Kasil SS

The PQ Corporation

MSDS

MATERIAL SAFETY DATA SHEET

Trade Name: **KASIL® SS Powder Potassium Silicate**
Date Prepared: **08/21/03**

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name:	**KASIL® SS Powder Potassium silicate**
Product description:	**A 2.5 weight ratio potassium silicate powder**
Manufacturer:	**PQ Corporation** **P. O. Box 840** **Valley Forge, PA USA** **Phone number: 610-651-4200** **Fax number: 610-651-4504**
In case of emergency call:	**1 610-651-4200**
For customer service call:	**1 610-651-4330**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical and Common Name	*CAS Registry Number*	*Wt. %*	*OSHA PEL*	*ACGIH TLV*
Silicic acid, potassium salt; potassium silicate	**1312-76-1**	**~99%**	**Not Established**	**Not Established**
Crystalline silica, quartz	**14808-60-7**	**0.1-1%**	**10 mg/m3 %SiO2+2 =Respirable** **30 mg/m3 %SiO2+2 =Total dust**	**0.05 mg/m3 Respirable**

3. HAZARDS IDENTIFICATION

Emergency Overview:	**White, odorless, powder. Causes eye, skin, and respiratory tract irritation. High pH, which is harmful to aquatic life, results when in contact with water. Noncombustible. Reacts with acids and some organics**.
Eye contact:	**Causes irritation.**
Skin contact:	**Causes irritation.**
Inhalation:	**Dust irritating to respiratory tract.**
Ingestion:	**May cause irritation to mouth, esophagus, and stomach. Large doses are harmful if swallowed.**
Chronic hazards:	**Cancer hazard. Contains crystalline silica which can cause cancer and delayed lung injury (silicosis). Crystalline silica is listed by NTP as a known human carcinogen, and it is classified by IARC in Group 1: materials for which there is sufficient evidence in humans for carcinogenicity.**
Physical hazards:	**Contact with water produces alkaline solution.**

4. FIRST AID MEASURES

Eye:	**In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.**
Skin:	**In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention.**
Inhalation:	**Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.**
Ingestion:	**If large quantities of this material are swallowed, call a physician immediately, DO NOT induce vomiting unless directed to do so by a physician. 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: water, foam, dry chemical.**
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:	**Wear turnout gear when this material is present in the area of a fire.**

6. ACCIDENTAL RELEASE MEASURES

Personal protection:	**Wear safety goggles, body-covering clothing, chemical and abrasion-resistant gloves, and NIOSH-approved respiratory protection appropriate to the level of hazard where dust occurs. See section 8.**
Environmental Hazards:	**Sinks and slowly dissolves in water. In aqueous solution, the high pH of this material is harmful to aquatic life, see Section 12.**
Small spill cleanup:	**Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8.**
Large spill cleanup:	**Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8. In case of contact with water, prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Neutralize contaminated area and flush with large quantities of water. Comply with applicable environmental regulations.**
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

Handling:	**Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Promptly clean up spills.**
Storage:	**Keep containers closed. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.**

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls:	**Use with adequate ventilation. Keep containers closed. Safety shower and eyewash station should be within direct access.**
Respiratory protection:	**Use appropriate NIOSH-approved respiratory protection where dust hazard may occur. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134)**
Skin protection:	**Wear body-covering protective clothing and gloves.**
Eye protection:	**Wear safety glasses with side shields or chemical goggles.**

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	**Powder.**
Color:	**White.**
Odor:	**Odorless.**
pH:	**Approximately 11.3 (50% w/v slurry in water)**
Bulk density:	**Approximately 54 lbs/ft^3 untamped, 88 lbs/ft^3 tamped**
Solubility in water:	**Soluble in all proportions. Dissolves slowly at room temperature.**

10. STABILITY AND REACTIVITY

Stability:	**This material is stable under all conditions of use and storage.**
Conditions to avoid:	**None.**
Materials to avoid:	**Generates heat when mixed with acid. May react with ammonium salt solutions resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc when damp or wet.**
Hazardous decomposition products:	**Hydrogen.**

11. TOXICOLOGICAL INFORMATION

Acute Data:	**This material has not been tested for primary eye irritation. However, on the basis of its similarity to sodium silicates in composition and alkalinity it is regarded as an eye irritant.** **This material has not been tested for primary skin irritation potential. However, on the basis of its similarity to sodium silicates in composition and alkalinity it is regarded as a skin irritant. Human experience confirms 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 LD_{50} in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes.

Subchronic Data: **In a study of rats fed a similar material, 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 sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium 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 were reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm; also, their offspring had reduced survival to weaning.**

Special Studies: **This material contains a small amount (0.1-1 Wt.%) of crystalline silica. Prolonged or repeated inhalation of crystalline silica causes lung diseases including silicosis, emphysema, obstructive airway disease and lung cancer. Crystalline silica is listed by NTP as a known human carcinogen, and it is classified by IARC in Group 1: materials for which there is sufficient evidence in humans for carcinogenicity.**
A similar material, sodium silicate, was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation of kidney stones and other siliceous urinary calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

12. ECOLOGICAL INFORMATION

Eco toxicity: **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 affnis) 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.**

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 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.**

Physical/Chemical: **Sinks and mixes with water. Only water will evaporate from this material.**

13. DISPOSAL CONSIDERATIONS

Classification: **Disposed material is not a hazardous waste.**
Disposal Method: **Dispose in accordance with federal, state and local 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. This product is not reportable under 40 CFR Part 402.4.**
SARA TITLE III: **Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Reportable as a hazardous substance. Hazard Categories under §§311/312: Acute, Chronic. Check with your Local Emergency Planning Committee for reportable quantities.**
TSCA: **All ingredients of this material are listed on the TSCA inventory.**
FDA: **Potassium silicate is regarded as GRAS (Generally Recognized As Safe) as a corrosion preventative in potable water.**

16. OTHER INFORMATION

Prepared by: **John G. Blumberg**
Supersedes revision of: **08/15/01**

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.