SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product Name RU™ Sodium Silicate Solution
Alternative names Sodium silicate solution
(1.6<MR<=2.6)
CAS No. 1344-09-8
EINECS No. 215-687-4

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified use(s) General purpose industrial chemical for use in a wide range of applications.
Binding agent; Corrosion inhibitor; Dust binding agent; Flame retardant or fire preventing agent; Flotation agent; Stabiliser; Viscosity control agent
Uses advised against None known.

1.3 Details of the supplier of the safety data sheet
Company Identification PQ Corporation
P.O. Box 840
Valley Forge
PA 19482
USA
Telephone: +1 610-651-4200
E-Mail (competent person) sds.uk@pqcorp.com

1.4 Emergency telephone number
Emergency Phone No. +1 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification Skin Irrit. 2
Eye Dam. 1
Hazard pictogram(s)

Signal word(s) Danger
Hazard statement(s) H315: Causes skin irritation.
H318: Causes serious eye damage.
Precautionary statement(s)  
P262: Do not get in eyes, on skin, or on clothing.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards  
Dries to form glass film, which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Regulation (EC) No. 1272/2008 (CLP)

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>EINECS No. / REACH Registration</th>
<th>Hazard symbol(s) and hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt (1.6&lt;MR&lt;=2.6)</td>
<td>47.1</td>
<td>1344-09-8</td>
<td>215-687-4 01-2119448725-31</td>
<td>H315 : Skin Irrit. 2 ; H318 : Eye Dam. 1 ; H335 : STOT SE 3 ;</td>
</tr>
<tr>
<td>Water</td>
<td>52.9</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures  
Eye Contact  
Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.  

Skin Contact  
Wash affected skin with plenty of water. If symptoms develop, obtain medical attention.  

Inhalation  
Remove patient from exposure, keep warm and at rest. Obtain medical attention.  

Ingestion  
Do not induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain medical attention.  

4.2 Most important symptoms and effects, both acute and delayed  
Alkaline.  
Risk of serious damage to eyes.  
Irritating to skin.  
The toxicity of sodium silicate is dependent on the silica to alkali ratio and on the pH.  

4.3 Indication of any immediate medical attention and special treatment needed  
Obtain immediate medical attention.  

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media  
Suitable Extinguishing Media  
Compatible with all standard fire fighting techniques.  

Unsuitable extinguishing Media  
None known.  

5.2 Special hazards arising from the substance or mixture  
Not applicable. Aqueous solution. Non-combustible.  

5.3 Advice for fire-fighters  
None.  

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
Wear suitable protective clothing. Wear eye/face protection. See Section: 8.2

6.2 Environmental precautions
Do not allow to enter drains, sewers or watercourses. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

6.3 Methods and materials for containment and cleaning up
Caution - spillages may be slippery. Contain spillages with sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery.

6.4 Reference to other sections
See Also Section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with eyes, skin and clothing. Avoid generation of mist. Provide adequate ventilation. Emergency shower and eye wash facilities should be readily available. See Also Section 8

7.2 Conditions for safe storage, including any incompatibilities
Storage temperature 0-95º C. Loading temperature 45-95 º C. Do not allow material to freeze. Provide an adequate bund wall. Unsuitable containers: Aluminium See Also Section 10.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt</td>
<td>No Occupational Exposure Limit assigned.</td>
</tr>
<tr>
<td></td>
<td>An exposure limit of 2 mg/m³ (15 min TWA) is recommended by analogy with sodium hydroxide (UK EH40).</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
Wear protective equipment to comply with good occupational hygiene practice. Do not eat, drink or smoke at the work place.

8.2.1 Appropriate engineering controls
Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

8.2.2 Personal Protection
Respiratory protection not normally required. Advice on respiratory protective equipment is given in the HSE (Health and Safety Executive) publication HS(G)53.

   Eye/face protection
Chemical goggles (EN 166).

   Skin protection
Wear suitable protective clothing and gloves. Plastic or rubber gloves. For example EN374-3, level 6 breakthrough time (>480min).

8.2.3 Environmental Exposure Controls
The primary hazard of sodium silicate is the alkalinity. Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance: Liquid . Almost colourless. White or translucent.
Odour: Odourless. (musty)
Odour Threshold (ppm): Not applicable.
pH (Value): Strongly alkaline. 11-13
Freezing Point (°C)  Not applicable.
Melting Point (°C)  Not applicable.
Boiling Point (°C)  100
Flash Point (°C) [Closed cup]  Not applicable.
Evaporation rate  Not applicable.
Flammability (solid, gas)  Not applicable.
Explosive Limit Ranges  Not applicable.
Vapour Pressure (mm Hg)  Not applicable.
Vapour Density (Air=1)  No data.
Density (g/ml)  No data.
Solubility (Water)  Soluble.
Solubility (Other)  No data.
Partition Coefficient  No data.
Auto Ignition Point (°C)  Not applicable.
Decomposition Temperature (°C)  Not applicable.
Viscosity (mPa. s)  Not applicable.
Explosive properties  Not applicable.
Oxidising Properties  Not applicable.
9.2 Other information  No data.

**SECTION 10: STABILITY AND REACTIVITY**

10.1 Reactivity  See Section: 10.3
10.2 Chemical stability  Stable.
10.3 Possibility of hazardous reactions
   When arc welding vessels containing aqueous solutions of this material, take care to control any explosion risk from hydrogen evolved by electrolysis. Aqueous solutions will react with aluminium, zinc, tin and their alloys evolving hydrogen gas which can form an explosive mixture with air. Can react violently if in contact with acids. Can react with sugar residues to form carbon monoxide.

10.4 Conditions to avoid  See Section: 10.3
10.5 Incompatible materials  See Section: 10.3
10.6 Hazardous decomposition product(s)  None known.

**SECTION 11: TOXICOLOGICAL INFORMATION**

11.1 Information on toxicological effects

Acute toxicity
   Ingestion  All symptoms of acute toxicity are due to high alkalinity. Material will cause irritation. Oral LD50 (rat) 3400 mg/kg bw
   Inhalation  Mist is irritant to the respiratory tract. All symptoms of acute toxicity are due to high alkalinity. Inhalation LC50 (rat) >2.06 g/m³
   Skin Contact  Material will cause irritation. Dermal LD50 (rat) >5000 mg/kg bw
   Eye Contact  Material will cause severe irritation. Risk of serious damage to eyes.

Skin corrosion/irritation  Irritating to skin.
Serious eye damage/irritation  Irritating to eyes. Risk of serious damage to eyes.
Sensitisisation  Not sensitising.
Mutagenicity  No evidence of genotoxicity. In vitro/in vivo negative.
Carcinogenicity  No structural alerts. IARC, NTP, OSHA, ACGIH do not list this product as known or suspected carcinogen.
Reproductive toxicity  No evidence of reproductive toxicity or developmental toxicity.
STOT - single exposure  Not classified
STOT - repeated exposure  Not classified. NOAEL oral (rat) >159 mg/kg bw/d
Aspiration hazard  Not classified
Other information  

Revision: GHS v1  - en -  Ref: 02-3-1-35-000
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SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Fish (Brachydanio rerio) LC50 (96 hour) 1108 mg/l
Aquatic invertebrates: (Daphnia magna) EC50 (48 hour) 1700 mg/l

12.2 Persistence and degradability
Inorganic. Soluble silicates, upon dilution, rapidly depolymerise into molecular species indistinguishable from natural dissolved silica.

12.3 Bioaccumulative potential
Inorganic. The substance has no potential for bioaccumulation.

12.4 Mobility in soil
Not applicable.

12.5 Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

12.6 Other adverse effects
The alkalinity of this material will have a local effect on ecosystems sensitive to changes in pH.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Disposal should be in accordance with local, state or national legislation. Waste material is classified as a RCRA Hazardous waste if it exhibits the corrosive characteristic (pH greater than or equal to 12.5) Dispose of this material and its container to hazardous or special waste collection point. Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
Not applicable.

14.2 Proper Shipping Name
Not applicable.

14.3 Transport hazard class(es)
Not applicable.

14.4 Packing group
Not applicable.

14.5 Environmental hazards
Not classified as a Marine Pollutant.

14.6 Special precautions for user
Unsuitable containers: Aluminium

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
TSCA Inventory Status: Reported/Included.
AICS Inventory Status: Reported/Included.
DSL/NDSL Inventory Status: Reported/Included.
SARA TITLE III: This material is not a listed Toxic Chemical subject to the reporting requirements of SARA Title III §313 and 40 C.F.R. Part 372. Hazard Categories under SARA Title III §§311/312: Acute.
German Water Hazard Classification VwVwS: Product ID number 1314, WGK class 1 (low hazard to water).
2,0,0

SECTION 16: OTHER INFORMATION

Data referenced in this eSDS is from company-owned information and from data legitimately accessed by PQ Corporation through membership of Industry Consortia or other agreements. This includes data relating to toxicology, ecotoxicology, DNELs, PNECs and other information in this eSDS and its annex.
This SDS was last reviewed: 02/2015
The following sections contain revisions or new statements: None.

GHS Classification
Skin Irrit. 2
Eye Dam. 1

Signal word(s)
Danger

Hazard pictogram(s)

Hazard statement(s)
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GLOSSARY
H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
STOT SE 3 : Specific target organ toxicity — single exposure Category 3
R41: Risk of serious damage to eyes.
R38: Irritating to skin.
R37/38: Irritating to respiratory system and skin.
DNEL : Derived No Effect Level
PNEC : Predicted No Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic

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