SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier
Product Name Silica Standard Solution, 1.0 mg/L as SiO_2

Other means of identification
Product Code(s) 110649

Safety data sheet number M00292

Recommended use of the chemical and restrictions on use
Recommended Use Standard solution.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Hazard statements

The product contains no substances which at their given concentration, are considered to be hazardous to health

Other Hazards Known
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical Family Mixture.

Chemical name	CAS No.	Percent Range	HMRIC #
Propanoic acid	79-09-4	<0.1%	-
Sodium fluoride	7681-49-4	<0.01%	-
Hydrofluoric acid	7664-39-3	<0.01%	-
Silica, amorphous	7631-86-9	<0.01%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice No hazards which require special first aid measures. Use first aid treatment according to the nature of the injury.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical No information available.

Hazardous combustion products This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and

guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Propanoic acid CAS#: 79-09-4	TWA: 10 ppm	(vacated) TWA: 10 ppm (vacated) TWA: 30 mg/m³	TWA: 10 ppm TWA: 30 mg/m³ STEL: 15 ppm STEL: 45 mg/m³
Sodium fluoride CAS#: 7681-49-4	TWA: 2.5 mg/m³	TWA: 2.5 mg/m³ (vacated) TWA: 2.5 mg/m³	IDLH: 250 mg/m³ F TWA: 2.5 mg/m³ F
Hydrofluoric acid CAS#: 7664-39-3	TWA: 0.5 ppm TWA: 2.5 mg/m³ S* Ceiling: 2 ppm	TWA: 3 ppm TWA: 2.5 mg/m³ (vacated) TWA: 3 ppm (vacated) TWA: 2.5 mg/m³ (vacated) STEL: 6 ppm	IDLH: 30 ppm IDLH: 250 mg/m³ F Ceiling: 6 ppm 15 min Ceiling: 5 mg/m³ 15 min TWA: 3 ppm TWA: 2.5 mg/m³
Silica, amorphous CAS#: 7631-86-9	NDF	TWA: 50 µg/m³ (vacated) TWA: 6 mg/m³ TWA: 20 mppcf :	IDLH: 3000 mg/m³ TWA: 6 mg/m³

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection No special protective equipment required.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	aqueous solution clear	**Color**	colorless
Odor	Odorless	**Odor threshold**	No data available

Property	Values	Remarks • Method
Molecular weight	No data available	
pH	3.4	
Melting point/freezing point	0 °C / 32 °F	
Boiling point / boiling range	95 °C / 203 °F	
Evaporation rate	0.95 (water = 1)	
Vapor pressure	17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62	
Specific gravity (water = 1 / air = 1)	0.995	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	1 cP (mPa s) at 20 °C / 68 °F	

Kinematic viscosity 1.005 cSt (mm^2/s) at 20 °C / 68 °F

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F
Most Polar Organic Solvents	Soluble	> 1000 mg/L	25 °C / 77 °F
Aqueous alkaline solutions	Soluble	> 1000 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity

Steel Corrosion Rate 1.24 mm/yr / 0.05 in/yr
Aluminum Corrosion Rate 0.99 mm/yr / 0.04 in/yr

Volatile Organic Compounds (VOC) Content

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Propanoic acid	79-09-4	No data available	X
Sodium fluoride	7681-49-4	Not applicable	-
Hydrofluoric acid	7664-39-3	No data available	-
Silica, amorphous	7631-86-9	No data available	-

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point No data available

Flammability Limit in Air
Upper flammability limit No data available
Lower flammability limit No data available

Oxidizing properties No data available.

Bulk density No data available

Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity

Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid None known based on information supplied.

Incompatible materials
Incompatible materials Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation No known effect based on information supplied.

Eye contact No known effect based on information supplied.

Skin contact No known effect based on information supplied.

Ingestion No known effect based on information supplied.

Symptoms No information available.

Aggravated Medical Conditions None known.
Toxicologically synergistic products None known.
Toxicokinetics, metabolism and distribution See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	After exposure severe hypocalcaemia may develope rapidly after a delay of minutes to hours (> 1% body surface area for concentrated solutions, or > 5% body surface area for dilute solutions).

Product Acute Toxicity Data
Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Unknown Acute Toxicity

3E-05% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Rat LD_{50}	2600 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat LD_{50}	52 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat LD_{50}	31 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Rabbit LD_{50}	500 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat LD_{50}	175 mg/kg	None reported	None reported	ERMA (New Zealands Environmental Risk Management Authority)

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Rat LC_{50}	> 4.9 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat LC_{50}	0.55 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Human TD_{Lo}	0.214 mg/kg	None reported	**Gastrointestinal** Changes in structure or function of salivary glands Hypermotility	RTECS (Registry of Toxic Effects of Chemical Substances)

				Diarrhea	
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Man TD_{Lo}	143 mg/kg	None reported	**Vascular** BP lowering not characterized in autonomic section **Cardiac** Arrythmias **Kidney, Ureter, or Bladder** Changes in tubules (including acute renal failure, acute tubular necrosis)	RTECS (Registry of Toxic Effects of Chemical Substances)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Rat LC_{Lo}	5000 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Human LD_{Lo}	71 mg/kg	None reported	**Behavioral** Tremor **Musculoskeletal** Changes in teeth and supporting structures Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Rat LC_{Lo}	2.19 mg/L	4 hours	**Lungs, Thorax, or Respiration** Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Man TC_{Lo}	0.100 mg/L	1 minute	**Olfaction** Other effects	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Human TC_{Lo}	0.025 mg/L	None reported	**Lungs, Thorax, or Respiration** Cough	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
If available, see data below
Kinematic viscosity 1.005 cSt (mm^2/s)

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Open Irritation Test	Rabbit	495 mg	None reported	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Hydrofluoric acid	Standard Draize	Rat	500 mg	3 minutes	Corrosive to skin	RTECS (Registry of

(<0.01%) CAS#: 7664-39-3	Test					Toxic Effects of Chemical Substances)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Standard Draize Test	Rabbit	500 mg	24 hours	Not corrosive or irritating to skin	IUCLID (The International Uniform Chemical Information Database)

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Standard Draize Test	Rabbit	0.99 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Standard Draize Test	Rabbit	20 mg	24 hours	Eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Standard Draize Test	Human	50 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Standard Draize Test	Rabbit	25 mg	24 hours	Mild eye irritant	IUCLID (The International Uniform Chemical Information Database)

Sensitization Information

Product Sensitization Data
Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data
Skin Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	IUCLID (The International Uniform Chemical Information Database)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	ECHA (The European Chemicals Agency)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	IUCLID (The International Uniform Chemical Information Database)

Respiratory Sensitization Exposure Route If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data
Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat TD_{Lo}	420 mg/kg	42 days	**Brain and Coverings** Other degenerative changes **Behavioral** Somnolence (general depressed activity) **Blood** Changes in serum composition (e.g. TP, bilirubin, cholesterol)	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat TC_{Lo}	1.0 mg/L	119 days	**Biochemical** Other degenerative changes **Kidney, Ureter, or Bladder** Other changes in urine composition **Musculoskeletal** Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Rat TC_{Lo}	0.154 mg/L	28 days	**Lungs, Thorax, or Respiration** Structural or functional change in trachea or bronchi	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Human LOAEL	>= 40 mg/L	4 years	**Musculoskeletal** Severe skeletal changes	ERMA (New Zealands Environmental Risk Management Authority)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat TC_{Lo}	0.000252 mg/L	17 weeks	**Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (monoamine oxidase and dehydrogenases) **Blood**	RTECS (Registry of Toxic Effects of Chemical Substances)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	Rat TC_{Lo}	0.00541 mg/L	5 days	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat TC_{Lo}	0.0005 mg/L	119 days	**Musculoskeletal** Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Propanoic acid	79-09-4	-	-	-	-
Sodium fluoride	7681-49-4	-	Group 3	-	X

Hydrofluoric acid	7664-39-3	-	-	-	-
Silica, amorphous	7631-86-9	-	Group 3	Known	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Mouse TD_{Lo}	14 mg/kg	43 weeks	**Skin and Appendages** Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat TD_{Lo}	12167 mg/kg	2 years	**Endocrine** Thyroid tumors **Musculoskeletal** Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* **Data**
No data available.

Ingredient Germ Cell Mutagenicity *invitro* **Data**
If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	Mutation in microorganisms	*Salmonella typhimurium*	6.667 mg/plate	None reported	Negative test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Cytogenetic analysis	Human fibroblast	20 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Cell Strain**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Cytogenetic analysis	Human lymphocyte	20 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity *invivo* **Data**
Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* **Data**

Oral Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Cytogenetic analysis	Mouse	1 mg/L	3 weeks	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Species**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Micronucleus test	Mouse	40 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Cytogenetic analysis	Rat	0.001 mg/L	24 days	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat TD_{Lo}	240 mg/kg	None reported	**Specific Developmental Abnormalities** Musculoskeletal system	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Sodium fluoride (<0.01%) CAS#: 7681-49-4	Rat TD_{Lo}	255 mg/kg	85 days	**Specific Developmental Abnormalities** Central Nervous System	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat TC_{Lo}	0.00047 mg/L	22 days	**Effects on Fertility** Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants) Pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea)	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**

Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Rat TC_{Lo}	0.00498 mg/L	22 days	**Effects on Embryo or Fetus** Fetal death	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	96 hours	*Oncorhynchus mykiss*	LC_{50}	51.0 mg/L	IUCLID (The International Uniform Chemical Information Database)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	96 hours	*Channa punctatus*	LC_{50}	51 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	96 hours	*Oncorhynchus mykiss*	LC_{50}	51 mg/L	ERMA (New Zealands Environmental Risk Management Authority)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	96 hours	*Brachydanio rerio*	LC_{50}	5000 mg/L	IUCLID (The International Uniform Chemical Information Database)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Propanoic acid (<0.1%) CAS#: 79-09-4	48 Hours	*Daphnia magna*	EC_{50}	45.8 mg/L	IUCLID (The International Uniform Chemical Information Database)
Sodium fluoride (<0.01%) CAS#: 7681-49-4	48 Hours	*Daphnia magna*	EC_{50}	98 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	48 Hours	*Daphnia magna*	EC_{50}	97 mg/L	ERMA (New Zealands Environmental Risk Management Authority)
Silica, amorphous (<0.01%) CAS#: 7631-86-9	48 Hours	*Ceriodaphnia dubia*	EC_{50}	7600 mg/L	IUCLID (The International Uniform Chemical Information Database)

Algae If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	96 hours	*Scenedesmus sp.*	EC_{50}	43 mg/L	IUCLID (The International Uniform Chemical Information Database)

Silica, amorphous (<0.01%) CAS#: 7631-86-9	72 Hours	*Selenastrum capricornutum*	EC_{50}	440 mg/L	IUCLID (The International Uniform Chemical Information Database)

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Sodium fluoride (<0.01%) CAS#: 7681-49-4	None reported	10 days	None reported	BCF = 2.3	Does not have the potential to bioaccumulate
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	None reported	None reported	None reported	None reported	Does not have the potential to bioaccumulate

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number U134

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Hydrofluoric acid 7664-39-3	U134	-	-	U134

Special instructions for disposal Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system. Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

14. TRANSPORT INFORMATION

U.S. DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Hydrofluoric acid (CAS #: 7664-39-3)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Propanoic acid 79-09-4	5000 lb	-	-	X
Sodium fluoride 7681-49-4	1000 lb	-	-	X
Hydrofluoric acid 7664-39-3	100 lb	-	-	X

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Propanoic acid 79-09-4	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Sodium fluoride 7681-49-4	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Hydrofluoric acid 7664-39-3	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Hydrofluoric acid (<0.01%) CAS#: 7664-39-3	Release - Toxic (concentration >=50%); Release - Toxic (anhydrous); Theft - Weapons of Mass Effect (anhydrous)

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65

Silica, amorphous (CAS #: 7631-86-9)	Carcinogen

WARNING: This product can expose you to chemicals including Silica, amorphous, which is known to the State of California to cause cancer.
For more information, go to http://www.P65Warnings.ca.gov

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Propanoic acid 79-09-4	X	X	X
Sodium fluoride 7681-49-4	X	X	X
Hydrofluoric acid 7664-39-3	X	X	X
Silica, amorphous 7631-86-9	-	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Propanoic acid	180.0940	21 CFR 184.1081
Sodium fluoride	180.0145	-
Hydrofluoric acid	180.0145	-
Silica, amorphous	180.0930	-

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)
Not applicable

NFPA and HMIS Classifications

NFPA	**Health hazards** - 0	**Flammability** - 0	**Instability** - 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** - 0	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH	*Immediately Dangerous to Life or Health*
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)

MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By	Hach Product Compliance Department
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Revision Note	None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet