Sustainable Farming Solutions

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Safety Data Sheet
Issue Date: 1/03/2022

Product Name: Grosil

HAZARDOUS SUBSTANCE.
Classified Hazardous according to The Globally Harmonised System of Classification and labeling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.
Scheduled Poison (Schedule 5)
Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).

1. IDENTIFICATION

Product Name	Grosil
Product Use	Fertiliser
Chemical Name	Liquid Potassium Silicate

2. HAZARDS IDENTIFICATION

Poisons Schedule (Aust)	5
GHS Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labeling of Chemicals (GHS). Acute Toxicity – Oral: Catetory 5. Skin corrosion/Irritation: Category 2 Eye Damage/Irritation: Category 1
Hazard Categories	H303 May be harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage, corrosion.
Signal Word	DANGER
Pictogram	
Precautionary Statements	
Prevention	P264 Wash contacted areas thoroughly after handling. P280 Wear protective gloves/eye protection/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. P310 Immediately call a POISON CENTER or doctor/physician. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P332+P313 If skin irritation occurs: Get medical advice/attention.
Disposa	P362 Take off contaminated clothing and wash before reuse.. P337 + P313 If eye irritation persists: Get medical advice/attention. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Acute Health Effectsl	**Swallowed** Swallowing can result in nausea, vomiting, abdominal pain and diarrhoea. May cause severe irritation to the mouth, throat and stomach. **Eye** Causes serious eye damage **Skin** Irritating to skin. May cause itching and skin rash. I**nhaled** 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).

3. COMPOSITION/ INGREDIENTS

Ingredients:	Potassium Silicate 13-26% and water remainder
CAS – Potassium Silicate	1312-76-1

4. FIRST AID MEASURES

Inhalation:	Remove from exposure. Allow patient to assume most comfortable position and keep warm and at rest. Seek medical attention if victim feels unwell. Not expected to be an inhalation hazard under normal use.
Ingestion:	Immediately rinse mouth with water. Repeat until product is thoroughly removed. Give water to drink. If swallowed **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 Poisons Information.
Eye:	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre (phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor, or for at least 15 minutes.
Skin or Hair Contact:	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.
First Aid Facilities:	Safety shower and eye wash facilities should be immediately accessible.
Advice to Doctor:	Treat symptomatically as for strong alkalis.
Advice:	For advice, contact a Poisons Information Centre (13 11 26; New Zealand 0800 764 766) or a doctor (at once).

5. FIRE FIGHTING MEASURES

Extinguishing Media:	Compatible with dry chemical water spray, regular foam and carbon dioxide fire extinguishing media. No media identified as unsuitable.
Specific Hazards:	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.
Hazardous Products of	Flammable hydrogen gas may be produced on prolonged contact with metals

Combustion:	such as aluminium, tin, lead and zinc.
Decomposition Temp	Water boils off at 105 to 108 deg C
Personal Protective Equipment:	Fire fighters should wear full protective clothing, chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin and eyes and avoid breathing any fumes formed. Full protective clothing recommended for clean-up. Dries to form glass film which can easily cut skin. Wear appropriate protective clothing. Slippery when spilt.
Environmental Precautions:	Small spill cleanup: Mop up and neutralize liquid, then discharge to sewer in accordance with federal, state and local regulations or permits. 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, 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 material according to section 13.
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.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with cloth. Be aware of potential for surfaces to become slippery.
Storage:	Storage area should be cool, dry and out of direct sunlight. Do not leave product in open containers. 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^{O}C. Loading temperature 10-50^{O}C. Do not store in aluminum, 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.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits:	No value assigned for this specific material by the Australian Safety and Compensation Council (ASCC). However as with all chemicals exposure to concentrate should be kept to the least possible level.
Biological Limits:	Biological limit values not established.
Engineering Measures:	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:	RESPIRATOR: Respiratory protection is not normally required due to low inhalation risk (AS1715/1716). EYES: eye 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. HANDS: Plastic or Rubber gloves. The use of barrier cream is recommended (AS2161). CLOTHING: Overalls, splash apron or similar protective apparel and Chemical resistant safety boots (AS3765/2210).

Work Hygienic Practices:	Wash contaminated clothing and protective equipment before storing and re-using. The use of barrier cream is recommended. Wash hands after contact with this material. Do not eat, drink, or smoke around this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear honey colour liquid
Odour:	Odourless
pH:	11-13
Solubility in Water:	Soluble in water.
Physical State:	Liquid
Boiling Point:	100-108 Deg C
Melting Point:	No data available
Specific Gravity:	1.31-1.35
Flammability:	Not combustible in liquid. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead and zinc.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of use. Absorbs carbon dioxide on exposure to air, which results in the deposition of insoluble silica.
Hazardous Polymerization:	If overheated the solution will boil and irritating potassium silicate containing mists will be released.
Conditions to Avoid:	Leaving solutions exposed to carbon dioxide in the air.
Incompatible Materials:	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 Reactions:	Flammable hydrogen gas will form on reaction with aluminium, copper, zinc etc.
Reactions:	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:	LD 50 (rat): not determined.
Eye Irritation:	This material has not been tested for primary eye irritation. However on the basis of its similarity to sodium silicate solutions in composition and alkalinity it is regarded as a severe eye irritant. Studies with sodium silicates suggest the severity of eye effects is inversely correlated with the molar ratio.
Skin Irritation:	Irritant – similar potassium silicate solutions produce minimal 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.
Inhalation:	Vapours or mist may cause irritation.
Subchronic 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 1800 ppm, 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 1200 ppm.

12. ECOLOGICAL INFORMATION

General:	Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material.
Ecotoxicity:	The ecotoxicity of Potassium Silicate has not been tested. The following data is reported for chemically similar Potassium Silicates on a 100% solids basis:

	A 96 hour median tolerance for fish (Gambusia affnis) of 2320 ppm; a 96 hour median tolerance for water fleas (Daphnia magna) of 247 ppm; a 96 hour median tolerance for snail eggs (Lymnea) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. 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 unneutralized 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 potassium will appreciably 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.

13. DISPOSAL CONSIDERATIONS

Disposal Methods:	Dispose of waste according to federal, EPA , state and local regulations. Assure conformity with all applicable regulations. Normally suitable for disposal at approved land waste site after dilution or neutralisation.
Landfill:	After dilution or neutralisation may be land filled.
Incineration:	Not suitable for incineration.

14. TRANSPORT INFORMATION

Un number:	None allocated. This product is not considered a dangerous good according to the criteria of the Australian Dangerous Goods Code (ADG Code).

15. REGULATORY INFORMATION

General Information:	No data available
Poisons Schedule:	5

16. OTHER INFORMATION

The data and recommendations presented herein are based upon research of others believed to be accurate. However, no warranty is expressed or implied regarding this data or the results to be obtained from use thereof. Sustainable Farming Solutions assumes no responsibility for the injury to customers or third party proximity caused by the material if reasonable safety procedures are not adhered to as stipulated in this data sheet.

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