



High Temperature Technologies, Inc.

Licensed provider of ISOMEMBRANE® components

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Charlotte, North Carolina 28203

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MSDS Number: 008
Date Prepared: November 6, 2003

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT NAME

Material Name: Sodium Silicate Bonded Kaolin Clay
Trade names: ISOBOND-E ®
Manufacturer/Supplier:
HIGH TEMPERATURE TECHNOLOGIES, INC.
2175 Dunavant Street
Charlotte, North Carolina 28203
Product Stewardship Program: (704) 375-2111

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS NUMBER	PERCENT	OSHA PEL	ACGIH TLV
Kaolin Clay	1332-58-7	20-60	15mg/m ³ Total	2mg/m ³ Respirable
Chrystalline Silica	14808-60-7	<1%	30mg/m ³ Total	0.1 mg/m ³ Respirable
Sodium Silicate	1344-09-8	10-60	Not Established	Not Established
Silicic acid, sodium salt				
Water	7732-18-5	0-20	N/A	N/A
Organic Dye		Trace		

(NOTE: See Section 8 of this MSDS for Personal Protection Guidelines.)

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overviews: Spring Green odorless, thick liquid. Can cause eye, skin, and digestive tract irritation. Spray mist can cause irritation to respiratory tract. High pH is harmful to aquatic life. Noncombustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics. Dust/mist generated from this product may aggravate existing chronic lung conditions such as bronchitis, emphysema and asthma.

Eye Contact: Causes irritation.

Skin Contact: Causes irritation.

Inhalation: Spray mist irritating to respiratory system.

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: Spilled material is very slippery. Can etch glass if not promptly removed.

SECTION 4 - FIRST AID

<i>Eye contact:</i>	Flush with large amounts of water for at least 15 minutes. Do not rub eyes. Get medical attention.
<i>Skin contact:</i>	Wash affected area with soap and water. Skin cream or lotion after washing may be helpful. Remove contaminated clothing and shoes. Get medical attention.
<i>Ingestion:</i>	DO NOT induce vomiting; drink plenty of water. Get medical attention immediately. If victim is conscious give a cupful of water. Never give anything by mouth to an unconscious person.
<i>Inhalation:</i>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. ** If any of the symptoms persist, seek medical attention immediately. **

SECTION 5 - FIRE FIGHTING MEASURES

<i>Flash point:</i>	Non-combustible
<i>Extinguishing media:</i>	This material is compatible with all extinguishing media.
<i>Explosion hazards:</i>	None
<i>Fire fighting protective equipment:</i>	Wear full bunker gear, including positive pressure self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

<i>Personal protection:</i>	Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and boots. See section 8.
<i>Environmental hazards:</i>	Sinks and mixes with water. High pH of this material is harmful to aquatic life. See section 12. Only water will evaporate from a spill of this material.
<i>Spill cleanup:</i>	Mop up and neutralize liquid, then discharge to sewer or waste bin in accordance with federal, state and local regulations or permits.
<i>CERCLA RQ:</i>	There is no CERCLA Reportable Quantity for this material. If a spill goes off site, notification of state and local authorities is recommended.

SECTION 7 - HANDLING AND STORAGE

<i>Handling:</i>	Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with a water wetted cloth. Promptly clean up spills.
<i>Storage:</i>	This product is stable under all conditions of storage. Store in original factory container in a dry area. Keep container closed when not in use. Separate from acid, reactive metals, and ammonium salts. Storage temperature 40 – 200F degrees. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

<i>Engineering controls:</i>	Use with adequate ventilation. Keep containers closed. Safety shower and eyewash fountain should be within direct access. Do not transport containers overhead.
<i>Protective clothing:</i>	Wear full body clothing, gloves, hat and eye protection.
<i>Eye protection:</i>	Wear chemical goggles.
<i>Respiratory protection:</i>	Use a NIOSH approved dust and mist approved respirator where spray mist occurs. Observe OSHA regulations for respirator use (29 CFR Section 1910.134, 42CFR Section 84)

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Thick liquid or paste.
<i>Odor:</i>	Odorless or musty odor.
<i>Color:</i>	Spring Green
<i>pH:</i>	9 to 11.3 depending on dilution with water.
<i>Specific gravity:</i>	7 pounds/gallon nominal (concentration dependent).
<i>Water solubility:</i>	Miscible.

SECTION 10 - STABILITY AND REACTIVITY

<i>Stability:</i>	This material is stable under all conditions of use and storage.
<i>Conditions to avoid:</i>	None
<i>Materials to avoid:</i>	Gels and generates heat when mixed with acid. May react with ammonium salts resulting in the evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.
<i>Hazardous decomposition products:</i>	Hydrogen.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Data:

<i>Kaolin Clay:</i>	None, not relevant.
<i>Sodium Silicate Binder:</i>	<p>When tested for primary eye irritation potential according to OECD Guidelines, Section 405, this material produced corneal, iridal and conjunctival irritation. Some eye irritation was still present 14 days after treatment, although the average primary irritation score had declined from 19.7 after day one to 4.0 after 14 days.</p> <p>When tested for primary skin irritation potential, this material produced irritation with a primary index of 3 to abraded skin and 0 to intact skin. Human experience confirms that irritation occurs when this product gets on clothes at the collar, cuffs or other areas where abrasion may occur.</p> <p>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 LD₅₀ in rats ranged from 1500mg/kg to 3200 mg/kg. The acute oral lethality resulted from non-specific causes. This product contains less than 37.5% sodium silicate.</p>

Subchronic Data:

<i>Sodium Silicate Binder:</i>	In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800ppm 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 four 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 1200ppm.
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Special Studies:

<i>Sodium Silicate Binder:</i>	Sodium silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation of kidney stones and other siliceous urinary tract calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen.
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SECTION 12 - ECOLOGICAL INFORMATION

<i>Kaolin Clay:</i>	No impact.
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Sodium Silicate Binder:

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 2320ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247ppm; and 96 hour median tolerance for snail eggs (*Lymnea*) of 632ppm; and a 96 hour median tolerance for Amphipoda of 160ppm. This product contains less than 37.5% sodium silicate.

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 0.1ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic 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 in the food chain.

Physical/Chemical:

Sinks and mixes with water. Only water will evaporate from this material.

SECTION 13 - DISPOSAL CONSIDERATIONS

Classification:

Disposed material is not a hazardous waste.

Disposal Method:

Neutralize and landfill in accordance with federal, state and local regulations.

SECTION 14 - TRANSPORT INFORMATION

DOT UN Status:

This material is not regulated hazardous material for transportation.

Hazard class: Not regulated
Labels: Not applicable
Placards: Not applicable

United Nations (UN) Number: Not applicable
North America (NA) Number: Not applicable
Bill of Lading: Product name

SECTION 15 – REGULATORY INFORMATION

CERCLA:

No CERCLA Reportable Quantity has been established for this material.

SARA Title III:

Not an Extremely Hazardous Substance under Section 302. Not a Toxic Chemical under Section 313. Hazard Categories under Section 311/312: Acute

TSCA:

All substances contained in this product are listed in the TSCA Chemical 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 Section 173.310; as a component of zinc-silicon dioxide matrix coatings on food contact surfaces pursuant to 21 CFR Section 125.390©; as a GRAS substance when migrating from cotton fabric used in dry food packaging pursuant to 21 CFR Section 182.70; and as a GRAS substance when migrating to food from paper and paperboard products pursuant to 21 CFR Section 182.90.

SECTION 16 - OTHER INFORMATION

Prepared by:

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