



**SAFETY DATA SHEET**  
**POTASSIUM SILICATE SOLUTIONS (MR 1.6 - 2.6)**  
**REVISION 5, DATE 05 MAR 21**

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Potassium Silicate Solutions (MR 1.6 - 2.6)</b>
<b>Other Names</b>	AGSIL 32; Potash Water Glass Solution; Soluble Potash Gass
<b>Uses</b>	Agriculture applications.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	$x\text{SiO}_2/\text{K}_2\text{O}$ (x ranges from 1.6 - 2.6)
<b>Chemical Name</b>	Silicic acid, potassium salt, solution
<b>Product Description</b>	Liquid potassium silicate.

### Contact Details of the Supplier of this Safety Data Sheet

<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
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	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

### Emergency Contact Details

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

<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
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



## Globally Harmonised System

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

**Hazard Categories** Acute Toxicity (Oral) - Category 5  
Skin Corrosion/Irritation - Category 2  
Serious Eye Damage/Irritation - Category 1

**Pictograms**

**Signal Word** Danger

**Hazard Statements**

<b>H303</b>	May be harmful if swallowed.
<b>H315</b>	Causes skin irritation.
<b>H318</b>	Causes serious eye damage.

**Precautionary Statements**

Prevention	<b>P280</b>	Wear protective gloves/eye protection/face protection.
Response	<b>P305 + P351 + P338 + P310</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor.
	<b>P302 + P352</b>	IF ON SKIN: Wash with plenty of water.
	<b>P332 + P313</b>	If skin irritation occurs: Get medical attention.
	<b>P312</b>	Call a POISON CENTER or doctor if you feel unwell.
	<b>P362 + P364</b>	Take off contaminated clothing and wash it before reuse.

**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)

**3. COMPOSITION/INFORMATION ON INGREDIENTS***Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
Potassium silicate	Unspecified	1312-76-1	30 - 60 %
Water	H <sub>2</sub> O	7732-18-5	30 - 60 %

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

**Swallowed** IF SWALLOWED: Rinse mouth thoroughly with water, then give water to drink. Do not induce vomiting. If vomiting occurs, drink more water to further dilute the product. Call a Poison Centre or doctor/physician for advice.

**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 rinsing for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice.

<b>Skin</b>	IF ON SKIN: Immediately flush skin with running water for at least 20 minutes, while removing contaminated clothing and shoes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse. *No attempt should be made to neutralize the alkali with acid solutions, as this could aggravate the burns.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. If respiratory symptoms persist, get medical advice/attention.
<b>Advice to Doctor</b>	Treat symptomatically as for strong alkalis.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

## 5. FIRE FIGHTING MEASURES

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

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material - Spilled liquids are very slippery! Avoid breathing any fumes formed, and contact with eyes, skin and clothing. *Dries to form glass film which can easily cut skin.
<b>Clean Up Procedures</b>	Spilled liquid may be collected using a vacuum truck. Absorb remaining liquid with earth, sand or other non-combustible material and transfer to a suitable container for disposal (see SECTION 13).
<b>Containment</b>	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.
<b>Decontamination</b>	If containment is impossible, neutralize contaminated area and flush with large quantities of water.
<b>Environmental Precautionary Measures</b>	Prevent entry into drains and waterways.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
<b>Personal Precautionary Measures</b>	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 generating and inhaling vapours/spray mist, and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid overheating (decomposition). Take appropriate precautions when handling (bulk) product whilst hot as it can cause thermal burns. Ensure material is used in an appropriately bunded area to prevent release into soil, drains and waterways.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Ensure containers are labelled and kept closed when not in use; Promptly clean residue from closures with cloth. Avoid exposure to air. Avoid prolonged storage above 50 °C or below 10 °C. Store away from foodstuffs and incompatible materials (see SECTION 10). Store in accordance with all local regulations and codes of practice. - Storage temperature: 0 - 70 °C - Loading temperature: 10 - 50 °C
Container	Store in clean steel or plastic containers. Store in clean steel or plastic containers. Mild steel is the most suitable material of construction for drums, tanks, valves, pipe-work, etc. Concrete storage tanks can be used but must be strong enough to hold the weight of Potassium Silicate solution to be stored and thick enough to prevent seepage of water.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. Manufacturers recommended limit for good practice (by analogy with Potassium hydroxide): - Safe Work Australia Exposure Standard: TWA = 2 mg/m <sup>3</sup> Peak limitation. *Peak limitation means a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time, which does not exceed 15 minutes.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	Ensure exposure is managed within recommended exposure limits. 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	- Respiratory protection: Respiratory protection is not normally required due to low inhalation risk. If material is likely to be vaporized the use an approved respirator is necessary. Recommended: Consult a respiratory equipment supplier to aid selection of the appropriate type. - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Wear glasses with side shields. If contact with material is likely, the use of chemical resistant goggles in combination with a full face shield is recommended. - Hand protection: Wear protective gloves. Recommended: Wear chemical resistant gloves. If contact is likely, the use of full arm length gauntlets is recommended. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear chemical resistant overalls, a full apron, or similar protective clothing, and chemical resistant protective boots.
Special Hazards Precautions	The use of protective clothing and equipment depends on the degree and nature of exposure. Dried silicate can present physical hazards including cuts and abrasions. Wear cut resistant gloves if handling dried silicate.
Work Hygienic Practices	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing and protective equipment before storing and re-using. The use of barrier cream is recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Thick liquid
Odour	Odourless
Colour	Clear to hazy, colourless
pH	11 - 13 (of the concentrate)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available

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<b>Boiling Point</b>	105 - 108 °C
<b>Melting Point</b>	approx. 0 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Soluble in water
<b>Specific Gravity</b>	1.2 - 1.6 (typical range)
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	102 - 108 °C
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	No Data Available
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	20 - 5,000 cps (@ No Data Available)
<b>Volatile Percent</b>	30 - 60%
<b>VOC Volume</b>	0 %
<b>Additional Characteristics</b>	Absorbs Carbon dioxide on exposure to air, which results in the deposition of insoluble silica.
<b>Potential for Dust Explosion</b>	Not applicable.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible under normal conditions of use (aqueous solution).
<b>Reactions That Release Gases or Vapours</b>	Fire or heat may produce irritating, toxic and/or corrosive fumes, including Potassium silicate containing mists.
<b>Release of Invisible Flammable Vapours and Gases</b>	Flammable hydrogen gas will form on reaction with aluminium, copper, zinc, etc.

### 10. STABILITY AND REACTIVITY

<b>General Information</b>	Strongly alkaline; Will react exothermically with acids. Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Can etch glass if not promptly removed.
<b>Chemical Stability</b>	Stable in sealed containers.
<b>Conditions to Avoid</b>	Avoid exposure to air. Avoid prolonged storage above 50 °C or below 10 °C.
<b>Materials to Avoid</b>	Incompatible/reactive with acids, aluminium, copper, brass, bronze, zinc, tin and lead.
<b>Hazardous Decomposition Products</b>	The solution will boil if overheated, and irritating Potassium silicate containing mists will be released. Flammable hydrogen gas will form on reaction with aluminium, copper, zinc, etc.

**Hazardous Polymerisation**

No information available.

**11. TOXICOLOGICAL INFORMATION****General Information**

- Acute toxicity: May be harmful if swallowed. Swallowing can result in nausea, vomiting, abdominal pain and diarrhoea; May cause severe irritation to the mouth, throat and stomach.
- Skin corrosion/irritation: Causes skin irritation. May cause itching and skin rash. Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin).
- Eye damage/irritation: Causes serious eye damage. A severe eye irritant; May cause conjunctivitis (inflammation of the eyes) and possibly corneal burns and ulceration.
- Respiratory/skin sensitisation: Not considered to be a skin sensitiser. Not sensitising (Mouse LLNA - Sodium metasilicate).
- Germ cell mutagenicity: There is no evidence of a genotoxic potential for soluble silicates.
- Carcinogenicity: The information available does not indicate any potential for carcinogenicity.
- Reproductive toxicity: No indications of reproductive effects for silicates have been reported.
- STOT (single exposure): Exposure to vapours at room temperature is an unlikely route of exposure due to its low vapour pressure. Spray mist will cause respiratory irritation and may result in coughing as well as inflammation of nose, throat and windpipe.
- STOT (repeated exposure): 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.
- Aspiration toxicity: No information available.

**Acute****Ingestion**

- Acute toxicity (Oral):
- LD50, Rat: >3,000 mg/kg [By analogy: 30-60% Sodium silicate].

**Carcinogen Category**

None

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Acute toxicity testing in fish, invertebrates and algae indicate a low order of toxicity: the soluble silicates exhibit aquatic toxicities in excess of 100 mg/l irrespective of molar ratio or metal cation.

**Persistence/Degradability**

This material is not persistent in aquatic systems; Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD.

**Mobility**

Soluble in water (Sinks and mixes with water). Expected to be mobile in soil.

**Environmental Fate**

This material is not acutely toxic in aquatic systems, but its high pH when undiluted or un-neutralized is acutely harmful to aquatic life. Avoid contaminating waterways.

**Bioaccumulation Potential**

This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Neither silica nor sodium will appreciably bioconcentrate up the food chain.

**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)**

ADG Code

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Land Transport (Malaysia)**

ADR Code

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Land Transport (New Zealand)**

NZS5433

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Land Transport (United States of America)**

US DOT

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Sea Transport**

IMDG Code

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for SEA transport.

**Air Transport**

IATA DGR

<b>Proper Shipping Name</b>	Potassium Silicate Solutions (MR 1.6 - 2.6)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for AIR transport.

**National Transport Commission (Australia)**

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

<b>Dangerous Goods Classification</b>	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** No Data Available**Poisons Schedule (Aust)** Schedule 5**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	Additives Process Chemicals and Raw Materials Subsidiary Hazard Group Standard 2020 HSR002503 *HSR004658 (Revoked)
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**National/Regional Inventories**

<b>Australia (AIC)</b>	Listed
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Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

## 16. OTHER INFORMATION

Related Product Codes	POTSIL5000, POTSIL5200, POTSIL6000, POTSIL6050, POTSIL6051, POTSIL7000
Revision	5
Revision Date	05 Mar 2021
Reason for Issue	SDS updated
Key/Legend	<p>&lt; Less Than &gt; Greater Than  <b>AICS</b> Australian Inventory of Chemical Substances  <b>atm</b> Atmosphere  <b>CAS</b> Chemical Abstracts Service (Registry Number)  <b>cm<sup>2</sup></b> Square Centimetres  <b>CO<sub>2</sub></b> Carbon Dioxide  <b>COD</b> Chemical Oxygen Demand  <b>deg C (°C)</b> Degrees Celcius  <b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand  <b>deg F (°F)</b> Degrees Fahrenheit  <b>g</b> Grams  <b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre  <b>g/l</b> Grams per Litre  <b>HSNO</b> Hazardous Substance and New Organism  <b>IDLH</b> Immediately Dangerous to Life and Health  <b>immiscible</b> Liquids are insoluble in each other.  <b>inHg</b> Inch of Mercury  <b>inH<sub>2</sub>O</b> Inch of Water  <b>K</b> Kelvin  <b>kg</b> Kilogram  <b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre  <b>lb</b> Pound  <b>LC50</b> LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50%</p>

(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

**m<sup>3</sup>** Cubic Metre

**mbar** Millibar

**mg** Milligram

**mg/24H** Milligrams per 24 Hours

**mg/kg** Milligrams per Kilogram

**mg/m<sup>3</sup>** Milligrams per Cubic Metre

**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

**mm** Millimetre

**mmH<sub>2</sub>O** 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