

**SAFETY DATA SHEET**  
**POTASSIUM SILICATE SOLUTION**

Hazardous Substance according to the Criteria of the Australian NOHSC.  
Not a Dangerous Good according to the ADG Code.

**Section 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

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**IDENTIFICATION**

Product Name: Potassium Silicate Solution

Other Names: Silicic Acid, Potassium Salt Solution; Potash Water Glass Solution; Soluble Potash Glass.

**Trade Names:** OF 30 POTASSIUM SILICATE

**USE:**

May be used as a: detergent ingredient; adhesive; binder; feedstock silica source; general chemical.

**COMPANY DETAILS**

Company Name: Interstate Energy Group Pty Ltd  
Address: P.O. Box 1039  
Bacchus Marsh, Vic. 3340

Tel: (03) 5367 0725

Fax: (03) 5367 0726

**Emergency Telephone No:** 0438 347 334

**Section 2. HAZARDS IDENTIFICATION**

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**Emergency Overview:** Clear to hazy, colourless, odourless, thick liquid.  
Causes eye, skin, and digestive tract irritation.  
Spray mist causes irritation to respiratory tract.  
Spills are slippery. High pH is harmful to aquatic life.  
Reacts with acids, ammonium salts, reactive metals and some organics.  
Non-combustible, but flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.

**Dangerous Goods Information:** Not a Dangerous Good according to the ADG Code.

**Hazardous Substances Information:** Hazardous Substance according to the Criteria of the Australian NOHSC.

**Poison Schedule**            Scheduled Poison S5

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**Acute Health Effects**

Swallowed	Swallowing can result in nausea, vomiting, abdominal pain and diarrhoea. May cause severe irritation to the mouth, throat and stomach.
Eye	A severe eye irritant. May cause conjunctivitis (inflammation of the eyes) and possibly corneal burns and ulceration.
Skin	Irritating to skin. May cause itching and skin rash.
Inhaled	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.

**Chronic Health Effects**

All Routes	Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin).
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**Section 3. COMPOSITION / INFORMATION ON INGREDIENTS**

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<b>Chemical Identity of Ingredients</b>	<b>CAS No.</b>	<b>Prop'n</b>	<b>Risk Phrases as 100%</b>
Potassium Silicate	1312-76-1	30-60 %	R36/38
Water	7732-18-5	30-60 % -	

**Section 4. FIRST AID MEASURES**

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Swallowed	Immediately rinse mouth with water. Repeat until product is thoroughly removed. Give water to drink. DO NOT induce vomiting due to risk of further damage. If vomiting occurs give water to drink to further dilute the product. Get medical attention. Contact the Poisons Information Centre (available in each State capital city).
Eye	Immediately rinse with plenty of water for at least 15 minutes. Eyelids to be held open. Urgently get medical assistance. Transport to hospital or medical centre.
Skin	Immediately wash contaminated skin with plenty of water. Soaked clothing should be removed while under the safety shower and skin washed with running water for a minimum of 30 minutes. No attempt should be made to neutralize the alkali with acid solutions, as this could aggravate the burns. Get medical attention if health effects develop or persist.
Inhaled	Remove victim to fresh air. Get medical attention if health effects develop or persist.

**First-Aid Facilities**      Safety shower and eye wash facilities.

**Advice to Doctor**      Treat symptomatically as for strong alkalis.

**Section 5 - FIRE FIGHTING MEASURES**

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Fire or Explosion Hazard:	Aqueous solution, not flammable under normal conditions of use. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.
Extinguishing Media:	Compatible with dry chemical water spray, regular foam and carbon dioxide fire extinguishing media.

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Combustion Product Hazards	Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.
Special Protective Precautions & Equipment	Fire fighters to wear full protective clothing. Chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

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Emergency Procedures	<b>Small spill cleanup:</b> Mop up and neutralize liquid, then discharge to sewer in accordance with federal, state and local regulations or permits. <b>Large spill cleanup:</b> Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent runoff from entering storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralize contaminated area and flush with large quantities of water.  See Section 13 for Disposal Considerations
Special Issues	Spilled material is very slippery. Only water will evaporate from a spill of this material. Dries to form glass film which can easily cut skin. Sinks and mixes with water. High pH of this material is harmful to aquatic life.

**Section 7 - HANDLING and STORAGE**

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Safe Handling	Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with cloth
Safe Storage	Keep containers closed at all times. Store away from acids and foodstuffs. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Storage temperature 0-95° C. Loading temperature 45-95 ° C. Do not store in aluminium, fiberglass, copper, brass, zinc or galvanized 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.

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

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National Exposure Standards	No exposure standards have been established for the ingredients in this product by NOHSC (Worksafe Australia).
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SUBSTANCE	TWA		STEL	
Potassium Silicate solutions	ppm	mg/m3	ppm	mg/m3
	-	5	-	5

This standard is the manufacturers recommended limit for good practice.

Design and Engineering Control Measures	All atmospheric contamination should be minimised. Use in well ventilated area. Avoid generating and inhaling mists.
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Personal Protective	Avoid skin and eye contact. Avoid inhaling the vapour or mist. Follow normal
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equipment industrial safety practices. The use of protective clothing and equipment depends on the degree and nature of exposure. The following personal protective equipment should be used:

- (1) Safety glasses, goggles or face shield as appropriate.
- (2) Plastic or Rubber gloves.
- (3) Chemical resistant safety boots.
- (4) Overalls, splash apron or similar protective apparel.

Respiratory protection is not normally required due to low inhalation risk. Wash contaminated clothing and protective equipment before storing and re-using. The use of barrier cream is recommended.

Where applicable refer to the following Standards:

- AS/NZS 1337 Eye protectors for industrial applications
- AS 2161 Industrial safety gloves and mittens
- AS 2210 Safety footwear
- AS 3765 Clothing for protection against hazardous chemicals.

**Section 9 - PHYSICAL and CHEMICAL PROPERTIES**

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Appearance and Odour	Clear to hazy, colourless, odourless, thick liquid.
Chemical Formula	Varying proportions of potassium oxide, silica and water depending on the grade. Mean weight ratio for SiO <sub>2</sub> /K <sub>2</sub> O: is from 1.5 to 3.5
Melting Point / Boiling Point	MP: 0°C approx. BP: 105 to 108°C
Decomposition Temperature	Water Boils off at 105 to 108°C
Vapour Pressure	Not determined
Relative Vapour Density	Not applicable
Specific Gravity or Density	1.2 to 1.7 (typical range)
Solubility	Soluble in water.
pH	11 to 13 (of the concentrate)
Percent Volatile	30-60%
Octanol/Water Partition	log P(octanol/water) – Not available
Co-efficient	
Corrosiveness	Some corrosive effects on Aluminium, Copper, Tin, Zinc, Lead etc
<b>Flammable Properties</b>	Non-combustible liquid. The aqueous solution is not flammable under normal conditions of use. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.
Flashpoint	Not applicable to aqueous solutions
Flammability Limits (FL) (%)	Not applicable to aqueous solutions
Autoignition Temp	Not applicable to aqueous solutions

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**Section 10 - STABILITY AND REACTIVITY**

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Chemical Stability	Stable in sealed containers. Absorbs Carbon Dioxide on exposure to air, which results in the deposition of Insoluble Silica.
Conditions To Avoid: Incompatible Materials:	Leaving solutions exposed to carbon dioxide in the air. Strong Acids.
Unsuitable Container Materials:	Potassium Silicate Solutions are strongly alkaline and are not compatible with aluminium, copper, brass, bronze, zinc, tin and lead Can etch glass if not promptly removed.
Hazardous Decomposition Products:	If Overheated: The solution will boil and irritating Potassium Silicate containing mists will be released.
Hazardous Reactions:	Flammable hydrogen gas will form on reaction with aluminium, copper, zinc etc. Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas.

**Section 11 - TOXICOLOGICAL INFORMATION**

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Toxicity Data:	<p><b>Acute Oral Toxicity</b> LD50 (rat): Not Determined The acute oral toxicity of this product has not been tested. When chemically similar Sodium Silicates were tested on a 100% solids basis, their single dose acute oral LD50 in rats ranged from 1280 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. These products contain 30-60% Potassium Silicate thus each product is estimated to have an Acute Oral Toxicity LD50 (rat): &gt;2000 mg/kg.</p> <p><b>Eye Irritation:</b> Severe Irritant. This material has not been tested for primary eye irritation. However, based on its similarity to Sodium Silicate Solutions in composition and alkalinity it is regarded as a severe eye irritant.</p> <p><b>Skin Irritation:</b> Irritant. When tested for primary skin irritation potential, similar potassium silicate solution produced no irritation to intact skin, but well defined irritation to abraded skin. Human experience confirms that irritation occurs when this material gets on clothes at the collar, cuffs or other areas where abrasion may occur.</p> <p><b>Sub chronic Data:</b> The sub chronic toxicity of this material has not been tested. In a study of rats fed chemically similar Sodium Silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to Sodium Silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed Sodium Silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed Sodium Silicate in their drinking water at 600 and 1200 ppm.</p> <p><b>Special Studies:</b> The mutagenic potential of this material has not been tested. Chemically similar Sodium Silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of Potassium Silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. Potassium Silicate is not listed by IARC, NTP or OSHA as a carcinogen.</p>
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**Section 12 - ECOLOGICAL INFORMATION**

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General:	Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material.
Ecotoxicity Data:	The ecotoxicity of Potassium Silicate has not been tested. The following data is reported for chemically similar Sodium Silicates on a 100% solids basis: A 96-hour median tolerance for fish ( <i>Gambusia affinis</i> ) of 2320 ppm; a 96 hour median tolerance for water fleas ( <i>Daphnia magna</i> ) of 247 ppm; a 96-hour median tolerance for snail eggs ( <i>Lymnea</i> ) of 632 ppm; and a 96-hour median tolerance for Amphipoda of 160 ppm. These products contain 30-60% Potassium Silicate.
Persistence & Degradability	This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Neither silica nor potassium will appreciably bioconcentrate up the food chain.
Mobility	Expected to be mobile in soil. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica.

**Section 13 - DISPOSAL CONSIDERATIONS**

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Disposal Methods & Containers	Disposal to be in accordance with Local, State & Federal EPA waste regulations. Normally suitable for disposal at approved land waste site after dilution or neutralisation.
Landfill, Incineration	After dilution or neutralisation may be landfilled. Not suitable for incineration.

**Section 14 - TRANSPORT INFORMATION**

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<b>ROAD &amp; RAIL:</b>	Not defined as a Dangerous Good: by the Australian Code for the Transport of Dangerous Goods by Road & Rail.
<b>SEA:</b>	Not a Dangerous Good according to the International Maritime Dangerous Goods Code (IMDG Code).
<b>AIR:</b>	Not a Dangerous Good according to the International Air Transport Association (IATA) Dangerous Goods Regulations.

**Section 15 - REGULATORY INFORMATION**

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<b>Labelling:</b>	<b>Workplace Hazardous Substance Labelling</b> <b>Hazard Category: Irritant</b>  R36/38 - Irritating to eyes and skin.  S24/25 Avoid contact with skin and eyes. S37/39 Wear suitable gloves and eye/face protection. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28 After contact with skin, wash immediately with plenty of water.
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**Scheduled Poison Labelling for S5**

The labelling requirements of the SUSDP do not apply to a poison that: 1/ is packed and sold solely for dispensary, industrial, laboratory or manufacturing purposes; and 2/ is labelled in accordance with the NOHSC National Code of Practice for the Labelling of Workplace Hazardous Substances [NOHSC:2012]

**Not a Dangerous Good:**

**Packaging**

Mild steel is the most suitable material of construction for drums, tanks, valves, pipe-work, etc.

**Australian Chemical Control Schemes**

NICNAS – AICS      *All ingredients are on the Australian Inventory of Chemical Substances.*

Aust. Pesticides & Veterinary Medicine Authority - Therapeutic Goods Administration -	Ag & Vet Chemicals Medicines	Not applicable
Food Standards Australian & New Zealand - Chemicals	Food	Not applicable
Weapons Act	Ozone Depleting Substance Act	Not applicable

**Section 16 - OTHER INFORMATION**

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**SDS Dates and Revisions**

SDS Original Preparation Date: 5<sup>th</sup> May, 2005

SDS Latest Revision Date : 12<sup>th</sup> October, 2019

**Acronyms Used**

ADG Code	Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road & Rail
NOHSC	Australian National Occupational Health and Safety Commission
WHS	Workplace Hazardous Substance
CAS No.	Chemical Abstracts Service Registry Number
UN No.	United Nations Dangerous Goods Number

**SDS Code Used**      This SDS has been prepared according to the National Code of Practice for the Preparation of Safety Data Sheets [NOHSC:2011(2003)]

This SDS summarises to the best of our knowledge the health and safety hazard information on the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace, including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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