SAFETY DATA SHEET

SODIUM SILICATE LIQUID (ALKALINE GRADE)

CAS No.: 1344-09-8

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

SODIUM SILICATE LIQUID (ALKALINE GRADE)
Water glass; Soluble glass; Sodium metasilicate solution
CAS: 1344-09-8

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Detergent/soap builder, adhesive and binder, water treatment/coagulant aid, board/paper sizing, foundry binder, cement/refractory additive. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3. Not for food or pharmaceutical use.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on well-established public data for aqueous sodium silicate solutions (CAS 1344-09-8).

Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Dam. 1	Serious eye damage, Category 1, H318

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

H315: Causes skin irritation.
H318: Causes serious eye damage.

Precautionary statements

P264: Wash exposed skin thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P501: Dispose of contents/container in accordance with local/regional/national regulations.

Other hazards which do not result in classification

Highly alkaline (pH typically 11–13). Not a PBT/vPvB substance. Slippery when spilled on floors.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Sodium Silicate ($Na_2O \cdot xSiO_2$), aqueous alkaline solution

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 1344-09-8	Sodium Silicate – Skin Irrit. 2, Eye Dam. 1: H315, H318 – Danger	35–40%
CAS: 7732-18-5	Water	Balance

Silica/alkali (SiO_2:Na_2O) ratio and solids content vary by grade; confirmed on the product Certificate of Analysis. To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Aqueous solution of sodium silicate as indicated above.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Mist may irritate the respiratory tract. Remove to fresh air and keep at rest.

By skin contact

Remove contaminated clothing. Wash skin immediately with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

By eye contact

Rinse immediately with plenty of water for at least 15–20 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Obtain immediate medical attention.

By ingestion/aspiration

Do not induce vomiting. Rinse mouth with water. Give water or milk to drink if the person is conscious and alert. Obtain immediate medical attention.

Most important symptoms/effects, acute and delayed

Alkaline/corrosive to eyes and skin; may cause serious eye damage and skin irritation/burns on prolonged contact.

Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically as an alkaline chemical burn/irritant exposure.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, foam, dry chemical, CO_2.
Unsuitable: None known.

Specific hazards arising from the chemical

Aqueous solution – not flammable, not combustible. No unusual fire hazard.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus and full protective clothing in a fire situation.

Additional provisions

Cool fire-exposed containers with water spray if safe to do so.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear PPE described in section 8. Avoid skin and eye contact. Beware of slip hazard on spilled material.

For emergency responders

Wear protective equipment; ensure adequate ventilation.

Environmental precautions

Avoid discharge to drains or watercourses; may locally raise pH.

Methods and materials for containment and cleaning up

Dike and contain spillage. Absorb with inert material (sand, earth, vermiculite) and collect in suitable containers for disposal. Wash residual traces with plenty of water where discharge is permitted.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Avoid contact with skin and eyes. Avoid breathing mist. Use with adequate ventilation.

B. Technical recommendations for the prevention of fires and explosions

Not flammable; no specific fire prevention measures required beyond general good practice.

C. Technical recommendations on general occupational hygiene

Do not eat, drink or smoke while handling. Wash hands and exposed skin thoroughly after handling.

D. Technical recommendations to prevent environmental risks

Prevent uncontrolled discharge to drains or watercourses; provide bunding for bulk storage.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage condition	Store in tightly closed containers/tanks in a cool, well-ventilated place; protect from freezing (may cause gelling/separation)
Incompatible materials	Acids, ammonium salts, halogenated compounds, reactive/amphoteric metals (e.g. aluminium, zinc)

B. General conditions for storage

Provide bunding around bulk storage. Avoid contact with acids (violent neutralisation, heat generation).

Specific end use(s)

Detergent builder, adhesive/binder, water-treatment aid and related industrial uses. Except for the instructions already specified, no other special recommendation applies.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Identification	Occupational Exposure Limit Type	Value
Sodium Silicate CAS: 1344-09-8	No harmonised OEL established (as sodium hydroxide equivalent alkalinity, treat per general alkaline-mist controls)	Available on request

Appropriate engineering controls

Provide local exhaust ventilation where mist may be generated (spraying, heated processing).

B. Respiratory protection

Not normally required with adequate ventilation; use a particulate/mist filter respirator if mist levels are elevated.

C. Specific protection for the hands

Chemical-resistant gloves (nitrile, neoprene or PVC).

D. Eye and face protection

Chemical safety goggles/face shield.

E. Bodily protection

Acid/alkali-resistant apron and protective clothing.

F. Additional emergency measures

Emergency shower and eyewash stations should be available in the work area.

Environmental exposure controls

Prevent uncontrolled discharge to the environment; see subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Appearance	Colorless to slightly hazy viscous liquid
Odor	Odorless
Odour threshold	Not applicable
Volatility	
Boiling point	~102–104°C (aqueous solution)
Freezing point	Approx. –5 to 0°C (gels/separates below this; grade dependent)
Vapour pressure	Approx. that of water at same temperature
Evaporation rate	Slow (aqueous solution)
Product Description	
SiO_2:Na_2O weight ratio	~3.2:1 (typical alkaline grade; grade dependent)
Density at 20°C	~1.38–1.42 g/cm³
pH (as supplied)	11–13 (strongly alkaline)
Solubility in water	Miscible in all proportions
Viscosity at 20°C	Moderate to high (grade dependent)
Flammability	
Flash Point	Non-applicable (aqueous solution, non-flammable)
Flammability (solid, gas)	Not flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	Not applicable

Other information

Explosive properties	Not applicable
Oxidising properties	Not classified as an oxidiser
Corrosive to metals	May attack amphoteric metals (aluminium, zinc); glass and ceramics may be etched on prolonged contact

10. STABILITY AND REACTIVITY

Reactivity

Reacts exothermically and violently with acids (neutralisation). Reacts with amphoteric metals (aluminium, zinc) liberating flammable hydrogen gas. Reacts with ammonium salts liberating ammonia gas.

Chemical stability

Chemically stable under the indicated conditions of storage, handling and use. May gel/separate if frozen or on prolonged storage; re-mix before use.

Possibility of hazardous reactions

Under specified conditions, hazardous reactions leading to excessive temperature or pressure are not expected, except with acids or amphoteric metals as noted above.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Avoid freezing – gelling/separation

Incompatible materials

Acids, ammonium salts, halogenated compounds, aluminium, zinc and other amphoteric/reactive metals.

Hazardous decomposition products

None expected under normal conditions of storage and use.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

May cause irritation/burns to the mouth, throat and digestive tract due to alkalinity.

B. Inhalation (acute effect)

Mist may irritate the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)

Skin: causes irritation, prolonged contact may cause burns. Eyes: causes serious eye damage.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Not listed as a carcinogen by IARC, NTP or OSHA. Classification criteria for mutagenicity/reproductive toxicity are not met based on available data.

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

May cause respiratory irritation from mist exposure.

G. Specific target organ toxicity (STOT) – repeated exposure

Classification criteria are not met based on available data.

H. Aspiration hazard

Not classified.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Sodium Silicate CAS: 1344-09-8	LD50 oral: ~3400 mg/kg	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

12. ECOLOGICAL INFORMATION

Low aquatic toxicity as silicate; the principal environmental concern is the transient high pH of concentrated discharges.

Toxicity

Acute Toxicity	Species	Genus
LC50: ~200–300 mg/L (96h, pH-dependent)	Non-applicable	Fish
EC50: ~200 mg/L (48h, pH-dependent)	Non-applicable	Daphnia

Persistence and degradability

Inorganic; biodegradation is not applicable. Hydrolyses in water to silicic acid/silica and sodium hydroxide.

Bioaccumulative potential

Not expected to bioaccumulate.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not applicable	Not applicable	Soluble/mobile; polymerises to silica gel over time in soil	

Results of PBT and vPvB assessment

Not applicable (inorganic substance).

Other adverse effects

Large discharges may transiently raise the pH of receiving water.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralise carefully with dilute acid and dilute with water prior to disposal in accordance with local discharge consent, or dispose of via a licensed waste contractor.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID)

14.1 UN number	Not regulated for the alkaline grade at typical commercial concentration (~35–40% solids); higher-concentration/higher-alkalinity grades may meet UN3253 – confirm against COA before shipment
14.2 UN proper shipping name	Sodium Silicate Solution
14.3 Transport hazard class(es)	N/A (standard grade) / 8 (higher-alkalinity grades)
14.4 Packing group	N/A (standard grade) / III (higher-alkalinity grades)
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG)

14.1 UN number	Not regulated for the standard alkaline grade; see note above
14.2 UN proper shipping name	Sodium Silicate Solution
14.3 Transport hazard class(es)	N/A (standard grade) / 8 (higher-alkalinity grades)
14.4 Packing group	N/A (standard grade) / III (higher-alkalinity grades)
14.5 Marine pollutant	No
14.6 Special precautions for user	None (standard grade)
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	Not regulated for the standard alkaline grade; see note above
14.2 UN proper shipping name	Sodium Silicate Solution
14.3 Transport hazard class(es)	N/A (standard grade) / 8 (higher-alkalinity grades)
14.4 Packing group	N/A (standard grade) / III (higher-alkalinity grades)
14.5 Environmental hazard	No
14.6 Special precautions for user	None (standard grade)
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information in this SDS as data for a local risk evaluation for handling, use, storage and disposal.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H315: Causes skin irritation.
H318: Causes serious eye damage.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

Publicly available GHS classification and physicochemical reference data for sodium silicate solutions (CAS 1344-09-8).

Abbreviations and acronyms

LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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