SAFETY DATA SHEET

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

1.1 Product identifier
Product Name
Lithisi® 829
Alternative names
Potassium lithium silicate solution in water
CAS No.
Mixture

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified use(s)
Industrial use only.
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 Irrit. 2

Hazards summary
Alkaline.
Irritating to eyes and skin. May cause respiratory irritation.
Caution - spillages may be slippery.

2.2 Label elements
Hazard pictogram(s)

Signal word(s)
Warning

Hazard statement(s)
H315: Causes skin irritation.
H319: Causes serious eye irritation.
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 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>
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</thead>
<tbody>
<tr>
<td>Lithium silicate</td>
<td>4.8</td>
<td>12627-14-4</td>
<td>235-730-0 Pre-registered</td>
<td>H315: Skin Irrit. 2 H319: Eye Irrit. 2 H335: STOT SE 3</td>
</tr>
<tr>
<td>Potassium silicate</td>
<td>24.5</td>
<td>1312-76-1</td>
<td>215-199-1</td>
<td>H315 Skin Irrit. 2 H319 Eye Irrit. 2</td>
</tr>
<tr>
<td>Water</td>
<td>70.7</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

EC Classification No. 67/548/EEC

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 and skin. May cause respiratory irritation.

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.

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.

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

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)

Not applicable.

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>Lithium silicate</td>
<td>No Occupational Exposure Limit assigned. An exposure limit of 1 mg/m3 (15 min TWA) is recommended by analogy with lithium 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.

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Liquid. Colourless.
Odour: Odourless.
Odour Threshold (ppm): Not applicable.

pH (Value): ~12 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): 1.2 g/cm³ (20°C); 25° Bé; 10.0 lbs/gal
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. This product 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: Lithium compounds may damage the central nervous system. A large dose may have the following effects: headache, nausea, dizziness, convulsions, kidney damage.

Inhalation: Mist is irritant to the respiratory tract.

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

Eye Contact: Liquid or mist may cause discomfort and mild irritation.

**Skin corrosion/irritation**: Irritating to skin.

**Serious eye damage/irritation**: Irritating to eyes.

**Sensitisation**: Not sensitising.

**Mutagenicity**: No data.

**Carcinogenicity**:
IARC, NTP, OSHA, ACGIH do not list this product or any components thereof as known or suspected carcinogen.

**Reproductive toxicity**: Lithium compounds - teratogenic effects have been observed in laboratory animals.

**STOT - single exposure**: Not classified.

**STOT - repeated exposure**: Not classified.

**Aspiration hazard**: Not classified.
Other information

Lithium compounds may damage the central nervous system.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Lithium compounds - no data.

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.

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 1314, WGK class 1 (low hazard to water).
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.

15.2 Chemical Safety Assessment
Not available.

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: 08/2013
The following sections contain revisions or new statements: No significant changes required to this version at last review.
EC Classification No. 67/548/EEC  IRRITANT Xi

Hazard Symbol
Risk Phrases  R36/38: Irritating to eyes and skin.
Safety Phrases  S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

GHS Classification  Skin Irrit. 2
Signal word(s)  Warning
Hazard pictogram(s)  

Hazard statement(s)  H315: Causes skin irritation.
H319: Causes serious eye irritation.
Precautionary statement(s)  P262: Do not get in eyes, on skin, or on clothing.
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