)</p> |






(Cont'd. on page 9)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 8)

· ADR, IMDG	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Ammonium hydrogendifluoride)
· Transport hazard class(es)	
· DOT	
	
· Class	8
· ADR	
	
· Class	8 (C2)
· IMDG, IATA	
	
· Class	8
· Packing group	
· DOT, ADR, IMDG, IATA	II
· Environmental hazards	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids, ammonium compounds
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
	Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 kg each.
· ADR	
	Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 kg each.
· IMDG	

(Cont'd. on page 10)

Safety Data Sheet
acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 9)



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 kg each.

· IATA



Limited Quantity for packages less than 30 kg gross and inner packagings less than 0.5 kg each / 5 kg net.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

All components are active or exempt from US EPA TSCA inventory.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL) (Substances not listed.):**

All ingredients are listed.

(Cont'd. on page 11)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: July 30, 2024

Trade name: KL™ Silica

(Cont'd. of page 10)

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulable, Toxic
vPvB: very Persistent and very Bioaccumulative
OSHA: Occupational Safety & Health Administration
Met. Corr. 1: Corrosive to metals – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor-internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:

ChemTel Inc.

1305 North Florida Avenue

Tampa, Florida USA 33602-2902

Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573

Website: www.chemtelinc.com