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REPORT NUMBER: 703  
S NO: PQK  
FRAME UPLOAD DATE: 07/01/02

UNIVAR USA INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 001  
VERSION: 003

PRODUCT: K(R) SODIUM SILICATE SOLUTION

ORDER NO: 381478  
PROD NO : 352040

AMERICAN ART CLAY  
4717 WEST 16TH STREET

INDIANAPOLIS, IN 46222

UNIVAR USA INC. (425)839-3400  
100 CARILLON POINT , KIRKLAND , WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC  
(800)424-9300

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PRODUCT IDENTIFICATION  
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PRODUCT NAME: K(R) SODIUM SILICATE SOLUTION  
S NO: PQK  
E ISSUED: 08/28/00  
REVISED: 12/03/98  
REVISED BY: 008800

MATERIAL SAFETY DATA SHEET

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CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: K(R) Sodium silicate solution  
Product description: A 2.88 weight ratio sodium silicate, 42.7% solution  
in water  
Manufacturer: PQ Corporation  
P.O. Box 840  
Valley Forge, PA USA  
Phone number: 610-651-4200

SUBJECT: K(R) SODIUM SILICATE SOLUTION

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Fax number: 610-651-4504

In case of emergency call: 1-610-651-4200

customer service call: 1-610-651-4330

## COMPOSITION/INFORMATION ON INGREDIENTS

Chemical and Common Name	CAS #	Wt. %	OSHA PEL	ACGIH TLV
Quartz	7732-18-5	57.3%	Not Established	Not Established
Silicic acid, sodium salt;	1344-09-8	42.7%	Not Established	Not Established
Sodium silicate				

## HAZARDS IDENTIFICATION

## Emergency Overview:

Appearance: Clear to hazy, colorless, odorless, thick liquid. Causes eye, skin, and digestive tract irritation. Spray mist causes irritation to respiratory tract. High pH is harmful to aquatic life.  
 Flammability: Not combustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics.

Skin contact: Causes irritation.

Eye contact: Causes irritation.

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.

## 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

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water. Never give anything by mouth to an unconscious person.

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#### 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.

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#### 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.

oil 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.

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

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#### 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

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pened with water. Promptly clean up spills.

rage:  
p containers closed. Store in clean steel or plastic containers.  
arate from acids, reactive metals, and ammonium salts. Storage  
perature 0-95 C. Loading temperature 45-95 C. Do not store in  
minum, fiberglass, copper, brass, zinc or galvanized containers.

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#### EXPOSURE CONTROLS/PERSONAL PROTECTION

ineering controls:  
with adequate ventilation. Keep containers closed. Safety shower  
eyewash fountain should be within direct access.

piratory protection:  
a NIOSH-approved dust and mist respirator where spray mist  
urs. Observe OSHA regulations for respirator use (29 C.F.R.  
0.134)

n protection: Wear body-covering protective clothing and gloves.

protection: Wear chemical goggles.

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#### PHYSICAL AND CHEMICAL PROPERTIES

earance: Thick liquid.  
or: Clear to hazy white.  
r: Odorless or musty odor.  
Approximately 11.7  
ific gravity: 1.47 g/cm<sup>3</sup> (20 C), 46.7 lb, 12.31 lbs/gal  
ubility in water: Miscible.

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#### STABILITY AND REACTIVITY

bility: This material is stable under all conditions of use and storage.  
ditions to avoid: None.

erials to avoid: Gels and generates heat when mixed with acid. May react  
h ammonium salts resulting in evolution of ammonia gas. Flammable  
rogen gas may be produced on contact with aluminum, tin, lead, and  
c.

ardous decomposition  
ducts: Hydrogen.

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TOXICOLOGICAL INFORMATION

## Acute Data:

This material has not been tested for primary eye irritation potential. Similar sodium silicates produce corneal, iridal and conjunctival irritation.

When tested for primary skin irritation potential, this material produced irritation with a primary irritation score of 1.67. It was more irritating to abraded skin than intact skin. Human experience confirms that irritation occurs when sodium 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 similar sodium silicates were tested on a 100% solids basis, their single dose acute oral LD<sub>50</sub> in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral mortality resulted from nonspecific causes. This product contains approximately 42.7% sodium silicate.

## Chronic 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.

## Genetic Studies:

Sodium silicate was not mutagenic to the bacterium *E. Coli* when tested in mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of large 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.

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ECOLOGICAL INFORMATION

## Acute toxicity:

The following data is reported for 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 (*Lymnaea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. This product contains approximately 42.7% sodium silicate.

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Environmental Fate:

This material is not persistent in aquatic systems, but its high pH when diluted 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 toxicity. 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 mg/l), 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:

It mixes with water. Only water will evaporate from this material.

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DISPOSAL CONSIDERATIONS

Classification: Disposed material is not a hazardous waste.  
Disposal Method: Neutralize and landfill solids in accordance with federal, state and local regulations. Flush neutral liquid to sewer in accordance with federal, state and local regulations and permits.

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TRANSPORT INFORMATION

UN Status:

This material is not regulated hazardous material for transportation.

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REGULATORY INFORMATION

CLP: CERCLA Reportable Quantity has been established for this material.

A TITLE III:

Not an Extremely Hazardous Substance under 302. Not a Toxic Substances Hazardous Ingestible under 313. Hazard Categories under 311/312: Acute

A:

Ingredients of this material are listed on the TSCA inventory.

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Use of sodium silicate is authorized by FDA as a boiler water additive in the production of steam that will contact food pursuant to 21 CFR 175.310; 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.

OTHER INFORMATION

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR UNIVAR USA INC.  
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

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TERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THE  
TIME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM  
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