



Safety Data Sheet

Infosafe No™ 3MP4U	Issue Date : November 2017	ISSUED by IMCDAST
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Product Name : **Sodium Silicate Solution, MR 2.6 - 3.2**

Classified as hazardous

1. Identification

GHS Product Identifier Sodium Silicate Solution, MR 2.6 - 3.2

Product Code 4018398

Company Name IMCD Australia Limited (ABN 44 000 005 578)

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Victoria 3170 Australia

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Penrose, Auckland
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E-mail Address reg@imcd.com.au

Recommended use of the chemical and restrictions on use May be used as a detergent ingredient; adhesive; binder; feedstock silica source; general chemical.

Other Names

<u>Name</u>	<u>Product Code</u>
Sodium Silicate N Grade	4018398
Sodium Silicate O Grade	4018399
Sodium Silicate O Grade	4201447
Sodium Silicate N Grade	4202141
Sodium Silicate O Grade	4202557
Sodium Silicate N Grade	4202717
Sodium Silicate O Grade	4203106
Sodium Silicate JHG-135 Grade	4921719
Sodium Silicate JHG-135 Grade	4922237

Additional Information
Other Information

It is the user's responsibility to determine the suitability of this product for their applications and their methods of use.

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS.

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

2. Hazard Identification

GHS classification of the substance/mixture Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia
Acute Toxicity - Oral: Category 5
Eye Damage/Irritation: Category 2A
Skin Corrosion/Irritation: Category 2


Signal Word (s) WARNING

Hazard Statement (s) H303 May be harmful if swallowed.

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Pictogram (s)	<p>H315 Causes skin irritation. H319 Causes serious eye irritation. Exclamation mark</p> <div style="text-align: center;">  </div>
Precautionary statement – Prevention	P264 Wash contaminated skin thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statement – Response	P302+P352 IF ON SKIN: Wash with plenty of soap and water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P332+P313 If skin irritation occurs: Get medical advice/attention. P337+P313 If eye irritation persists: Get medical advice/attention. P362 Take off contaminated clothing and wash before reuse.
Other Information	<p>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.</p> <p>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).</p>

3. Composition/information on ingredients

Ingredients	Name	CAS	Proportion
	Water	7732-18-5	30-60 %
	Sodium Silicate	1344-09-8	30-60 %

4. First-aid measures

First Aid Measures	You should call a doctor or Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. Have the Safety Data Sheet with you when you call.
Inhalation	Not expected to be an inhalation hazard under normal use. Remove victim to fresh air. Seek medical attention if health effects develop or persist.
Ingestion	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).
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.
Eye contact	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.

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First Aid Facilities Safety shower and eyewash facilities.

Advice to Doctor Treat symptomatically as for strong alkalis.

5. Fire-fighting measures

Suitable extinguishing media Compatible with dry chemical water spray, regular foam and carbon dioxide fire extinguishing media. No media identified as unsuitable.

Hazards from Combustion Product is not combustible. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead and zinc.

Products

Special Protective Equipment for fire fighters Wear full protective clothing, including self-contained breathing equipment. Chemical goggles, body-covering protective clothing, chemical resistant gloves and rubber boots.

Specific hazards arising from the chemical 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.

6. Accidental release measures

Emergency Procedures Avoid contact with skin and eyes and avoid breathing any fumes formed. Dries to form glass film which can easily cut skin. Spilled liquids are very slippery.

Clean-up Methods - Small Spillages Wear appropriate personal protective equipment as recommended in Section 8. Prevent runoff from entering into 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. Shovel dried waste into suitable container and dispose of in accordance with Section 13.

Clean-up Methods - Large Spillages 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 into storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material using sand or earth. Spilled liquid may be collected using a vacuum truck. If containment is impossible, neutralize contaminated area and flush with large quantities of water. Cover remaining liquid with sand or earth and shovel dried material into suitable container. Dispose of any material collected in accordance with Section 13.

Environmental Precautions Sinks and mixes with water. Liquid is alkaline and may increase the pH. High pH can be harmful to aquatic life. Avoid release into water systems and sewers.

7. Handling and storage

Precautions for Safe Handling Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Take appropriate precautions when handling bulk product that is transported/shipped whilst hot as it can cause thermal burns. Wear appropriate personal protective equipment as recommended in Section 8. Keep containers closed. Promptly clean residue from closures with cloth.

Conditions for safe storage, including any incompatibilities Store in accordance with all local regulations and codes of practice. Ensure containers are labelled and kept closed when not in. Storage temperature 0 - 70°C. Loading temperature 10-50°C. Mild steel is the most suitable material of construction for drums, tanks, valves, pipework, etc. Concrete storage tanks can be used but must be strong enough to hold the weight of Sodium Silicate solution to be stored and thick enough to prevent seepage of water. Incompatibilities/Materials to Avoid: Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers. Store away from acids and foodstuffs. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts.

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8. Exposure controls/personal protection

Exposure Controls, Personal Protection	The following Australian and New Zealand Standards will provide general advice regarding safety clothing and equipment: Respiratory equipment: AS/NZS 1715, Protective Gloves: AS 2161, Industrial Clothing: AS2919, Industrial Eye Protection: AS1336 and AS/NZS 1337, Occupational Protective Footwear: AS/NZS2210.
Other Exposure Information	No exposure standards have been established for the ingredients in this product as published by Safe Work Australia Workplace Exposure Standards. A peak limitation limit of 2mg/m ³ (TWA) is recommended by analogy with sodium hydroxide. 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. This standard is the manufacturers recommended limit for good practice. All atmospheric contamination should be minimized; avoid creating mists or vapours.
Appropriate engineering controls	Use in well ventilated area. Avoid generating and inhaling mists. Ensure exposure is managed within recommended exposure limits.
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. Consult a respiratory equipment supplier to aid selection of the appropriate type.
Eye Protection	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. Ensure a suitable eyewash station is within the immediate vicinity.
Hand Protection	Wear chemical resistant gloves. If contact is likely wear the use of full arm length gauntlets is recommended. Dried silicate can present physical hazards including cuts and abrasions. Wear cut resistant gloves if handling dried silicate.
Body Protection	Wear chemical resistant overalls, a full apron or similar protective clothing. Wear appropriate chemical resistant protective boots.
Hygiene Measures	Wash contaminated clothing and protective equipment before storing and re-using. The use of barrier cream is recommended.
Other Information	Environmental Controls: Ensure material is used in an appropriately banded area to prevent release into soil, water systems and sewers.

9. Physical and chemical properties

Form	Liquid. Varying proportions of sodium oxide, silica and water depending on the grade. Mean weight ratio for SiO ₂ /Na ₂ O: is from 2.0 to 3.3.
Appearance	Clear to hazy colourless, odourless thick liquid.
Melting Point	0°C approx.
Boiling Point	105-108°C
Solubility in Water	Soluble
Specific Gravity	1.2-1.6 (typical range)
pH	11-13 (of the concentrate)
Vapour Pressure	Not determined.
Vapour Density (Air=1)	Not applicable.
Viscosity	20 - 5000 cps.
Volatile Component	30-60%
Partition Coefficient: n-octanol/water	Not available.
Flash Point	Not applicable to aqueous solutions

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Flammability	Not applicable to aqueous solutions
Auto-Ignition Temperature	Not applicable - does not burn.
Flammable Limits - Lower	Not applicable to aqueous solutions
Flammable Limits - Upper	Not applicable to aqueous solutions
Other Information	Corrosiveness: Some corrosive effects on aluminium, copper, tin, zinc, lead, etc.

10. 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 50°C or below 10°C.
Incompatible Materials	Will react exothermically with acids. Unsuitable Container Materials: Sodium 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 sodium silicate containing mists will be released.
Possibility of 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.

11. Toxicological Information

Acute Toxicity - Oral	The acute oral toxicity of this product has not been tested. When Sodium Silicates were tested on a 100% solids basis, their single dose acute oral LD50 in rats ranged from 3400 mg/kg (MR 2.0) to 5150 mg/kg (MR 3.27). The acute oral lethality resulted from nonspecific causes. These products contain 30-60% Sodium Silicate thus each overall product has an Acute Oral Toxicity LD50 (rat): >3000 mg/kg.
Acute Toxicity - Dermal	No data available.
Acute Toxicity - Inhalation	No data available.
Respiratory sensitisation	No data available.
Skin Sensitisation	In a mouse local lymph node assay, sodium metasilicate was not sensitising. In humans, a single case of contact urticaria elicited by sodium silicate is reported.
Germ cell mutagenicity	In vitro, soluble silicates did not induce gene mutations in bacteria. 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 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.

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STOT-single exposure	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. No data available.
STOT-repeated exposure	No data available.
Aspiration Hazard	No data available.
Serious eye damage/irritation	When tested for primary eye irritation potential according to OECD Guidelines, Section 405, this material produced corneal, iridal and conjunctival irritation. Some eye irritation was still present 14 days after treatment, although the average primary irritation score had declined from 19.7 after 1 day to 4.0 after 14 days.
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. Sodium silicates can be irritating to corrosive to the skin of rabbits, depending on their molar ratio and concentration. Irrespective of the counterion (Na ⁺ or K ⁺), 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.
Subchronic/Chronic Toxicity	In a study of rats fed 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 2.4 g/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.

12. Ecological information

Ecological Information	Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material.
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 and degradability	This material is not persistent in aquatic systems but its high pH when undiluted or unneutralised is acutely harmful to aquatic life. Diluted material rapidly depolymerises 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 sodium will appreciable bioconcentrate up the food chain.
Mobility	Expected to be mobile in soil. Diluted material rapidly depolymerises to yield dissolved silica in a form that is indistinguishable from natural dissolved silica.
Bioaccumulative Potential	No data available.
Other Adverse Effects	No data available.
Acute Toxicity - Fish	LC50 (96h) = 210mg/l , Danio rerio, Na, MR 1.0 LC50 (96h) = 260-310mg/l , Oncorhynchus mykiss, Na, MR 3.1
Acute Toxicity - Daphnia	EC50 (48h) = 1700mg/l, Daphnia Magna, Na, MR 3.2

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Acute Toxicity - Other Organisms	EC0 (18h) = 348mg/l , Pseudomonas putida, Na, MR 3.46 EC0 (30min) = 1000mg/l, Pseudomonas putida Na, MR 1.0
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13. Disposal considerations

Disposal Considerations	Dispose of waste according to applicable local, state and federal regulations.
Waste Disposal	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.
Special precautions for landfill or incineration	After dilution or neutralisation may be landfilled. Not suitable for incineration.

14. Transport information

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Not a Dangerous Good according to NZS 5433:2007 Transport of Dangerous Goods on Land & Dangerous Goods Rule 2005. Not regulated for transport of Dangerous Goods: ADG7, UN, IATA, IMDG.
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15. Regulatory information

Poisons Schedule	S5
AICS (Australia)	All components of this material are listed on or exempt from the Australian Inventory of Chemical Substances (AICS).

16. Other Information

Contact Person/Point	An electronic version of this SDS is available at www.imcdgroup.com
Other Information	<p>ADG Code: Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition</p> <p>AICS: Australian Inventory of Chemical Substances</p> <p>ASCC: Office of the Australian Safety and Compensation Council</p> <p>BCF: Bioconcentration Factor</p> <p>CAS number: Chemical Abstracts Service Registry Number</p> <p>CMR: Carcinogenic, Mutagenic or toxic to Reproduction</p> <p>DMEL: Derived Minimum Effect Level</p> <p>DNEL: Desired NO Effect Level</p> <p>EPA: Environmental Protection Agency</p> <p>GHS: Globally Harmonised System of Classification and Labelling of Chemicals</p> <p>Hazchem Code: Emergency action code of numbers and letters that provide information to emergency services especially fire fighters</p> <p>IARC: International Agency for Research on Cancer</p> <p>IOELV: Indicative Occupational Exposure Limit Value</p> <p>LC50: Lethal Concentration, 50 percent</p> <p>LD50: Lethal Dose, 50 percent</p> <p>NICNAS: National Industrial Notification & Assessment Scheme</p> <p>NIOSH: National Institute for Occupational Safety & Health</p> <p>NOAEL: No Observed Adverse Effect Level</p> <p>NOEC: No Observed Effect Concentration</p> <p>NOS: Not otherwise specified</p> <p>NTP: National Toxicology Program (USA)</p> <p>OEL: Occupational Exposure Limit</p> <p>OSHA: Occupational Safety & Health Administration</p> <p>PBT: Persistent Bioaccumulative Toxic chemical</p> <p>PMCC: Pensky Martens Closed Cup</p> <p>PNEC: Predicted No Effect Concentration</p> <p>R-Phrase: Risk Phrase</p> <p>STEL: Short Term Exposure Limit</p> <p>STOT-SE: Specific Target Organ Toxicity (Single Exposure)</p> <p>STOT-RE: Specific Target Organ Toxicity (Repeated Exposure)</p> <p>SUSMP: Standard for the Uniform Scheduling of Medicines & Poisons</p>



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TWA: Time Weighted Average
UN Number: United Nations Number
vPvB: Very Persistent and Very Bioaccumulative
WEEL: Workplace Environmental Exposure Level
WEL-TWA: Workplace Exposure Limit, Time Weighted Average
...End Of MSDS...

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