

Trade Name:  
Date Prepared:

**EcoDrill<sup>®</sup> 743 Potassium Silicate**  
April 4, 2012

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **EcoDrill<sup>®</sup> 743 Potassium Silicate**  
Product description: **A 2.5 weight ratio hydrous potassium silicate powder**  
Product Use: **Drilling Muds**  
Manufacturer: **PQ Corporation**  
**P. O. Box 840, Valley Forge, PA USA**  
**Phone number: 610-651-4200**  
Supplier: **National Silicates**  
**429 Kipling Ave, Toronto, ON M8Z 5C7**  
**Phone number: 416-255-7771**  
**Fax number: 416-201-4347**  
In case of emergency call: **1 416-255-7771**

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name and Common Name                           | CAS Registry Number | Wt. %       | OSHA PEL               | ACGIH TLV              |
|---|---------------------|-------------|------------------------|------------------------|
| <b>Silicic acid, potassium salt; Potassium silicate</b> | <b>1312-76-1</b>    | <b>~85%</b> | <b>Not Established</b> | <b>Not Established</b> |
| <b>Water</b>  | <b>7732-18-5</b>    | <b>~15%</b> | <b>Not Established</b> | <b>Not Established</b> |

### 3. HAZARDS IDENTIFICATION

Emergency Overview: **White, odourless, powder. Causes eye irritation, slight skin irritation, and digestive tract irritation. Dust causes respiratory tract irritation. Due to high pH of product, release into surface water is harmful to aquatic life. Noncombustible. Reacts with acids and some organics.**

Eye contact: **Causes irritation to the eyes.**

Skin contact: **Causes slight irritation to the skin.**

Inhalation: **Dust irritating to respiratory tract.**

Ingestion: **May cause irritation to mouth, esophagus, and stomach.**

Chronic hazards: **No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.**

Physical hazards: **Can etch glass if not promptly removed.**



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**4. FIRST AID MEASURES**

*Eye:* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

*Skin:* In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention.

*Inhalation:* Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

*Ingestion:* If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

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**5. FIRE FIGHTING MEASURES**

*Flammable limits:* This material is noncombustible.

*Extinguishing Media:* This material is compatible with all extinguishing media

*Hazards to fire-fighters:* See Section 3 for information on hazards when this material is present in the area of a fire.

*Fire-fighting equipment:* The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

*Hazardous Combustion Products:* Not available

*Explosion Data:*

*Sensitivity to mechanical impact and static discharge:* Not available

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**6. ACCIDENTAL RELEASE MEASURES**

*Personal protection:* Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots, NIOSH-approved dust respirator where dust occurs. See section 8.

*Environmental Hazards:* Sinks and mixes with water. Due to high pH of product, release into surface water is harmful to aquatic life. See Section 12.

*Small spill cleanup:* Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8.

*Large spill cleanup:* Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8. In case of contact with water, prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Neutralize contaminated area and flush with large quantities of water. Comply with applicable environmental regulations.

*CERCLA RQ (US):* There is no CERCLA Reportable Quantity for this material. If a spill goes off site, notification of state and local authorities is recommended.



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## **7. HANDLING AND STORAGE**

*Handling:* **Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Promptly clean up spills.**

*Storage:* **Keep containers closed. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.**

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

*Engineering controls:* **Use with adequate ventilation. Keep containers closed. Safety shower and eyewash fountain should be within direct access.**

*Respiratory protection:* **Use a NIOSH-approved dust respirator where dust occurs. Observe Provincial regulations for respirator use.**

*Skin protection:* **Wear body-covering protective clothing and gloves.**

*Eye protection:* **Wear chemical goggles.**

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

*Appearance:* **Powder.**

*Color:* **White.**

*Odor:* **Odorless.**

*Odor Threshold:* **Not applicable**

*PH (aqueous solutions):* **Approximately 11.3**

*Bulk density:* **Approximately 43 lbs/ft<sup>3</sup> untamped.**

*Solubility in water:* **Soluble in all proportions.**

*Flashpoint:* **Not applicable**

*Auto-ignition Temperature:* **Not applicable**

*Vapor Pressure:* **Not applicable**

*Vapor Density:* **Not applicable**

*Evaporation Rate:* **Not applicable**

*Boiling Point:* **Not applicable**

*Freezing Point:* **Not applicable**

*Coefficient of water/oil*

*Distribution:* **Not applicable**

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## **10. STABILITY AND REACTIVITY**

*Stability:* **This material is stable under all conditions of use and storage.**

*Conditions to avoid:* **None.**

*Materials to avoid:* **Generates heat when mixed with acid. May react with ammonium salt solutions resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.**

*Hazardous decomposition products:* **Hydrogen.**

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**11. TOXICOLOGICAL INFORMATION**

*Acute Data:* When tested for primary irritation potential, this material caused moderate irritation to the eyes and slight irritation to the skin. Human experience indicates that irritation occurs when potassium silicates get on clothes at the collar, cuffs or other areas where abrasion may occur. The acute oral toxicity of this product has not been tested. When chemically similar sodium silicates were tested on a 100% solids basis, their single dose acute oral LD<sub>50</sub> in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes.

*Subchronic Data:* In a study of rats fed chemically sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

*Special Studies:* Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation of kidney stones and other siliceous urinary calculi in humans.

**Mutagenicity:** The mutagenic potential of this material has not been tested. Chemically similar sodium silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay.

**Carcinogenicity:** There are no known reports of carcinogenicity of potassium silicates. Potassium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

**Sensitization to product:** Not applicable

**Reproductive toxicity:** Not applicable

**Teratogenicity:** Not applicable

**Name of toxicologically synergistic products:** Not applicable

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**12. ECOLOGICAL INFORMATION**

*Eco toxicity:* The ecotoxicity of potassium silicate has not been tested. The following data is reported for chemically similar sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm.

*Environmental Fate:* This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1 ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor potassium will appreciably bioconcentrate up the food chain.

*Physical/Chemical:* Sinks and mixes with water. Only water will evaporate from this material.



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### **13. DISPOSAL CONSIDERATIONS**

*Disposal Method:* **Dispose in accordance with federal, provincial and local regulations.**

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### **14. TRANSPORT INFORMATION**

*TDG UN Status:* **This material is not regulated hazardous material for transportation.**

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### **15. REGULATORY INFORMATION**

*WHMIS (Canada):* **Class D2B**  
**This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.**

*DSL (Canada):* **All components of this formulation are listed on the CEPA-DSL**

*CERCLA (US):* **No CERCLA Reportable Quantity has been established for this material.**

*SARA TITLE III (US):* **Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Hazard Categories under §§311/312: Acute**

*TSCA (US):* **All ingredients of this material are listed on the TSCA inventory.**

*FDA (US):* **Potassium silicate is regarded as GRAS (Generally Recognized As Safe) as a corrosion preventative in potable water.**

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### **16. OTHER INFORMATION**

*Prepared by:* **HSE Dept**  
*Supersedes revision of:* **May 9, 2009**

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.

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