Safety Data Sheet

Product Name: AGB ORGANIC SILICATE COMPLEX

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name	**AGMIN CHELATES PTY LTD**
Address	32 Wattlepark Avenue, Moolap, Victoria, AUSTRALIA, 3224
Telephone	(03) 5248 3828
Fax	(03) 5248 1603
Emergency	0419 306 666
Email	service@agmin.com.au
Website	www.agmin.com.au
Synonym(s)	SILICIC ACID; POTASSIUM SALT SOLUTION; POTASH WATER GLASS SOLUTION; SOLUBLE POTASH GLASS
Use(s)	FOLIAR SPRAY • LIQUID FERTILISER • FERTIGATION • HORTICULTURE
MSDS Date	01 JUN 2023

2. HAZARDS IDENTIFICATION

Signal Word: **WARNING**

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Poison Schedule: Scheduled Poison S5
Emergency Overview: Alkaline; may be harmful by ingestion and contact with skin and eyes

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).

HAZARDOUS CLASSES AND CATEGORIES

Physical: Not applicable

Health:	Acute toxicity (oral)	Category 5 – May be harmful if swallowed
	Acute toxicity (inhalation)	Not applicable
	Contact Hazard (eye)	Category 2A – Causes serious eye irritation
	Contact hazard (skin)	Category 2 – Causes skin irritation
	Carcinogenicity	Not classified by NOHSC, OSHA, IARC

Environmental: Not applicable

EMERGENCY OVERVIEW

A black, 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.

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 2A

Pictograms:

Signal Word: **WARNING**

Hazard Statements:		H315	Causes skin irritation.
		H319	Causes serious eye irritation.
Precautionary Statements:	*Prevention*	P264	Wash contacted areas thoroughly after handling.
		P280	Wear protective gloves/eye face/protection.
	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.
		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.
	Disposal	P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
POTASSIUM SILICATE	Not Available	1312-76-1	< 60.0%
WATER	H2O	7732-18-5	REMAINDER

4. FIRST AID MEASURES

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 neutralized 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 should be easily accessible in the immediate area.

Advice to Doctor: Treat symptomatically as for strong alkalis.

5. FIRE FIGHTING MEASURES

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.

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 resistance gloves, and rubber boots**.**

Flash Point: Not applicable.

Flammability: Product is non flammable according to the Australian Code for Transport of Dangerous Goods.

6. ACCIDENTAL RELEASE MEASURES

Emergency: **SMALL SPILL CLEANUP:** Prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Isolate, die 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.

LARGE SPILL CLEANUP: 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, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralise contaminated area and flush with large quantities of water. Dispose of any material collected in accordance with Section 13.

SEE SECTION 14 FOR DISPOSAL CONSIDERATIONS.

Personal: Precautions Avoid contact with skin and eyes and avoid breathing any fumes formed.
Spilled liquids are very slippery.
Wear appropriate personal protective equipment as recommended in Section 8.

Special Issues: Spilled material is very slippery. Only water will evaporate from a spill of this material.

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. STORAGE AND HANDLING

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. Wear appropriate personal protective equipment as recommended in Section 8. Keep container closed. Promptly clean residue from closures with cloth.

Safe Storage: Store in accordance with all local regulations and codes of practice.
Keep containers labelled and 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 0-70^{0}C. Loading temperature 10-50^{0}C. Do not store in aluminium, fiberglass, copper, brass, zinc or galvanised containers.

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 AGB ORGANIC SILICATE CHELATE to be stored and thick enough to prevent seepage of water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Stds	No exposure standard(s) allocated. All atmospheric contamination should be minimized; avoid creating mists or vapours.
Biological Limits	No biological limit allocated.
Engineering Controls	Use in well ventilated areas. Avoid generating and inhaling mists. Ensure exposure is managed within recommended exposure limits.
Environmental Controls	Ensure material is used in an appropriately bunded areas to prevent release into soil, water systems and sewers.
PPE	Avoid skin and eye contact. Avoid inhaling the vapour or mist. Follow normal industrial safety practices. Wear splash-proof goggles and PVC or rubber gloves. When using large quantities or where heavy contamination is likely, wear: coveralls.


9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	BLACK LIQUID	**Solubility (Water)**	SOLUBLE
Odour	OROURLESS	**Specific Gravity**	1.313
pH	9.2	**% Volatiles**	> 60 % (Water)
Vapour Pressure	NOT DETERMINED	**Flammability**	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	**Flash Point**	NOT RELEVANT
Boiling Point	100°C (Approximately)	**Upper Explosion Limit**	NOT RELEVANT
Melting Point	< 0°C	**Lower Explosion Limit**	NOT RELEVANT
Evaporation Rate	AS FOR WATER		

10. STABILITY AND REACTIVITY

Chemical Stability:	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.
Incompatible Materials:	Strong Acids.
Unsuitable Container: Materials	This product is strongly alkaline and not compatible with aluminium, copper, brass, bronze, zinc, tin and lead.
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.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity: LD50 (RAT): N/D
The acute oral toxicity of this product has not been tested. When chemically similar potassium silicate products were tested on a 100% solids basis, their single dose acute oral LD50 in rats ranged from 1280 – 3200 mg/kg. The acute oral lethality resulted from non-specific causes. These products contain 30 – 60% potassium silicate thus each product is estimated to have an Acute Oral Toxicity LD50 (rat): >2000 mg/kg.

Eye Irritation: **SEVERE IRRITANT**
This material has not been tested for primary eye irritation. However, on the basis of its similarity to potassium silicate solutions in composition and alkalinity it is regarded as a severe eye irritant.

Skin Irritation: **IRRITANT**
When tested for primary skin irritation potential, similar to 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.

Sub-chronic Data: The sub-chronic toxicity of this material has not been tested. In a study of rats fed chemically similar potassium silicate in drinking water for three months, at 200, 600 and 1800ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to potassium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed potassium 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 potassium silicate in their drinking water at 600 and 1200ppm.

Special Studies: The mutagenic potential of this material has not been tested. Chemically similar to potassium silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are not 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.

12. ECOLOGICAL INFORMATION

General: Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material.

Environment: Plant nutrients may be beneficial to plants at low levels, however high levels may cause reduced growth or burns in sensitive species. Excess may be washed through soil to waterways. Nutrients released to waterways may cause algal blooms, with potential for toxic effects on aquatic organisms.

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

The following data is reported for chemically similar potassium silicates on a 100% solids basis:
A 96hr median tolerance for fish (Gambusia affnis) of 2320ppm; a 96hr median tolerance for water fleas (Daphnia magna) of 247ppm; a 96hr median tolerance for snail eggs (Lymnea) of 632ppm; and a 96hr median tolerance for Amphipoda of 160pmm. These products contain 30-60% potassium silicate.

Persistence and: Degradability This material is not persistent in aquatic systems, but its high pH when undiluted or un-neutralised 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 bio-accumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Neither silica nor potassium will appreciably bio-concentrate 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.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated				
UN No.	None Allocated	**DG Class**	None Allocated	**Subsidiary Risk(s)**	None Allocated
Packing Group	None Allocated	**Hazchem Code**	None Allocated	**EPG**	None Allocated

15. REGULATORY INFORMATION

Labelling: **Workplace Hazardous Substance Labelling**

Signal Word: IRRITANT

Poison Schedule Classified as a Schedule 5 (S5) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

NOT A DANGEROUS GOOD

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.

16. OTHER INFORMATION

Additional Information

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

ABBREVIATIONS:
ADB - Air-Dry Basis.
ADG Code - Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road & Rail.
AICS - Australian Inventory of Chemical Substances.
BEI - Biological Exposure Indice(s)
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EINECS - European Inventory of Existing Commercial chemical Substances.
GHS - Globally Harmonised System of Classification and Labelling of Chemicals proposed by the UN.
IARC - International Agency for Research on Cancer.
IMDG - International Maritime Dangerous Goods Code.
NOHSC - Australian National Occupational Health and Safety Commission.
M - moles per litre, a unit of concentration.
mg/m3 - Milligrams per cubic metre.
NOS - Not Otherwise Specified.
NTP - National Toxicology Program.
OSHA - Occupational Safety and Health Administration.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
SUSMP - Standard for Uniform Scheduling of Medicines and Poisons.
UN No. - United Nations Dangerous Goods Number.
WHS - Work Health and Safety legislation introduced by the Australian government which consists of an integrated package of a model Work Health and Safety (WHS) Act supported by WHS Regulations, Codes of Practice and a National Compliance and Enforcement Policy. The WHS Regulations implement a system of chemical hazard classification, labelling and safety data sheet requirements based on the GHS.TWA/ES - Time Weighted Average or Exposure Standard.

SDS Code Used This SDS has been prepared according to Australian WHS criteria.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Report Status This document has been compiled by the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

It is based on information concerning the product and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While **AGMIN CHELATES PTY LTD** has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, **AGMIN CHELATES PTY LTD** accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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End of Report