SAFETY DATA SHEET

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

1.1 Product identifier

Product Name: D Sodium Silicate

Alternative names: Sodium silicate solution

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

Not classified as PBT or vPvB.

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>44.1</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>55.9</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

Keep at a temperature not exceeding (°C): 50

Do not allow material to freeze.

Provide an adequate bund wall.

Unsuitable containers: Aluminium

See Also Section 10.

7.3 Specific end use(s)

See also Annex to the extended Safety Data Sheet.

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. 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

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).

Wear suitable overalls. For example EN ISO 13982 (dust), EN 14605 (liquid splashes).

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.

Odour

Odourless.

Odour Threshold (ppm)

Not applicable.
pH (Value)          Strongly alkaline.
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.

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.
Sensitisation Not sensitising.
Mutagenicity No evidence of genotoxicity. In vitro/in vivo negative.
Carcinogenicity No structural alerts.
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

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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
- Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls.
- Dispose of this material and its container to hazardous or special waste collection point.
- Disposal should be in accordance with local, state or national legislation.

**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.
- German Water Hazard Classification VwVwS: Product ID number 1314, WGK class 1 (low hazard to water).

**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: 01/2015
The following sections contain revisions or new statements: None.
Hazard pictogram(s)

Hazard statement(s)
H315: Causes skin irritation.
H318: Causes serious eye damage.

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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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