PQ Corporation

MSDS

MATERIAL SAFETY DATA SHEET

Trade Name: **A® 2047 Sodium Silicate Solution**

Date Prepared: **06/12/06**

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name:	**A® 2047 Sodium silicate solution**
Product description:	**A 2.0 weight ratio sodium silicate, 47% solution in water**
Manufacturer:	**PQ Corporation** **P. O. Box 840** **Valley Forge, PA 19482 USA**
Telephone:	**610-651-4200**
In case of emergency call:	**610-651-4200**
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**	**53%**	**Not Established**	**Not Established**
Silicic acid, sodium salt; Sodium silicate	**1344-09-8**	**47%**	**Not Established**	**Not Established**

3. HAZARDS IDENTIFICATION

Emergency Overview:	**Clear to hazy, colorless, odorless, thick liquid. Causes severe irritation to eyes. Causes moderate skin irritation. Spray mist causes irritation to respiratory tract. Due to high pH of product, release into surface water is harmful to aquatic life. Noncombustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics.**
Eye contact:	**Causes severe irritation to the eyes.**
Skin contact:	**Causes moderate 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:	**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 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:	**Sinks and mixes with water. High pH of this material is harmful to aquatic life, see Section 12. Only water will evaporate from a spill of this material.**
Small spill cleanup:	**Mop up and neutralize liquid, then discharge to sewer 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

Handling:	**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.**
Storage:	**Keep containers closed. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Storage temperature 0-95º C. Loading temperature 45-95 º C. 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 fountain should be within direct access.**
Respiratory protection:	**Use a NIOSH-approved dust and mist respirator where spray mist occurs. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134)**
Skin protection:	**Wear body-covering protective clothing and gloves.**
Eye protection:	**Wear chemical goggles.**

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	**Thick liquid.**
Color:	**Clear to hazy white.**
Odor:	**Odorless or musty odor.**
pH:	**Approximately 12.9**
Specific gravity:	**1.58 g/cm^3 (20°C), 53.15° Bé, 13.17 lbs/gal**
Solubility in water:	**Miscible.**

10. STABILITY AND REACTIVITY

Stability:	**This material is stable under all conditions of use and storage.**
Conditions to avoid:	**None.**
Materials to avoid:	**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 eye and skin irritation potential, a similar material caused severe irritation to the eyes and moderate irritation to the skin. Human experience indicates that skin irritation occurs, particularly, when sodium silicates get on clothes at the collar, cuffs or other areas where contact and abrasion may occur.** **The acute oral toxicity of this product has not been tested. When 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. This product contains approximately 47% sodium silicate.**
Subchronic Data:	**In a study of rats fed 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 and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.
Special Studies:	**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 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 following data is reported for 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. This product contains approximately 47% sodium 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 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 sodium 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:	**Waste material is a RCRA Hazardous waste because it exhibits the corrosive characteristic (pH greater than or equal to12.5) as defined in EPA rules at 40 C.F.R. §261.22 (a)(1).**
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.**
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.**
FDA:	**The use of sodium silicate is authorized by FDA as a boiler water additive for the production of steam that will contact food pursuant to 21 CFR §173.310; as a component of zinc-silicon dioxide matrix coatings on food contact surfaces pursuant to 21 CFR §175.390(c); as a GRAS substance when migrating from cotton fabric used in dry food packaging pursuant to 21 CFR §182.70; and as a GRAS substance when migrating to food from paper and paperboard products pursuant to 21 CFR §182.90.**

16. OTHER INFORMATION

Prepared by:	**John G. Blumberg**
Supersedes revision of:	**03/05/05**

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.