

Trade Name:  
Date Prepared:

**SS<sup>®</sup> 65 Powder Sodium Silicate**  
March 31, 2011

Page: 1 of 5

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **SS<sup>®</sup> 65 Powder Sodium silicate**  
 Product description: **A 3.22 weight ratio sodium silicate powder**  
 Product Use: **Refractory cements, binder**  
 Manufacturer: **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 and Common Name	CAS Registry Number	Wt. %	OSHA PEL	ACGIH TLV
Silicic acid, Sodium salt; Sodium silicate	1344-09-8	~99%	Not Established	Not Established
Crystalline silica, quartz	14808-60-7	0.1-1%	<u>10 mg/m<sup>3</sup></u> %SiO <sub>2</sub> +2 =Respirable  <u>30 mg/m<sup>3</sup></u> %SiO <sub>2</sub> +2 =Total dust	0.05 mg/m <sup>3</sup> Respirable

### 3. HAZARDS IDENTIFICATION

*Emergency Overview:* **White, odorless, powder. Causes mild eye irritation and slight skin irritation. Dust causes irritation to respiratory tract. 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 mild 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. Large doses are harmful if swallowed.**

*Chronic hazards:* **Cancer hazard. Contains crystalline silica which can cause cancer and delayed lung injury (silicosis). Crystalline silica is listed by NTP as a known human carcinogen, and it is classified by IARC in Group 1: materials for which there is sufficient evidence in humans for carcinogenicity.**

*Physical hazards:* **Contact with water produces alkaline solution.**



Trade Name:  
Date Prepared:

## SS<sup>®</sup> 65 Powder Sodium Silicate

March 31, 2011

2 of 5

### 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 large quantities of this material are swallowed, call a physician immediately, DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

### 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:* Wear turnout gear when this material is present in the area of a fire.

*Hazardous Combustion Products:* Not available

*Explosion Data:*

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

### 6. ACCIDENTAL RELEASE MEASURES

*Personal protection:* Wear safety goggles, body-covering clothing, chemical and abrasion-resistant gloves, and NIOSH-approved respiratory protection appropriate to the level of hazard where dust occurs. See section 8.

*Environmental Hazards:* Sinks and slowly dissolves in water. In aqueous solution, the high pH of this material 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 provincial and local authorities is recommended.



Trade Name:  
Date Prepared:

## SS® 65 Powder Sodium Silicate

March 31, 2011

3 of 5

### 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.

### 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 appropriate NIOSH-approved respiratory protection where dust hazard may occur. Observe Provincial regulations for respirator use.

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

*Eye protection:* Wear chemical goggles.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

*Appearance:* Powder.

*Color:* White.

*Odor:* Odorless.

*Odor Threshold:* Not available

*pH:* Approximately 11.3 (50% w/v slurry in water)

*Bulk density:* Approximately .54 lbs/ft<sup>3</sup> untamped, 88 lbs/ft<sup>3</sup> tamped,

*Solubility in water:* Soluble in all proportions. Dissolves slowly at room temperature.

*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

### 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 when damp or wet

*Hazardous decomposition products:* Hydrogen.



Trade Name:  
Date Prepared:

## SS® 65 Powder Sodium Silicate

March 31, 2011

4 of 5

### 11. TOXICOLOGICAL INFORMATION

*Acute Data:* When tested for primary irritation potential, a similar material caused mild 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 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 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; also, their offspring had reduced survival to weaning.

*Special Studies:* This material contains a small amount (0.1-1 Wt.%) of crystalline silica. Prolonged or repeated inhalation of crystalline silica causes lung diseases including silicosis, emphysema, obstructive airway disease and lung cancer. Crystalline silica is listed by NTP as a known human carcinogen, and it is classified by IARC in Group 1: materials for which there is sufficient evidence in humans for carcinogenicity. 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. 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 sodium silicates. Sodium 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

### 12. ECOLOGICAL INFORMATION

*Eco toxicity:* The following data is reported for 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 (*Lymnaea*) 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 sodium will appreciably bioconcentrate up the food chain.

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



Trade Name:  
Date Prepared:

**SS® 65 Powder Sodium Silicate**  
March 31, 2011

5 of 5

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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 D2A, 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. This product is not reportable under 40 CFR Part 402.4.

*SARA TITLE III (US):* Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Reportable as a hazardous substance. Hazard Categories under §§311/312: Acute, Chronic. Check with your Local Emergency Planning Committee for reportable quantities.

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

*FDA:* The use of sodium silicate is authorized by FDA as a boiler water additive for the production of steam that will contact food pursuant to 21 CFR §173.310; as a component of zinc-silicon dioxide matrix coatings on food contact surfaces pursuant to 21 CFR §175.390(c); as a GRAS substance when migrating from cotton fabric used in dry food packaging pursuant to 21 CFR §182.70; and as a GRAS substance when migrating to food from paper and paperboard products pursuant to 21 CFR §182.90.

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### 16. OTHER INFORMATION

*Prepared by:* EHS Dept  
*Supersedes revision of:* March 31, 2008

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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