SAFETY DATA SHEET

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

1.1 Product identifier
Product Name: Kasil® 1 Potassium silicate solution (MR>3.2)
Alternative names: Potassium silicate solution
CAS No.: 1312-76-1
EINECS No.: 215-199-1

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; 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: Not classified as dangerous for supply/use.
EC Classification: Not classified as dangerous for supply/use.

Hazard Summary: Alkaline. May cause irritation to skin and eyes. Caution - spillages may be slippery. Dries to form glass film which can easily cut skin.

Hazard pictogram(s):
Signal word(s): None.
Hazard statement(s): None.
Precautionary statement(s):

EC Classification:
Hazard Symbol:
Risk Phrases: None.
Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
2.3 Other hazards
Not applicable.

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, potassium salt</td>
<td>29.1</td>
<td>1312-76-1</td>
<td>215-199-1</td>
<td>H319 : Eye Irrit. 2 ; H315 : Skin Irrit. 2 ; H335 : STOT SE 3 ;</td>
</tr>
<tr>
<td>Water</td>
<td>70.9</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.
The toxicity of potassium 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
Compatible with all standard fire fighting techniques.

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.

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 Section: Annex to the extended Safety Data Sheet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>SUBSTANCE: Silicic acid, potassium salt</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></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 potassium 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 workplace.

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.

8.2.3 Environmental Exposure Controls

The primary hazard of potassium 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.
\( \text{pH (Value)} \): Alkaline. 11.3
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): 1.26 g/cm³ (20°C), 29.8° Bé, 10.50 lbs/gal
Solubility (Water): Soluble.
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) >5000 mg/kg bw
- Inhalation: All symptoms of acute toxicity are due to high alkalinity. Mist is irritant to the respiratory tract. Inhalation LC50 (rat) >2.06 g/m³
- Skin Contact: Repeated and/or prolonged skin contact may cause slight irritation. Dermal LD50 (rat) >5000 mg/kg bw
- Eye Contact: Liquid or mist may cause discomfort and mild irritation.

Skin corrosion/irritation
Repeated and/or prolonged skin contact may cause slight irritation.

Serious eye damage/irritation
Liquid or mist may cause discomfort and mild irritation.

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 applicable.

Other information

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
- Fish (Leuciscus idus) LC50 (48 hour) >146 mg/l
- Aquatic invertebrates: (Daphnia magna) EC50 (24 hour) >146 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. This material is classified as hazardous waste under EC Directive 2008/98/EC. This material is classified as hazardous waste under the Hazardous Waste (England and Wales) Regulations SI 2005 No. 894. This material is classified as hazardous waste under the Hazardous Waste (England and Wales) Regulations SI 2005 No. 894. Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
Not classified according to the United Nations ‘Recommendations on the Transport of Dangerous Goods’.

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 1316, 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: 05/2013
The following sections contain revisions or new statements: All sections updated to comply with Regulation (EC) No.1907/2006 (REACH) and Regulation (EC) No.1272/2008 (CLP) and their amendments.

EC Classification No. 67/548/EEC
Not classified as dangerous for supply/use.

Hazard Symbol
None.

Risk Phrases
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Safety Phrases

GHS Classification
Not classified as dangerous for supply/use.

Signal word(s)
None.

Hazard pictogram(s)
None.

Hazard statement(s)
None.

Precautionary statement(s)

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