

# SAFETY DATA SHEET

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

### 1.1 Product identifier

**Product Name** EcoDrill™ 317 Potassium Silicate Solution  
**Alternative names** Potassium silicate solution (MR>3.2)

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Identified use(s)** Additive for oilfield applications.  
**Uses advised against** None known.

### 1.3 Details of the supplier of the safety data sheet

**Company Identification** National Silicates  
429 Kipling Ave  
Toronto, ON M8Z 5C7

**Telephone:** 416-255-7771

**E-mail:** sds.uk@pqcorp.com

### 1.4 Emergency telephone number

**Emergency Phone No.** National Silicates 416-255-7771  
USA CHEMTREC 1-800-424-9300 (24 hrs)

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

**GHS Classification** Eye Irritation Cat 2B

### 2.2 Label elements

**Hazard pictogram(s)**

**Signal word(s)** Warning

**Hazard statement(s)** Causes eye irritation.  
**Precautionary statement(s)** Wash thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

### 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

Ingredient(s)	%W/W	CAS No.	EINECS No. / REACH Registration	Hazard symbol(s) and hazard statement(s)
Silicic acid, potassium salt ; Potassium silicate	29.1	1312-76-1	215-199-1	H319 : Eye Irrit. 2 ; H315 : Skin Irrit. 2 ; H335 : STOT SE 3 ;
Water	70.9	7732-18-5	231-791-2	

## **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**

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 0-95° C. Loading temperature 45-95 ° C.  
Provide an adequate bund wall.  
Unsuitable containers: Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.  
See Also Section 10.
- 7.3 Specific end use(s)** Not available.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Control parameters**

SUBSTANCE.	Occupational Exposure Limits
Silicic acid, potassium salt	No Occupational Exposure Limit assigned. An exposure limit of 2 mg/m <sup>3</sup> (15 min TWA) is recommended by analogy with potassium hydroxide (UK EH40).

### **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

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely.

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 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.
pH (Value)	Alkaline. 11-12
Freezing Point (°C)	No data.
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 (Pascal)	Not applicable.

Vapour Density (Air=1)	No data.
Density (g/ml)	1.39 g/cm <sup>3</sup> (20°C), 40.4° Bé, 11.56 lbs/gal
Solubility (Water)	Miscible.
Solubility (Other)	No data.
Partition Coefficient	No data.
Auto Ignition Point (°C)	Not applicable.
Decomposition Temperature (°C)	Not applicable.
Viscosity (mPa. s)	No data.
Explosive properties	Not applicable.
Oxidising Properties	Not applicable.
<b>9.2 Other information</b>	No data.

## **SECTION 10: STABILITY AND REACTIVITY**

<b>10.1 Reactivity</b>	See Section: 10.3
<b>10.2 Chemical stability</b>	Stable.
<b>10.3 Possibility of hazardous reactions</b>	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.
<b>10.4 Conditions to avoid</b>	Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.
<b>10.5 Incompatible materials</b>	See Section: 10.3
<b>10.6 Hazardous decomposition product(s)</b>	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/m <sup>3</sup>
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.
<b>Skin corrosion/irritation</b>	Repeated and/or prolonged skin contact may cause slight irritation.
<b>Serious eye damage/irritation</b>	Liquid or mist may cause discomfort and mild irritation.
<b>Sensitisation</b>	Not sensitising.
<b>Mutagenicity</b>	No evidence of genotoxicity. In vitro/in vivo negative.
<b>Carcinogenicity</b>	No structural alerts.
<b>Reproductive toxicity</b>	No evidence of reproductive toxicity or developmental toxicity.
<b>STOT - single exposure</b>	Not classified
<b>STOT - repeated exposure</b>	Not classified. NOAEL oral (rat) 159 mg/kg bw/d
<b>Aspiration hazard</b>	Not classified

## **SECTION 12: ECOLOGICAL INFORMATION**

<b>12.1 Toxicity</b>	Fish (Leuciscus idus) LC50 (48 hour) >146 mg/l Aquatic invertebrates: (Daphnia magna) EC50 (24 hour) >146 mg/l
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<b>12.2 Persistence and degradability</b>	Inorganic. Soluble silicates, upon dilution, rapidly depolymerise into molecular species indistinguishable from natural dissolved silica.
<b>12.3 Bioaccumulative potential</b>	Inorganic. The substance has no potential for bioaccumulation.
<b>12.4 Mobility in soil</b>	Not applicable.
<b>12.5 Results of PBT and vPvB assessment</b>	Not classified as PBT or vPvB.
<b>12.6 Other adverse effects</b>	The alkalinity of this material will have a local effect on ecosystems sensitive to changes in pH.

## **SECTION 13: DISPOSAL CONSIDERATIONS**

<b>13.1 Waste treatment methods</b>	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. Waste material is classified as a RCRA Hazardous waste if it exhibits the corrosive characteristic (pH greater than or equal to 12.5) .
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## **SECTION 14: TRANSPORT INFORMATION**

<b>14.1 UN number</b>	Not applicable.
<b>14.2 Proper Shipping Name</b>	Not applicable.
<b>14.3 Transport hazard class(es)</b>	Not applicable.
<b>14.4 Packing group</b>	Not applicable.
<b>14.5 Environmental hazards</b>	Not classified as a Marine Pollutant.
<b>14.6 Special precautions for user</b>	Unsuitable containers: Aluminium
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	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 1316, WGK class 1 (low hazard to water).

<b>15.2 Chemical Safety Assessment</b>	A Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.
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## **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: 04/2017

The following sections contain revisions or new statements: 2 , 3 , 11

GHS Classification  
Signal word(s)

Eye Irritation Cat 2B  
Warning

#### GLOSSARY

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

STOT SE 3 : Specific target organ toxicity — single exposure Category 3

DNEL : Derived No Effect Level

PNEC : Predicted No Effect Concentration

PBT: Persistent, Bioaccumulative and Toxic

THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO NATIONAL SILICATES THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING. NATIONAL SILICATES MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED WITH RESPECT TO SUCH INFORMATION OR THE PRODUCT TO WHICH IT RELATES, AND WE ASSUME NO LIABILITY RESULTING FROM THE USE OR HANDLING OF THE PRODUCT TO WHICH THIS SAFETY DATA SHEET RELATES. USERS AND HANDLERS OF THIS PRODUCT SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION PROVIDED HEREIN FOR THEIR OWN PURPOSES.