SAFETY DATA SHEET

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

1.1 Product identifier
Product Name: AgSil™ 16H Potassium Silicate
Alternative names: Potassium silicate powder
1.6 weight ratio
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): Agriculture
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:
- H314: Serious eye damage/irritation Category 1
- Skin corrosion/irritation: Category 1B
- H335: STOT - single exposure Category 3

2.2 Label elements
Hazard pictogram(s):
- !
- !

Signal word(s): Danger
Hazard statement(s):
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.
Precautionary statement(s)

P261: Avoid breathing dust.
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. 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, potassium salt Powder</td>
<td>~85</td>
<td>1312-76-1</td>
<td>215-199-1 01-2119456888-17</td>
<td>H319 : Eye Irrit. 2 ; H315 : Skin Irrit. 2 ; H335 : STOT SE 3 ;</td>
</tr>
<tr>
<td>Water</td>
<td>~15</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.
Irritating to eyes, respiratory system and skin. 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. Inorganic powder or granules. 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. An approved dust mask should be worn if dust is generated during handling. 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. Avoid generation of dust. Sweep or preferably vacuum up and collect in suitable containers for recovery or disposal. 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 dust. Emergency shower and eye wash facilities should be readily available. See Also Section 8.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed and dry. 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, potassium salt</td>
<td>No Occupational Exposure Limit assigned. 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 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
Avoid inhalation of dusts. Wear suitable respiratory protective equipment if working in confined spaces with inadequate ventilation or where there is any risk of the exposure limits being exceeded. Advice on respiratory protective equipment is given in the HSE (Health and Safety Executive) publication HS(G)53.

Dust mask: FFP2 (EN 149).

Chemical goggles (EN 166).

Eye/face protection
Wear suitable protective clothing and gloves.

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

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

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance
Powder. White

Odour
Odourless.

Odour Threshold (ppm)
Not applicable.

pH (Value)
Alkaline. 11-12

Freezing Point (°C)
Not applicable.

Melting Point (°C)
> 1000

Boiling Point (°C)
Not applicable.

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) >5000 mg/kg bw

Inhalation
Dust 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
Dermal LD50 (rat) >5000 mg/kg bw

Eye Contact
Material will cause severe irritation.

Skin corrosion/irritation
Material will cause severe irritation.

Serious eye damage/irritation
May cause severe 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
Irritating to respiratory system.

STOT - repeated exposure
Not classified. NOAEL oral (rat) 159 mg/kg bw/d

Aspiration hazard
Not classified

Other information
Not applicable.
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.
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
No special packaging requirements.
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).

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

Revision: GHS
Date of Issue : 04/2015
Date Previous Issue : 3/5/2005
AgSil™ 16H Potassium Silicate

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: 04/2015
The following sections contain revisions or new statements: No significant changes required to this version at last review.

GHS Classification

- **H314**: Serious eye damage/irritation Category 1
- **Skin corrosion/irritation**: Category 1B
- **H335**: STOT - single exposure Category 3

Signal word(s)

- Danger

Hazard pictogram(s)

![Hazard Pictogram]

Hazard statement(s)

- **H319**: Causes serious eye irritation.
- **H335**: May cause respiratory irritation.

Precautionary statement(s)

- **P261**: Avoid breathing dust.
- **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.

GLOSSARY

- **H319**: Causes serious eye irritation.
- **H315**: Causes skin irritation.
- **H335**: May cause respiratory irritation.
- **STOT SE 3**: Specific target organ toxicity — single exposure Category 3
- **R36/37/38**: Irritating to eyes, respiratory system and skin.
- **DNEL**: Derived No Effect Level
- **PNEC**: Predicted No Effect Concentration
- **PBT**: Persistent, Bioaccumulative and Toxic

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. PQ Corporation gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. PQ Corporation accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.