



*Material Safety Data sheet*

20/07/2023

**SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY**

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**1.1 Product identifiers**

Product Name: Sodium Silicate Solution (Water Glass)

Brand: Sharif Chemia

CAS-No.: 1344-09-8

**1.2 Relevant identified uses of the substance or mixture and uses advised against Identified uses:**

Laboratory chemicals, Manufacturing of substances

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

Manufacturer: Sunyar Graphene Science  
Graphena laboratories, Tehran, Iran

Telephone: + 971 566933685

Website: [www.Sharifchemia.com](http://www.Sharifchemia.com)

**1.4 Product description:**

2.75 ± 0.05 weight ratio sodium silicate, 39-41% Solution in Water



## SECTION 2: HAZARDS IDENTIFICATION

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### Emergency Overview:

Hazy, colorless, odorless, thick liquid. Causes severe irritation to eyes and moderate skin irritation. Spray mist causes irritation to respiratory tract. Due to high pH of product, release into surface water is harmful to aquatic life. Noncombustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics.

Eye contact: Causes severe irritation to the eyes.

Skin contact: Causes moderate irritation to the skin.

Inhalation: Spray mist is 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.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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Chemical and Common Name	CAS Registry Number	Wt. %
Water	7732-18-5	51-53%
Silicic Acid, Sodium Salt	1344-09-8	47-48%



**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.

**SECTION 5: FIREFIGHTING MEASURES**

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**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.



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### **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.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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### **Personal protection:**

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

### **Environmental Hazards:**

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.

### **Small spill cleanup:**

Mop up and neutralize liquid, then discharge to sewer in accordance with federal, state and local regulations or permits.

### **Large spill cleanup:**

Keep unnecessary people away; isolate hazard area 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.

### **CERCLA RQ:**

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**

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### **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.

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

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### **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 and mist respirator where spray mist occurs. Observe OSHA regulations for respirator use (29 C.F.R.§1910.134).

### **Skin protection:**

Wear body-covering protective clothing and gloves.

### **Eye protection:**

Wear chemical goggles.



## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Information on basic physical and chemical properties

Appearance: Hazy

Color: Hazy white

Odor: Odorless or musty odor.

pH: Approximately 11.8-12.2

Specific gravity: 1.503 – 1.534 g/cm<sup>3</sup> (20°C),

Baume 49.5 ± 1.0 ° Bé

Solubility in water: Miscible.

## SECTION 10: STABILITY AND REACTIVITY

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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 decomposition products: Hydrogen.

## SECTION 11: TOXICOLOGICAL INFORMATION

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### Acute Data:

When tested for eye and skin irritation potential, a similar material caused severe irritation to the eyes and moderate irritation to the skin. Human experience indicates that skin irritation occurs, particularly, when sodium silicates get on clothes at the collar, cuffs or other areas where contact and 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 LD50 in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. This product contains approximately 44% sodium silicate.

#### **Subchronic Data:**

When tested for eye and skin irritation potential, a similar material caused severe irritation to the eyes and moderate irritation to the skin. Human experience indicates that skin irritation occurs, particularly, when sodium silicates get on clothes at the collar, cuffs or other areas where contact and 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 LD50 in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. This product contains approximately 44% sodium silicate.

#### **Special Studies:**

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 kidney stones and other siliceous urinary calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

## **SECTION 12: ECOLOGICAL INFORMATION**

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#### **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 (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. This product contains approximately 44% sodium silicate.



**Environmental Fate:**

This material is not persistent in aquatic systems, but its high pH when undiluted 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 bio accumulate 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.

**SECTION 13: DISPOSAL CONSIDERATIONS**

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**Classification:**

Waste material is a RCRA Hazardous waste because it exhibits the corrosive characteristic (pH greater than or equal to 12.5) as defined in EPA rules at 40 C.F.R. §261.22 (a)(1).

**Disposal Method:**

Dispose in accordance with federal, state and local regulations.





## **SECTION 14: TRANSPORT INFORMATION**

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### **DOT UN Status:**

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

**"Sodium Silicate Solution (Water Glass)" is NON-RESTRICTED as per IATA SP A197"**

## **SECTION 15: REGULATORY INFORMATION**

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### **CERCLA:**

No CERCLA Reportable Quantity has been established for this material.

### **SARA TITLE III:**

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

### **TSCA:**

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



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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

### **SECTION 16: OTHER INFORMATION**

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**THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO Sharif Chemia for laboratories and chemical trading L.L.C Co. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING. BAVAND CHEMICAL INDUSTRIES 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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