

Trade Name: **SIL-MATRIX** Potassium Silicate Solution

Date Prepared: 11/12/07

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: SILMATRIX™ Potassium silicate solution
EPA registration number: 82100-1
Product description: A 2.50 weight ratio potassium silicate, 29.1% solution in water
Manufacturer: PQ Corporation
P. O. Box 840
Valley Forge, PA 19482 USA
Telephone: 610-651-4200 800-944-7411
For medical emergency
call PROSAR: 866-359-5667
For transportation emergency
Call CHEMTREC: 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical and Common Name	CAS Registry Number	Wt. %	OSHA PEL	ACGIH TLV
Water	7732-18-5	70.9%	Not Established	Not Established
Silicic acid, potassium salt; Potassium silicate	1312-76-1	29.1%	Not Established	Not Established

3. HAZARDS IDENTIFICATION

Emergency Overview: Clear to hazy, colorless, odorless, thick liquid. Causes moderate eye irritation, slightly irritating to the skin. Spray mist causes irritation to respiratory tract. High pH is harmful to aquatic life. Noncombustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics.

Eye contact: Causes moderate irritation to the eyes.
Skin contact: Causes slight irritation to the skin.
Inhalation: Spray mist irritating to respiratory tract.
Ingestion: May cause irritation to mouth, esophagus, and stomach.
Chronic hazards: No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.
Physical hazards: Dries to form glass film which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

4. FIRST AID MEASURES

Eye: **IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin: **IF ON SKIN:** Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation: **IF INHALED:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: **IF SWALLOWED: DO NOT** induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammable limits: This material is noncombustible.

Extinguishing Media: This material is compatible with all extinguishing media.

Hazards to fire-fighters: See Section 3 for information on hazards when this material is present in the area of a fire.

Fire-fighting equipment: The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

6. ACCIDENTAL RELEASE MEASURES

Personal protection: Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots. See section 8.

Environmental Hazards: This product is for terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash water or rinsate. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. In the event of an in-transit environmental release or spill of this product, that may endanger the environment, call 1-800-424-9300.

Small spill cleanup: Mop up and dispose in accordance with federal, state and local regulations or permits.

Large spill cleanup: Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralize contaminated area and flush with large quantities of water.

CERCLA RQ: There is no CERCLA Reportable Quantity for this material. If a spill goes off site, notification of state and local authorities is recommended.

7. HANDLING AND STORAGE

<i>Handling:</i>	Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with cloth dampened with water. Promptly clean up spills. Wash thoroughly with soap and water after handling.
<i>Storage:</i>	Keep pesticide in original container. Keep container tightly closed when not in use. Store product above 40°F. Do not store in aluminum, fiberglass, copper, brass, zinc, or galvanized containers. Protect from excessive heat. Store in a cool, dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<i>Engineering controls:</i>	Use with adequate ventilation. Keep containers closed. Safety shower and eyewash fountain should be within direct access.
<i>Respiratory protection:</i>	Use a NIOSH-approved dust and mist respirator where spray mist occurs. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134).
<i>Skin protection:</i>	Applicators and other handlers must wear long-sleeved shirt and long pants, shoes and socks. PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: Coveralls, Chemical-resistant gloves made of any waterproof material, Shoes and socks.
<i>Eye protection:</i>	Wear chemical goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Thick liquid.
<i>Color:</i>	Clear to hazy white.
<i>Odor:</i>	Odorless or musty odor.
<i>pH:</i>	11.3
<i>Specific gravity:</i>	1.26 g/cm ³ (20°C), 29.8° Bé, 10.50 lbs/gal
<i>Solubility in water:</i>	Miscible.

10. STABILITY AND REACTIVITY

<i>Stability:</i>	This material is stable under all conditions of use and storage.
<i>Conditions to avoid:</i>	None.
<i>Materials to avoid:</i>	Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.

Hazardous decomposition products: **Hydrogen.**

11. TOXICOLOGICAL INFORMATION

Acute Data: When tested for primary irritation potential, this material caused moderate irritation to the eyes and was slightly irritating to the skin. Human experience indicates that irritation occurs when potassium silicates get on clothes at the collar, cuffs or other areas where abrasion may occur.
The acute oral toxicity of this product has not been tested. When chemically similar sodium silicates were tested on a 100% solids basis, their single dose acute oral LD₅₀ in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. This product contains approximately 29.1% potassium silicate.

Subchronic Data: The subchronic toxicity of this material has not been tested. In a study of rats fed chemically similar sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to potassium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed potassium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

Special Studies: The mutagenic potential of this material has not been tested. Chemically similar sodium silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of potassium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. Potassium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

12. ECOLOGICAL INFORMATION

Ecotoxicity: The ecotoxicity of potassium silicate has not been tested. The following data is reported for chemically similar sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. This product contains approximately 29.1% potassium silicate.

Environmental Fate: This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1

Physical/Chemical: ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor potassium will appreciably bioconcentrate up the food chain. Sinks and mixes with water. Only water will evaporate from this material.

13. DISPOSAL CONSIDERATIONS

Classification: Disposed material is not a RCRA hazardous waste.
Disposal Method: Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal: Do not reuse container. Completely empty container into application equipment. Prior to container disposal, rinse out the container three times with water and empty rinse water into application equipment. Then dispose of empty container in a sanitary landfill in accordance with federal, state, and local waste disposal regulations.

14. TRANSPORT INFORMATION

DOT UN Status: This material is not regulated hazardous material for transportation.

15. REGULATORY INFORMATION

CERCLA: No CERCLA Reportable Quantity has been established for this material.
SARA TITLE III: Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Hazard Categories under §§311/312: Acute
TSCA: All ingredients of this material are listed on the TSCA inventory.

16. OTHER INFORMATION

Prepared by: HSE Department / Erin A. Bendig
Supersedes revision of: 5/18/06

THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO PQ CORPORATION THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING. PQ CORPORATION MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED WITH RESPECT TO SUCH INFORMATION OR THE PRODUCT TO WHICH IT RELATES, AND WE ASSUME NO LIABILITY RESULTING FROM THE USE OR HANDLING OF THE PRODUCT TO WHICH THIS SAFETY DATA SHEET RELATES. USERS AND HANDLERS OF THIS PRODUCT SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION PROVIDED HEREIN FOR THEIR OWN PURPOSES.
