



GeoCement

MSDS*

LIQUID REAGENT – PART B

Potassium / sodium silicate in solution

Total document pages: 5 Prepared: 23 October 2023

1. Product and company identification

1.1. Product identifier

COMMERCIAL NAME Geopolymer Liquid Reagent Part B

1.2. Relevant identified uses of the product or mixture uses advised against

RELEVANT IDENTIFIED USES Industrial use

1.3. Details of the supplier

COMPANY Geopolymer International Llc

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* **This Material safety Datasheet is for a product in development as of the date of shipping.** The information contained herein is based on the present state of our knowledge. It characterizes the product in development with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product. We believe that such information is accurate and reliable as of the date of this safety data sheet; but no representation, guarantee or warranty, express or implied, is made. We urge persons receiving this information to make their own determination about the product as to the information's suitability and completeness for their particular application. We further urge purchasers to determine compatibility of this product for their application prior to use by making their own tests, also with regard to possible applicational influences. The abundance of conditions or methods of handling, storage, use and disposal of the product by the client are beyond our control and may be beyond our knowledge. For this and other

reasons we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way with the handling, storage, use or disposal of the product.

2. Hazards identification

EMERGENCY OVERVIEW Clear to hazy, colorless or reddish, odorless, thick liquid. Causes mild irritation, mild skin irritation, and digestive tract irritation. Spray mist causes 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.

EYE CONTACT Causes damage to the eyes. Corrosive.

SKIN CONTACT Causes mild irritation to the skin. Irritant.

INHALATION Spray mist 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 Dries to form glass film which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

3. Composition/Information on Ingredients

SUBSTANCES Water: 55%

Potassium/sodium silicate: 45%

HAZARDOUS COMPONENTS None
**WITHIN THE MEANING OF
CLP REGULATION AND
CORRESPONDING
CLASSIFICATION**

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.

5. Fire fighting measures

FLAMMABLE LIMITS This material is noncombustible.

EXTINGUISHING MEDIA This material is compatible with all extinguishing media.

HAZARDS TO FIREFIGHTERS

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

See section 2 for information on hazards when this material is present in the area of fire.

Not available

EXPLOSION DATA Not available

SENSITIVITY TO MECHANICAL IMPACT AND STATIC DISCHARGE Not available **6.**

Accidental release measures

PERSONAL PROTECTION Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots. See section 8.

ENVIRONMENTAL HAZARDS harmful to aquatic life, see section 12. Only water will evaporate from a spill of this material.
Sinks and mixes with water. High pH of this material is

SMALL SPILL CLEANUP Mop up and neutralize liquid, dispose in accordance with federal, provincial and local regulations or permits.

LARGE SPILL CLEANUP

and deny entry. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralize contaminated area and flush with large quantities of water.

7. Handling and storage

Keep unnecessary people away; isolate hazard area

HANDLING Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with cloth dampened with water. Promptly clean up spills.

STORAGE Keep containers closed. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Storage temperature 0-95°C. Loading temperature 45-95°C. 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 occurs. Observe local regulations for respirator use. Use a dust and mist respirator where spray mist use.

SKIN PROTECTION Wear body-covering protective clothing and gloves.

EYE PROTECTION Wear chemical goggles.

9. Physical and chemical properties

APPEARANCE Thick liquid

COLOR Transparent or slightly opalescent or reddish **ODOR** Odorless or musty odor

ODOR THRESHOLD Not available

pH 13.5

DENSITY (20°C) approx. 1.42 g/cm³

DRY CONTENT approx. 45%

WATER SOLUBILITY soluble

FLASHPOINT Not applicable
Not applicable

AUTO-IGNITION TEMPERATURE

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 **10. Stability and reactivity**
Not applicable

STABILITY This material is stable under all conditions of use and storage. **CONDITIONS TO**

AVOID None

MATERIALS TO AVOID 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.

HAZARDOUS Hydrogen.

DECOMPOSITION PRODUCTS

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/sodium silicates get on clothes at the collar, cuffs or other areas where abrasion may occur. The acute oral toxicity of potassium silicate has not been tested. When chemically similar sodium silicates were tested on a 100% solids basis, their single dose acute oral LD₅₀ in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes.

SUBCHRONIC DATA The subchronic toxicity of potassium silicate has not been tested. In a study of rats fed chemically similar 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 potassium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed potassium 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 potassium silicate 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/sodium silicates. Potassium/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

ECOTOXICITY Several terrestrial toxicity assessments have been performed with potassium silicate solutions. The following data is reported: seed germination, seedling emergence, root elongation and earthworm survival LC50 / EC50, LC25 / EC25>

100 - non-toxic. 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. This product contains approximately 29.1% potassium/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 0.1 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/sodium will appreciably bioconcentrate up the food chain.

PHYSICAL/CHEMICAL Sinks and mixes with water. Only water will evaporate from this material. **13.**

Disposal considerations

DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations.

14. Transport information

ADR Is not regulated hazardous goods.

IMDGs not regulated hazardous goods.

IATA Proper shipping name not applicable

Hazard class not applicable

UN number none

Packing group not applicable

Packaging exceptions none

General not a regulated article under United States DOT, IATA, ADR, IMDG, or RID.

15. Regulatory information

INTERNATIONAL Not controlled by the Montreal Protocol or Stockholm Convention.

LEGISLATION

16. Other information

Technical data contained in the present data sheet are acquired from the tests, standardized norms or their modifications, and from the applied systems of GPI.

For more detailed information contact technical service of our company.

The information contained in this data sheet, while representing the current state of knowledge, do not release the user from the accurate preliminary tests in their conditions of employment and exercise. We assume no responsibility for the improper use of the product.

Technical service of the company is at the client's disposal for providing any necessary information concerning correct use of the product.

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