



**IDENTIFICATION**

<b>Chemical Name:</b>	Potassium Silicate Solution	<b>Packing Group:</b>	Not Applicable
<b>UN No.</b>	Not Applicable	<b>Subsidiary Risk:</b>	Not Applicable
<b>Dangerous Goods:</b>	Not Applicable	<b>Primary Supplier:</b>	ALL PURPOSE COATINGS PTY LTD

**PHYSICAL DATA**

<b>Appearance &amp; Odour:</b>	Clear to hazy, colourless, odourless, thick liquid	<b>Boiling Point:</b>	BP: 105 to 108°C
<b>Melting Point:</b>	MP: 0°C approx.	<b>Vapour Pressure:</b>	Not Applicable
<b>Chemical Formula:</b>	xSiO <sub>2</sub> /K <sub>2</sub> O (x ranges from 2.6–3.2)	<b>Relative Vapour Density:</b>	Not Applicable
<b>Decomposition Temperature:</b>	Water boils off at 102°C to 108°C		

**INGREDIENTS**

<b>Ingredients</b>	<b>Name CAS</b>	<b>Proportion</b>	<b>EINECS No</b>
Potassium Silicate	1312-76-1	30-60%	215-199-1
Water	7732-18-5	30-60%	231-791-2

**CHEMICAL PROPERTIES**

Specific Gravity or Density	1.2 to 1.6 (typical range)
Solubility	Soluble in water.
pH	11 to 13 (of the concentrate)
Viscosity	20 – 5000cps
Percent Volatile	30-60%
VOC Content	0%
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
Auto ignition Temp	Not applicable to aqueous solutions

**STABILITY AND REACTIVITY**

Chemical Stability	Stable in sealed containers. Absorbs Carbon Dioxide on exposure to air, which results in the deposition of Insoluble Silica.
Conditions to Avoid:	Leaving solutions exposed to carbon dioxide in the air. Prolonged storage above 50oC or below 10oC
Incompatible Materials:	Will react exothermically with 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	If overheated the solution will boil and irritating Potassium Silicate containing mists will be released.
Products:	
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.

**HEALTH HAZARD INFORMATION**

**Acute Affects**

**Swallowed:** Swallowing can result in nausea and vomiting, abdominal pain & diarrhoea. May cause severe irritation to the mouth, throat & stomach.

**Eye:** A severe eye irritant. May cause conjunctivitis (inflammation of the eyes) & possibly corneal burns & ulceration

**Skin:** Irritation 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 Effects:** Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin).

**First Aid**

**Scheduled Poisons:** Poisons Information Centre in each Australian State capital city can provide additional assistance for scheduled poisons. (Telephone Australia 13 1126) or a doctor immediately

**First Aid Facilities** Safety shower and eye wash facilities should be easily accessible in the immediate area

**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. Seek medical attention. Contact the Poisons Information Centre (available in each State capital city).

**Eye** Hold eyelids apart and flush the eyes continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre, a doctor or at least 15minutes. If irritation develops seek medical attention.

**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. Seek medical attention if health effects develop or persist.

**Inhaled** Not expected to be an inhalation hazard under normal use. Remove victim to fresh air. Seek medical attention if health effects develop or persist.

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



**LABELLING ELEMENTS**

Signal Word: **WARNING**

Hazard Statements: H303 May be harmful if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

Precautionary Statements

Prevention P264 Wash thoroughly after handling

P270 Do not eat, drink or smoke when using this product

P280 Wear protective gloves/clothing/eye protection/face protection

Response P301 + P312 IF SWALLOWED: Call a poison center or doctor if you feel unwell

P303/ P361/P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305/P351/P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do so. Continue rinsing.

P332 + P313 If skin irritation occurs get medical advice/attention

Storage P405 Store locked up

General P101 If medical advice is needed have product container or label at hand

P102 Keep out of reach of children

P103 Read label before use

**TOXICOLOGICAL INFORMATION**

**Acute Oral Toxicity LD50:** The single study on potassium silicate fits well into the toxicity pattern of the sodium silicates. The acute oral toxicity of this product has not been tested.

**Skin Corrosion/Irritation:** When tested for primary skin irritation potential, this material produced irritation with a primary irritation index of 3 to abraded skin and 0 to intact skin. Human experience confirms that irritation occurs when this material gets on clothes at the collar, cuffs or other areas where abrasion may occur, silicates were found to be corrosive at molar ratios up to 1.6 and concentrations >50%. At molar ratios >1.6, silicates are irritating to the skin, while molar ratios >3.2 and concentrations <40% did not lead to irritative effects.

**Eye Damage/Irritation:** At concentrations of 35 % and 29 % (highest tested concentrations) potassium silicates with molar ratios of 3.4 was only slightly irritating to the eyes of rabbits. Results from non-validated in vitro assays with sodium silicates indicate that the severity of eye effects is inversely correlated with the molar ratio.

**Respiratory or Skin Sensitization:** In a mouse local lymph node assay, sodium metasilicate was not sensitising. In humans, a single case of contact urticarial elicited by sodium silicate is reported.

**Mutagenicity:** In vitro, soluble silicates did not induce gene mutations in bacteria. Chemically similar sodium silicate was negative in an E. coli reverse mutation. In a modern guideline study that was performed in accordance with OECD TG 473, an aqueous sodium silicate solution (36% active ingredient, WR 3.3) induced no chromosomal aberrations in Chinese hamster V79 cells. From the available evidence it can be concluded that there is no evidence of a genotoxic potential for soluble silicates.

**Carcinogenicity:** The information available does not indicate any potential for carcinogenicity. 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. Sodium Silicate is not listed by IARC, NTP or OSHA as a carcinogen.

**Reproductive Toxicity** in a developmental toxicity study, pregnant mice were administered chemically similar 12.5, 50 or 200 mg/kg bw/d sodium metasilicate in aqueous solution from day 0 until 17/18 of gestation by daily gavage. Litter size and fertility index were unaffected at concentrations up to and including 200 mg/kg bw/d. Furthermore, no developmental effects were observed up to and including 200 mg/kg bw/d. Also, in repeat dose toxicity studies with rats, mice and dogs the macroscopic and microscopic examination of reproductive organs did not reveal related effects. In summary, no indications of reproductive effects for silicates have been reported.

**PRECAUTIONS FOR USE**

**Exposure Standards**

No exposure limits have been reported for this product. The following is a recommendation.  
Lithium Silicate solutions TWA = 1mg/m3

**Personal Protection**

When exposure is likely, personal protection equipment in a combination appropriate to the degree and nature of exposure, should be selected from the following list-

- (1) Eye protection
- (2) PVC gloves
- (3) PVC apron and sleeves, or full PVC apron
- (4) PVC or rubber boots
- (5) Respirator

**Engineering Controls**

Exposure Standard TWA is the Time Weighted Average airborne concentration over an eight hour working day for a five day working week over an entire working life. Provide adequate ventilation. No special precautions are considered necessary.

**Flammability**

Not Flammable under conditions of use

**Spill & Disposal**

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 in accordance with local regulations. Not suitable for incineration.

**Fire / Explosion Hazards**

Not Flammable. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.

**Extinguishing Media**

**Safety Statement:** S61 Avoid release to the environment. S62 If swallowed do not induce vomiting, seek medical advice immediately.



IMPORTANT NOTICE: Read the SDS and TDS carefully prior to the use of any product. Application, performance & safety data may change from time to time. In emergency, contact the Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice. **IF THE SITUATION IS LIFE THREATENING, DIAL 000.**

PRODUCT DISCLAIMER: Read the SDS & TDS carefully before use of any product. These documents contain information in context to how you will apply the product, including if it is being used in conjunction with any other products, the type of surfaces and the manner in which the product will be applied. All Purpose Coatings Pty Ltd does not accept any liability either directly or indirectly for any losses that arise from the use or application of the product in accordance with any advice, specification, recommendation or information given by All Purpose Coatings Pty Ltd.