

1. IDENTIFICATION

Product Name	Sodium Silicate Solution (2.6<MR<=3.2)	
Other Names	N-Grade; O-Grade	
Uses	Detergent ingredient, Adhesive, Binder, Feedstock silica source, General chemical.	
Chemical Family	No Data Available	
Chemical Formula	Unspecified	
Chemical Name	Silicic acid, sodium salt, solution	
Product Description	No Data Available	

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Suite 13A.03, Menara Summit Persiaran Kewajipan USJ1 47600 UEP Subang Jaya Selangor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Australia – Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
National Poison Centre	Malaysia	+60-4-6536-999
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Schedule 5

Redox Ltd
Corporate Office Sydney
Locked Bag 1 Minto NSW 2566 Australia
2 Swettenham Road Minto NSW 2566 Australia
All Deliveries: 4 Holmes Road Minto NSW 2566 Australia

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ABN 92 000 762 345

Australia
Adelaide
Brisbane
Melbourne
Perth
Sydney
New Zealand
Auckland
Christchurch
Hawke's Bay
UK
London
Malaysia
Kuala Lumpur
USA
Los Angeles
Oakland
Mexico
Saltillo



Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Irritation - Category 2

Pictograms

Signal Word Warning

Hazard Statements	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
Precautionary Statements	Prevention	P280 Wear protective gloves/eye protection/face protection.
	Response	P302 + P352 IF ON SKIN: Wash with plenty of water.
		P337 + P313 If eye irritation persists: Get medical attention.
		P332 + P313 If skin irritation occurs: Get medical attention.
		P362 Take off contaminated clothing.
		P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS*Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
Silicic acid, sodium salt	Unspecified	1344-09-8	30 - 60 %
Water	H2O	7732-18-5	Balance %

4. FIRST AID MEASURES*Description of necessary measures according to routes of exposure*

Swallowed	IF SWALLOWED: Rinse mouth, then give plenty of water to drink. Do NOT induce vomiting. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	IF ON SKIN (or hair): Remove and isolate contaminated clothing and shoes. Immediately flush skin and hair with running water for at least 15 minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep warm and at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical attention.
Advice to Doctor	Treat symptomatically. *Most important symptoms and effects, both acute and delayed: Causes skin irritation. Causes serious eye irritation. *Indication of any immediate medical attention and special treatment needed: None known.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Dike fire-control water for later disposal.
Flammability Conditions	Non-combustible (Aqueous solution).
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction.
Fire and Explosion Hazard	Flammable hydrogen gas may be produced on prolonged contact with metals, such as aluminium, tin, lead and zinc.
Hazardous Products of Combustion	Fire may produce irritating, corrosive and/or toxic gases.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material - Spillages may be slippery! Avoid breathing mist/vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Pick up with sand or other non-combustible absorbent material and place into containers for later disposal (see SECTION 13).
Containment	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Dike far ahead of large spill for later disposal.
Decontamination	Cautiously neutralise remainder, then flush away with plenty of water.
Environmental Precautionary Measures	Prevent entry into drains and waterways. Advise authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.
Evacuation Criteria	Isolate hazard area and deny entry. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid generation of mist. Avoid breathing mist/vapours and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Do not allow material to freeze! Keep container tightly closed. Keep away from foodstuffs and incompatible materials (see SECTION 10). *Storage temperature: 5 - 60°C
Container	Keep in the original container, clean steel or plastic containers. Do not store in aluminium, fiberglass, copper, brass, zinc or galvanized containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	<ul style="list-style-type: none"> - Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Suitable mist respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Chemical goggles. - Hand protection: Wear protective gloves. Recommended: Plastic or rubber gloves. Wear insulating gloves when handling product whilst hot. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.
Special Hazards Precautions	When arc welding vessels containing aqueous solutions of this material, take care to control any explosion risk from hydrogen evolved by electrolysis.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Wash contaminated clothing and protective equipment before storing and re-using.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear - hazy liquid
Odour	Odourless
Colour	Colourless
pH	11 - 13
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	105 - 108 °C
Melting Point	0 °C
Freezing Point	0 °C
Solubility	Soluble in water
Specific Gravity	1.2 - 1.6
Flash Point	No Data Available

Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	20 - 5,000 cps (@ No Data Available)
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible (Aqueous solution).
Reactions That Release Gases or Vapours	Can react with sugar residues to form carbon monoxide. May react with ammonium salts resulting in evolution of ammonia gas.
Release of Invisible Flammable Vapours and Gases	Flammable hydrogen gas may be produced on prolonged contact with metals, such as aluminium, tin, lead and zinc.

10. STABILITY AND REACTIVITY

General Information	Absorbs carbon dioxide on exposure to air, which results in the deposition of insoluble silica.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid contact with incompatible materials.
Materials to Avoid	Separate from acids, reactive metals and ammonium salts. Do not store in aluminium, fiberglass, copper, brass, zinc or galvanized containers.
Hazardous Decomposition Products	Can react with sugar residues to form carbon monoxide. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on prolonged contact with metals, such as aluminium, tin, lead and zinc.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information

Information on toxicological effects:

- Acute toxicity: May be harmful if swallowed. All symptoms of acute toxicity are due to high alkalinity. The toxicity of sodium silicate is dependent on the silica to alkali ratio and on the pH.
- Skin corrosion/irritation: Causes skin irritation.
- Eye damage/irritation: Causes serious eye irritation.
- Respiratory/skin sensitisation: Not sensitising.
- Germ cell mutagenicity: No evidence of genotoxicity. In vitro/in vivo, negative.
- Carcinogenicity: No structural alerts. IARC, NTP, OSHA, ACGIH do not list this product or any components thereof as known or suspected carcinogens.
- Reproductive toxicity: No evidence of reproductive toxicity or developmental toxicity.
- STOT (single exposure): Not classified.
- STOT (repeated exposure): Not classified. Oral NOAEL (Rat): >159 mg/kg bw/d.
- Aspiration toxicity: Not classified.

Information on possible routes of exposure:

- Ingestion: Swallowing can result in nausea, vomiting, abdominal pain and diarrhoea. May cause severe irritation to the mouth, throat and stomach.
- Eye contact: Material will cause irritation.
- Skin contact: Material will cause irritation.
- Inhalation: Mist is irritant to the respiratory tract.

Chronic effects: No information available.

Acute**Ingestion**

Acute toxicity (Oral):

- LD50, Rat: 3,400 mg/kg bw [Supplier's SDS].

Other

Acute toxicity (Dermal):

- LD50, Rat: >5,000 mg/kg bw. [Supplier's SDS].

Inhalation

Acute toxicity (Inhalation):

- LC50, Rat: >2.06 g/m³ [Supplier's SDS].

Carcinogen Category

None

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Aquatic toxicity:

- LC50, Fish (Brachydanio rerio): 1,108 mg/l (96 h) [Supplier's SDS].
- EC50, Crustacea (Daphnia magna): 1,700 mg/l (48 h) [Supplier's SDS].

Persistence/Degradability

The product is unlikely to persist in the environment.

Mobility

Soluble in water. The product is expected to have high mobility in soil.

Environmental Fate

Liquid is alkaline and may increase the pH. High pH can be harmful to aquatic life.

Bioaccumulation Potential

The product has low potential for bioaccumulation.

Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS**General Information**

Dispose of contents/container in accordance with local/regional/national regulations.

Special Precautions for Land Fill

Normally suitable for disposal at approved land waste site after dilution or neutralisation. Not suitable for incineration.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADR Code

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Sodium Silicate Solution (2.6<MR<=3.2)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION**General Information** ALKALINE SALTS**Poisons Schedule (Aust)** Schedule 5**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002503 - Additives Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020
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National/Regional Inventories

Australia (AIIIC)	Listed
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Canada (DSL)	Listed
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Canada (NDSL)	Not Listed
China (IECSC)	Listed
Europe (EINECS)	Listed
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Listed
Korea (KECI)	Listed
Malaysia (List of Classified Substances)	Not Listed
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Listed
Taiwan (TCSI)	Listed
USA (TSCA)	Listed
Mexico (INSG)	Listed

16. OTHER INFORMATION

Related Product Codes	RAWMAT1000, RAWMAT1050, SODSIL1801, SODSIS0400, SODSIS0500, SODSIS0600, SODSIS0700, SODSIS0701, SODSIS1000, SODSIS1001, SODSIS1002, SODSIS1003, SODSIS1005, SODSIS1100, SODSIS1200, SODSIS1400, SODSIS2000, SODSIS3120, SODSIS4000, SODSIS4001, SODSIS4200, SODSIS4500, SODSIS4501, SODSIS5001, SODSIS5101, SODSIS5301, SODSIS5500, SODSIS6002, SODSIS8000
Revision	7
Revision Date	28 Aug 2023
Key/Legend	<p>< Less Than > Greater Than</p> <p>AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluble in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m³ Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre </p>

m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Health and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight