SAFETY DATA SHEET

OxyChem®

LIQUID SODIUM SILICATE - SILICEOUS

North America EN
SDS No.: M35887

Rev. Date: 09-Dec-2025
Rev. Num. 12

SECTION 1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 14555 Dallas Parkway, Suite 400 Dallas, Texas 75254-4300
24-Hour Emergency Telephone Number:	1-800-733-3665 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**LIQUID SODIUM SILICATE - SILICEOUS**
Trade Name:	Sodium Silicate Liquid Siliceous, Grades 20 Clear, 20 Special Clear, 20 AZ, 40, 40 Clear, 40 Light, 40 Special, 40 Special Clear, 42, 42 Heavy, 42 Special, 42 Special Clear, 40 Light Clear
Synonyms:	Liquid sodium silicate; Water glass; Sodium silicate liquid siliceous
Product Use:	Sodium silicate is a highly versatile compound used across many industries. Overall, sodium silicate's unique chemical properties make it an essential ingredient in adhesives, cements, detergents, catalysts, water treatment agents, coatings, foundry applications, soil stabilization, and more. Its main applications include serving as an ingredient in making strong adhesive and cement for construction and manufacturing, aiding in pulp and paper processing for bleaching and de-inking, and enhancing detergent and soap formulations for improved cleaning and corrosion control. Additionally, it is crucial in producing gels, catalysts, and zeolites, forming strong molds and cores in foundries, stabilizing soils in construction, purifying water, and creating durable, water-resistant coatings for various surfaces
Uses Advised Against:	**- Neutralizing acidic wastewater** **- Sodium silicate should not be used as a long-term adhesive since joints may**

	crack over time, nor should it be relied on for waterproofing, as it is water-soluble and requires a separate waterproof coating
Restrictions on Use (United States):	Any use of sodium silicate in cosmetics, food, and/or food contact applications must comply with specific FDA regulations and guidelines, which can vary depending on the application and international markets.
Chemical Family:	Alkali Metal Silicates (Inorganic Salts)

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: Health hazard classifications were performed using OSHA Hazard Communication 2024 (1910.1200) Appendix A and/or UN GHS Rev. 8 (2019). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

HEALTH CANADA HPR REGULATORY STATUS: This material is considered hazardous by the Health Canada Hazardous Products Act's Hazardous Products Regulations (HPR) (SOR/2015-17).

EMERGENCY OVERVIEW:

Color:	Colorless to slight tint
Physical State:	Liquid
Appearance:	Clear to opaque
Odor:	Odorless to slight odor
Signal Word:	**WARNING**

MAJOR HEALTH HAZARDS: CAUSES SERIOUS EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS: Upon drying forms thin glass that can cut skin. Spilled material may cause slipping hazard.

PRECAUTIONARY STATEMENTS: Wash hands and exposed skin thoroughly after handling. Do not touch eyes. Wear protective gloves, protective clothing, eye, and face protection.

ADDITIONAL HAZARD INFORMATION: Significant exposures must be referred for medical attention immediately. There is no specific antidote.

HAZARD CLASSIFICATION:

GHS: CONTACT HAZARD - EYE:	Category 2A - Causes serious eye irritation

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HAZARDS NOT OTHERWISE CLASSIFIED (HNOC):	- ACUTE TOXICITY - ORAL: Category 5 (May be harmful if swallowed)

UNKNOWN ACUTE TOXICITY:

Unknown Acute Oral Toxicity:
100% of this product consists of ingredient(s) of known acute oral toxicity.

Unknown Acute Dermal Toxicity:
There is no acute dermal toxicity data available for this material.

Unknown Acute Inhalation Toxicity:
There is no acute inhalation toxicity data available for this material.

GHS SYMBOL: Exclamation mark

GHS SIGNAL WORD: **WARNING**

GHS HAZARD STATEMENTS:

GHS - Health Hazard Statement(s)
• Causes serious eye irritation

Additional Hazards - GHS Hazards Not Otherwise Classified (HNOC):
• ACUTE TOXICITY - ORAL: Category 5 (May be harmful if swallowed)

GHS - Precautionary Statement(s) - Prevention
• Wash hands and exposed skin thoroughly after handling. Do not touch eyes
• Wear protective gloves/protective clothing/eye protection/face protection

GHS - Precautionary Statement(s) - Response
• IF SWALLOWED: Get medical help
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• If eye irritation persists: Get medical help

GHS - Precautionary Statement(s) - Storage
• There are no Precautionary-Storage phrases assigned

GHS - Precautionary Statement(s) - Disposal
• There are no Precautionary Statement(s) - Disposal phrases assigned

Persistent, Bioaccumulative, and Toxic (PBT) and Very Persistent and Very Bioaccumulative (vPvB) Assessment:
Inorganic substances do not require PBT assessment.

Component	U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing	EU - PBT / vPvB Status
Sodium silicate	Not listed	PBT/PvBT assessment does not apply Considered not to be an EU PBT

Endocrine Disruptor Assessment:
Sodium Silicate is listed on The Endocrine Disruptors Exchange's (TEDX) List of Potential Endocrine Disruptors database of chemicals with the potential to affect the endocrine system. Every chemical on the TEDX List has one or more verified citations published, accessible, primary scientific research demonstrating effects on the endocrine system.

Component	Endocrine Screening List	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation
Sodium silicate	TEDX Potential Endocrine List: Present	Not Listed as SVHC

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Systematic Chemical Name	Common name	CAS Number	Percent [%]
Water 7732-18-5	Dihydrogen monoxide (H_2O)	Water	7732-18-5	60 - 80
Sodium silicate 1344-09-8	Silicic Acid, Sodium Salt	Sodium Silicate	1344-09-8	20 - 40

SECTION 4. FIRST AID MEASURES

EYE CONTACT: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical help.

SKIN CONTACT: IF ON SKIN: Wash with plenty of water.

INHALATION: If adverse effects occur, such as irritation, remove to uncontaminated area. If irritation or symptoms of overexposure occur, get medical attention.

INGESTION: IF SWALLOWED: Get medical help.

MOST IMPORTANT SYMPTOMS/EFFECTS (ACUTE AND CHRONIC [DELAYED]):

Solutions of sodium silicate are alkaline. Exposure to alkaline solutions may result in irritation to any contacted tissue, including possible burns, depending on the concentration, duration, and nature of the exposure. This material is not a crystalline silica, and it does not cause pulmonary silicosis.

Acute Symptoms/Effects: Listed below.

Eye: Eye exposure may lead to rapid onset of corrosive injury including corneal and conjunctival epithelial loss, stromal and endothelial necrosis, hyperemia of the iris, conjunctival and limbal edema and ischemia, corneal opacification and ulceration. Additional complications may include perforation and staphyloma of the cornea, symblepharon, persistent iritis, and secondary glaucoma or cataract.
Skin: Skin irritation is unlikely following brief contact with dry solid, whereas wet solid and aqueous solutions may cause severe irritation, and corrosive injury with permanent scarring in severe cases, depending on the degree of dilution and resultant pH.
Inhalation (Breathing): Inhalation of dust, and vapor or mists from aqueous solutions may result in effects ranging from transient nasal and throat irritation and cough in mild exposures to dyspnea, chest tightness/pain, laryngospasm, respiratory distress, pneumonitis, and pulmonary edema in severe cases.
Ingestion (Swallowing): Swallowing this material may be harmful. Ingestion may result in corrosive injury to the upper gastrointestinal tract. Signs and symptoms commonly include vomiting, hematemesis, drooling, odynophagia, dysphagia, with oropharyngeal, esophageal, epigastric, and abdominal pain. Hoarseness, cough, stridor, dyspnea, tachypnea, respiratory distress, and respiratory failure are indications of serious complications. Local effects can range in severity from mucosal erythema and/or edema, to ulceration, erosion, necrosis, and esophageal perforation leading to mediastinitis, pneumonia, mediastinal contamination, and severe sepsis. Esophageal injury may occur in the absence of oral burns.

Chronic (Delayed) Symptoms/Effects: Repeated and prolonged skin contact may cause a dermatitis.

Protection of First-Aid Responders: Avoid contact with skin and eyes. Use personal protective equipment (PPE). Refer to Section 8 for specific PPE recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Treat as a corrosive substance. Treat symptoms with supportive care. There is no specific antidote. The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. It may take 48-72 hours to assess the extent of an ocular burn. Probable mucosal damage may contraindicate the use of gastric lavage.

Interaction with Other Chemicals Which Enhance Toxicity: Sodium silicate generally does not have known synergistic interactions that enhance systemic toxicity.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as 1) eye disorders that decrease tear production or have reduced integrity, 2) skin disorders that compromise the integrity of the skin such as psoriasis, rashes, eczema, and skin infections, and 3) pulmonary disorders that compromise the integrity of the lungs such as asthma.

SECTION 5. FIRE FIGHTING MEASURES

Fire Hazard: Negligible fire hazard.

Explosive properties: This product does not contribute to the spreading of flames, nor is it combustible or explosive.

Extinguishing Media: Use media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None specifically listed for sodium silicate. The product is not combustible, so the main concern is preventing contaminated firefighting water from entering sewers and waterways.

Specific Hazards: Sodium silicate is classified as non-flammable and non-explosive, meaning it does not ignite, spread flames, or possess a flash point or auto-ignition temperature, making it a negligible fire hazard.

Unusual Hazards: The substance can form a hard, glass-like residue when dried or heated, which poses a risk of cuts if handled improperly. Additionally, spilled liquid sodium silicate creates slippery surfaces, increasing the potential for slips and falls, especially when water is used in firefighting. Although sodium silicate is not flammable, its highly alkaline and corrosive nature can lead to chemical burns if it comes into contact with the eyes or skin during emergency handling.

Fire Fighting: Move container from the fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not applicable / Not flammable

Upper Flammability Level (air): Not applicable / Not flammable

Flash point: Not applicable / Not flammable

Auto-ignition Temperature: Not applicable

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with skin and eyes. Avoid breathing fumes, vapor, mist, or spray. Dries to form glass film which can easily cut skin. Spilled material may cause a slipping hazard. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Personal Protective Equipment: See Section 8 for information on personal protective equipment.

Emergency Procedures: If a Sodium Silicate spill occurs, immediately stop and assess the situation, evacuate

non-essential personnel, and avoid inhaling any vapors. Use appropriate personal protective equipment such as gloves, goggles, and a respirator if needed. Contain the spill with absorbent materials, prevent it from reaching drains, and avoid creating aerosols. Clean up by absorbing the material, collecting it for disposal, washing surfaces, and collecting rinse water if necessary. Dispose of all materials according to waste regulations, never pouring them down drains. Report the incident internally and externally as required.

Environmental Precautions: Keep out of water supplies and sewers. Avoid Waterway Discharge: Sodium silicate can raise pH and harm aquatic life if released untreated into natural water bodies. Soil Impact: Prolonged accumulation may alter soil chemistry and reduce fertility. Prevent uncontrolled spills. Releases should be reported, if required, to appropriate agencies.

Methods and Materials for Containment, Confinement, and/or Abatement: Reclaim for processing if possible.

Methods and Materials for Clean-up

Recovery: Completely contain spilled material with dikes, sandbags, etc. After containment, collect the spilled material and transfer to a chemical waste area. Liquid material may be removed with a properly rated vacuum truck. Spills must be surrounded by absorbent material in order to delimit its extension, then complete its absorption.

Neutralization: Dilution and neutralization with acid under controlled conditions may be required before disposal. Consult with OxyChem Technical Services for specific instructions before attempting neutralization.

Final Disposal: Control pH at the discharge to sewer or the receiving water and comply with all federal, state, and local regulations. Runoff may pollute waterways. Dispose in accordance with all applicable regulations.

Additional Disaster Prevention Measures: See section 7 for storage and handling information. See Section 8 for information on personal protective equipment. See section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling:

Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid breathing vapor, mist, or spray. Product shipped/handled hot can cause thermal burns. Use care when handling hot material. Do not eat, drink, or smoke in areas where this material is used. Use appropriate personal protective equipment (PPE). See Section 8, Exposure Controls and Personal Protection, for additional information.

Storage:

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container, or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Incompatible Materials: Can generate heat when mixed with acids, Avoid prolonged contact with alkali sensitive metals such as: aluminum, brass, bronze, copper, lead, tin, zinc because flammable hydrogen gas can be generated.

Additional Information:

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

REGULATORY EXPOSURE LIMIT(S):
This product does not contain any components that have regulatory occupational exposure limits (OELs) established.

NON-REGULATORY EXPOSURE LIMIT(S):
This product does not contain any components that have advisory (non-regulatory) occupational exposure limits (OEL's); however, the manufacturer has established internal Recommended Exposure Level(s) [REL(s)] as noted below.
Recommended Exposure Limits (REL's) are non-regulatory occupational exposure limits the manufacturer has established based on health effects data.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Sodium silicate 1344-09-8 (20 - 40 %)	NA	NA	Alkaline Product Grades: 4 mg/m³ Siliceous Product Grades: 6 mg/m³

Additional Advice: ACGIH and/or Recommended Exposure Level (REL) Ceiling values indicate the exposure limit, which at no time shall be exceeded. Instantaneous monitoring is the preferred method to determine compliance with Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure, which shall not be exceeded at any time during the working day.

ENGINEERING CONTROLS: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. If eye contact is likely, wear chemical resistant safety goggles. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When skin contact is likely, wear Tychem® SL or a similar protective suit. Wear appropriate heat resistant clothing when potential exists for contact with hot materials.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove. Use gloves that are cut resistant if handling dry glass material.

Protective Material Types: Butyl rubber, Natural rubber, Neoprene, Nitrile, Tychem® SL, Tyvek®.

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. A respiratory protection program that meets 29

CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to opaque
Physical State:	Liquid
Color:	Colorless to slight tint
Odor:	Odorless to slight odor
Odor Threshold [ppm]:	No data available
Melting Point/Range:	Not applicable to liquids
Freezing Point/Range:	30 °F (-1 °C)
Boiling point / boiling range	214-216 °F (101-102 °C)
Evaporation Rate (ether=1):	No data available
Lower Flammability Level (air):	Not applicable / Not flammable
Upper Flammability Level (air):	Not applicable / Not flammable
Explosion limits:	Not determined
Flash point:	Not applicable / Not flammable
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Not applicable
pH:	11.0 - <11.5
Viscosity:	20 - 1000 cp
Dynamic Viscosity:	**165 – 400 cp (depends on grade)**
Kinematic Viscosity:	65 - 285 cSt (depends on grade)
Water Solubility:	100%
Partition Coefficient (n-octanol/water):	Not applicable
Vapor Pressure:	Negligible at ambient temperature
Density:	**Siliceous Grade: 10.5 – 11.9 lbs./gal**
Relative Density/Specific Gravity (water=1):	**≈ 1.38 – 1.44 (Values vary by grade and solids content)**
Vapor Density (air=1):	Not applicable
Particle Size Distribution:	Not applicable to liquids

Other Information

Molecular Formula:	xSiO2/Na2O (x >= 3.0 by weight)
Chemical Family:	Alkali Metal Silicates (Inorganic Salts)
Molecular Weight:	xSiO2/Na2O (x >= 3.0 by weight)
Explosive properties:	Not applicable
Oxidizing properties:	Not applicable
Bulk Density:	Not applicable to liquids
Crystallization Temperature:	**-1 °C to 0 °C (30 °F) for most liquid grades**
Volatility:	> 50%
Surface Tension:	**~ 65 – 75 dynes/cm (mN/m) at 20 °C**
Hygroscopic:	Not applicable
Radioactivity:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Not reactive under normal temperatures and pressures.

Possibility of Hazardous Reactions: Contact with acids will cause gelling and evolution of heat. Prolonged contact with incompatible metals may produce flammable hydrogen gas.

Conditions to Avoid (e.g., static discharge, shock, or vibration): Prolonged storage above 140 °F (60 °C).

Incompatible Materials: Can generate heat when mixed with acids. Avoid prolonged contact with alkali sensitive metals such as: aluminum, brass, bronze, copper, lead, tin, zinc because flammable hydrogen gas can be generated.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:

ACUTE TOXICITY:

Eye contact: Causes serious eye irritation. Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. The full extent of the injury may not be immediately apparent.

Skin contact: Causes skin irritation. Contact with skin may result in redness, itching, irritation, burning sensation, swelling.

Inhalation: Inhalation of mist, vapor, or spray may cause irritation of the respiratory tract, possibly with coughing, choking, and pain either immediately or within 72 hours.

Ingestion: May be harmful if swallowed. May cause immediate pain and severe burns of the upper and lower gastrointestinal tract with vomiting, nausea, and diarrhea.

CHRONIC TOXICITY:

Chronic Effects: Repeated or prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:

Solutions of sodium silicate are alkaline. Exposure to alkaline solutions may result in irritation to any contacted tissue, including possible burns, depending on the concentration, duration, and nature of the exposure. This material is not a crystalline silica, and it does not cause pulmonary silicosis.

Inhalation (Breathing): Inhalation of dust, and vapor or mists from aqueous solutions may result in effects ranging from transient nasal and throat irritation and cough in mild exposures to dyspnea, chest tightness/pain,

laryngospasm, respiratory distress, pneumonitis, and pulmonary edema in severe cases.
Skin: Skin irritation is unlikely following brief contact with dry solid, whereas wet solid and aqueous solutions may cause severe irritation, and corrosive injury with permanent scarring in severe cases, depending on the degree of dilution and resultant pH.
Eye: Eye exposure may lead to rapid onset of corrosive injury including corneal and conjunctival epithelial loss, stromal and endothelial necrosis, hyperemia of the iris, conjunctival and limbal edema and ischemia, corneal opacification and ulceration. Additional complications may include perforation and staphyloma of the cornea, symblepharon, persistent iritis, and secondary glaucoma or cataract.
Ingestion (Swallowing): Swallowing this material may be harmful. Ingestion may result in corrosive injury to the upper gastrointestinal tract. Signs and symptoms commonly include vomiting, hematemesis, drooling, odynophagia, dysphagia, with oropharyngeal, esophageal, epigastric, and abdominal pain. Hoarseness, cough, stridor, dyspnea, tachypnea, respiratory distress, and respiratory failure are indications of serious complications. Local effects can range in severity from mucosal erythema and/or edema, to ulceration, erosion, necrosis, and esophageal perforation leading to mediastinitis, pneumonia, mediastinal contamination, and severe sepsis. Esophageal injury may occur in the absence of oral burns.

Interaction with Other Chemicals Which Enhance Toxicity: Sodium silicate generally does not have known synergistic interactions that enhance systemic toxicity.

GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - EYE: Category 2A - Causes serious eye irritation
GHS: ACUTE TOXICITY - ORAL: Category 5 - May be harmful if swallowed

TOXICITY DATA:

PRODUCT TOXICITY DATA:
The test material for the toxicological studies was sodium silicate (Grade 40).

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
4960 mg/kg (Rat)	No data is available on the product itself	No data is available on the product itself

COMPONENT TOXICITY DATA:
The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	Oral LD50	Dermal LD50	Inhalation LC50
Sodium silicate 1344-09-8	1960 mg/kg (Rat)	No data available	No data available

EYE IRRITATION/CORROSION: This product is classified as causing serious eye irritation (Category 2A) per GHS criteria.

Standard Draize (Eye): Test results for solutions with the following pH/weight ratio of SiO2/Na2O are as follows: 11.2/3.22 = irritant; 11.6/2.58 = irritant.

SKIN IRRITATION/CORROSION: The level of skin irritation caused by sodium silicate in rabbits depends on both its molar ratio (SiO2:Na2O) and concentration. Higher molar ratios (2.8 and 3.3) are not irritating. Note: irritation decreases with increasing molar ratio but increases with higher concentration. Therefore, the Sodium Silicate Liquid

Siliceous Grades, with typical MR ratios between 3.2 to 3.4, would not be considered skin irritants under GHS classification criteria.

Standard Draize (Skin): Score (Intact Skin) - Er.0.8Ed.0 @ 24 hrs.; Er.0Ed.0 @ 48 hrs.; Er.0Ed.0 @ 72 hrs

SKIN ABSORBENT/DERMAL ROUTE: NO.
It can be assumed that dermal bioavailability is limited due to its relative high-water solubility, low lipophilicity and molecule size. However, damage to skin surface due to corrosivity may enhance dermal penetration.

RESPIRATORY OR SKIN SENSITIZATION: Sodium metasilicate was not sensitizing in the local lymph node assay. In a human case study contact urticaria induced by sodium silicate was observed. However, evidence is not strong enough to classify the product as a skin sensitizer for GHS purposes.

CARCINOGENICITY: No reliable data available; however, sodium silicate does not carry any structural alerts for carcinogenicity. This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): Sodium silicates with various molar ratios and concentrations were tested for acute toxicity in rats and mice. Toxicity was found to decrease as the SiO2/Na2O molar ratio increased, with LD50 values ranging from 500 mg/kg bw (MR 0.5) to 8650 mg/kg bw (MR 3.38). Dose-dependent clinical symptoms included sedation, abdominal discomfort, sluggishness and unconsciousness. Inhalation and dermal limit tests with potassium silicate showed no fatalities; observed effects were limited to reversible irritation signs such as hunched posture, reduced activity, and erythema. No data other than Acute Toxicity data and the acute toxicity data indicates there is no evidence to classify the products for specific target organ toxicity with a single exposure (STOT-SE).

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Inhalation: No repeat dose animal studies on the inhalation toxicity of sodium silicate are available. Commercial sodium silicate products are formulated with particles too large to be respirable, and developing a respirable test substance would not reflect actual exposure scenarios. Due to its hygroscopic and water-soluble nature, inhaled particles would predominantly be retained and dissolved in the upper respiratory tract, leading only to local corrosive or irritant effects rather than systemic toxicity. Consequently, conducting sub-chronic inhalation studies is not considered technically relevant or justified, especially given animal welfare considerations. Additionally, if acidified, sodium silicate precipitates as amorphous silica, for which inhalation toxicity data already exist.
Dermal: No repeat dose dermal toxicity studies in animals are available for sodium silicate. The substance is known to be irritating to corrosive on skin, so any effects following dermal exposure would be local in nature rather than systemic. As such, repeat dose dermal studies are not pursued, both due to the localised effects and in line with animal welfare guidelines.
Oral: Several repeated oral dose toxicity studies have been conducted in rats and dogs. In a 180-day study, no adverse effects were observed in rats administered sodium silicate in drinking water; the No Observed Adverse Effect Level (NOAEL) was determined to be greater than 159 mg/kg body weight per day. In a subacute (28-day) study at a higher dose (2400 mg/kg bw/day), rats exhibited increased drinking and urination and soft stools, while dogs showed kidney lesions and similar clinical signs at the same dose. Overall, systemic toxicity was observed only at high oral doses, with lower doses showing no treatment-related adverse effects. Rat No Observable Affect Exposure Level (NOAEL) is greater than 159 mg/kg/bw/d (highest tested dose).

INHALATION HAZARD: Inhalation is not considered to be a significant route of exposure due to low vapor pressure for sodium silicates. If inhaled, sodium silicate's hygroscopic and water-soluble nature means most particles will dissolve in the mucus of the upper respiratory tract, limiting effects mainly to local irritation or corrosion resulting from its alkalinity.

INGESTION HAZARD: Sodium silicates of varying molar ratios (MR 0.5-3.38) and varying concentrations (35-90%) have been tested in rats and mice. The acute oral toxicity of soluble silicates is generally inversely correlated to the molar ratio SiO2/Na2O. Toxicity decreases in rats with increasing molar ratio from LD50 of 500 mg/kg bw for a molar ratio 0.5 to 8650 mg/kg bw for 3.38. Clinical symptoms observed in a dose-dependent manner consisted of sedation, abdominal discomfort, sluggishness and unconsciousness.

IN-VITRO / IN-VIVO GENOTOXICITY: Multiple studies have examined the genetic toxicity (mutagenicity and genotoxicity) of sodium silicate and sodium metasilicate using a range of in vitro and in vivo test systems. Results from **bacterial mutagenicity assays—including the Ames test with Salmonella typhimurium and Escherichia coli, as well as tests with Bacillus subtilis—have consistently been negative, showing no evidence of DNA-damaging or mutagenic** effects across a broad concentration range. Similarly, chromosomal aberration studies using Chinese hamster lung cells found no biologically relevant increases in chromosomal changes or polyploidy, with or without metabolic activation. Additional in vitro studies in mammalian cells (HPRT mutation tests) and an in vivo chromosome aberration test in mice also yielded negative results. Overall, the available evidence indicates that sodium silicate does not possess genotoxic or mutagenic potential under the conditions tested.

REPRODUCTIVE TOXICITY: The available data on the reproductive toxicity of sodium silicate and related compounds are limited and not fully conclusive. In a 4-generation rat study, a reduction in the number of offspring born and weaned was observed at certain doses, but severe study limitations and deaths among both treated and control animals prevent firm conclusions. Other studies in mice and dogs found no adverse effects on fertility or reproductive organs at much higher doses. Developmental studies using disodium metasilicate in pregnant mice showed no treatment-related effects on fetal development, with observed malformations also present in control groups and lacking a clear dose-response relationship. Overall, current data do not provide strong evidence for reproductive or developmental toxicity, but further studies would be valuable to clarify potential risks. However, the corrosive nature of concentrated soluble silicates limits the feasibility of additional animal studies due to animal welfare concerns.

DEVELOPMENTAL TOXICITY: Not classified as a developmental or reproductive toxin per GHS criteria.

ASPIRATION HAZARD: Not classified as an aspiration hazard per GHS criteria.

TOXICOKINETICS: Sodium silicate is not metabolized into other compounds; it dissociates into sodium ions and silicic acid in the GI tract. The body handles silicic acid as a trace mineral, with low absorption and rapid excretion. Toxicity concerns are due to alkalinity and corrosiveness, not systemic metabolism. The urinary excretion half-life for ingested sodium silicate was calculated to be 24 hours. The excretion rate was independent of the doses applied.

METABOLISM: There is no indication that toxic metabolites are formed in-vivo. See Toxicokinetics above.

BIOLOGICAL DISTRIBUTION: See Toxicokinetics above.

PATHOGENICITY AND ACUTE INFECTIOUSNESS (ORAL, DERMAL, AND INHALATION): Not applicable.

ENDOCRINE DISRUPTOR: Sodium Silicate is listed on The Endocrine Disruptors Exchange's (TEDX) List of Potential Endocrine Disruptors database of chemicals with the potential to affect the endocrine system. Every chemical on the TEDX List has one or more verified citations published, accessible, primary scientific research demonstrating effects on the endocrine system.

NEUROTOXICITY: No CNS (central nervous system) effects reported in acute or chronic exposure studies. Sodium silicate dissociates into sodium ions and silicic acid in the body. These are handled through normal electrolyte and mineral pathways, with rapid excretion and no accumulation in neural tissue.

IMMUNOTOXICITY: Not Available.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY (EC, IC, and LC):

Component:	*Freshwater Fish:*	*Invertebrate Toxicity:*	*Algae Toxicity:*	*Other Toxicity:*
Sodium silicate 1344-09-8 (20 - 40 %)	3185 mg/L LC50 Brachydanio rerio 96h semi-static **-478 mg/L LC50** Lepomis macrochirus 96h	216 mg/L EC50	No data available	No data available

Aquatic Toxicity:
This material is believed to be practically non-toxic to aquatic life.

FATE AND TRANSPORT:

PERSISTENCE: This material is believed to persist in the environment because it does not biodegrade and remains as dissolved silicate or precipitated silica.

BIODEGRADATION: Biodegradability typically describes the breakdown of organic compounds by microorganisms. However, sodium silicate is inorganic and does not undergo microbial degradation. Instead, when released into the environment, sodium silicate dissociates into sodium ions and silicic acid. Silicic acid, which is naturally found in soil and water, eventually polymerizes to form stable, non-toxic silica. In summary, as an inorganic substance and in view of their chemical structure, soluble silicates are not amenable to biodegradation.

BIOCONCENTRATION: Sodium silicate does not bioaccumulate because, as an inorganic compound, it dissociates in water into sodium ions and silicic acid. Both are naturally processed and quickly excreted by organisms, and neither binds to fatty tissues nor builds up in living systems.

BIOACCUMULATIVE POTENTIAL: Considering its dissociation properties, sodium silicate is not expected to accumulate in living organisms.

MOBILITY IN SOIL: Sodium silicate products are highly soluble in water and exhibit high mobility in soil, especially in sandy or low-clay environments. They do not strongly adsorb to soil particles and can leach to groundwater unless neutralized or reacted with calcium or magnesium to form insoluble gels. Sodium silicate increases soil alkalinity, potentially affecting soil chemistry and fertility. It is commonly used for soil stabilization and improving water retention by forming gel-like networks but may leach rapidly in acidic or permeable soils unless immobilized. Environmental management includes controlled application and the use of calcium-based amendments to minimize groundwater risks and pH changes.

ADDITIONAL ECOLOGICAL INFORMATION: This material has exhibited slight toxicity to terrestrial organisms.

Persistent, Bioaccumulative, and Toxic (PBT) and Very Persistent and Very Bioaccumulative (vPvB) Assessment:
Inorganic substances do not require PBT assessment.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or recycle if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations.

Container Management:
Prevent Residue: Ensure no residual product remains before offering containers for recycling or disposal. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Triple Rinse Containers: Rinse drums/totes thoroughly with water before disposal or recycling. Residual silicate can harden and cause blockages. Container rinsate must be disposed of in compliance with applicable regulations.

Contaminated Material:
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

Status: Not Regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Not Regulated

MARITIME TRANSPORT (IMO / IMDG)

Status - IMO / IMDG: Not Regulated.

AIR TRANSPORT (ICAO / IATA)

Status - ICAO/IATA: Not Regulated

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
Health hazard classifications were performed using OSHA Hazard Communication 2024 (1910.1200) Appendix A

and/or UN GHS Rev. 8 (2019). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
Not regulated.

SARA EHS Chemical (40 CFR 355.30)
Not regulated.

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):
Health Hazard - Serious eye damage or eye irritation
Health Hazard - HNOC

EPCRA SECTION 313 (40 CFR 372.65):
Not regulated.

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):
No components in this material are regulated under DHS

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated.

FDA: Sodium Silicates have Generally Recognized as Safe (GRAS) status under specific FDA regulations. Refer to 21 Code of Federal Regulations (CFR) 173, 175, 176, 177, and 182, which is accessible on the FDA's website. This product is not produced under all current Good Manufacturing Practices (cGMP) requirements as defined by the Food and Drug Administration (FDA).

EPA'S CLEAN WATER AND CLEAN AIR ACTS:
Component(s) not listed on impacted regulatory lists.

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA Inventory	TSCA ACTIVE LIST	TSCA 12(b)	TSCA/Section 4	TSCA/Section 5	TSCA/Section 6	TSCA/Section 8
Sodium silicate 1344-09-8 (20 - 40 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not Listed	Not listed

TSCA 12(b):
• **This product is not subject to export notification**

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Sodium silicate 1344-09-8 (20 - 40)	Listed	Not Listed

STATE REGULATIONS

California Proposition 65:
This product is not listed on the California Governor's current list of Carcinogens, Reproductive Toxicants, and/or

Candidate Carcinogens (Proposition 65), but it may contain trace amounts of impurities that are listed. For additional information, contact Occidental Chemical Corporation Customer Service (1-800-752-5151 or 1-972-404-3700).

Component	U.S. - California - Proposition 65 - Carcinogens List	CA. Prop. 65 Teratogen	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	Rhode Island Right to Know Hazardous Substance List
Sodium silicate 1344-09-8 (20 - 40 %)	Not listed	Not listed	Not Listed	Not Listed	Not Listed	Not Listed

Component	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List
Sodium silicate	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Workplace Hazardous Materials Information System (WHMIS 2015) which includes the amended Hazardous Products Act (HPA) and the Hazardous Product Regulations (HPR).

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - Greenhouse Gases (GHG) Subject to Mandatory Reporting	Canadian Chemical Inventory:	NDSL
Sodium silicate 1344-09-8 (20 - 40)	Not listed	Not Listed	Not Listed	Listed on inventory	Not Listed

SECTION 16. OTHER INFORMATION

Prepared by: Occidental Chemical Corporation - HES&S Product Stewardship Department

Rev. Date: 09-Dec-2025

Reason for Revision:
- Scheduled review
- SDS format adopts revisions to the Hazardous Products Regulations (HPR) to include revisions to "Section 9: Physical and chemical properties" and ensures classification with at a minimum the seventh revised edition of GHS and certain elements from the eighth revised edition (Revision 8)
- SDS format adopts revisions to the OSHA's 2024 Hazard Communication Rule 29CFR 1910.1200 and ensures classification with at a minimum the seventh revised edition of GHS and certain elements from the eighth revised edition (Revision 8)

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not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal, and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. Appropriate handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet