

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	TURF KING SILICA LIQUID FERTILISER
Other Names	Liquid fertiliser, Fluid fertiliser, Solution fertiliser
Uses	Liquid fertiliser
Chemical Family	No Data Available
Chemical Formula	No Data Available
Chemical Name	No Data Available
Product Description	No Data Available

Contact Information	Australia	Location	Telephone	Ask For
	Rural Liquid Fertilisers Pty Ltd	61 Dowd Street Welshpool WA 6106	+61 1800 753 000	Technical Officer

2. HAZARDS IDENTIFICATION

Hazard Classification	Classified as hazardous according to criteria of NOHSC. Emergency Overview: Clear to hazt, colourless, odourless, tick 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.
Risk Phrase(s)	Classified as hazardous according to criteria of NOHSC. R36/38 Irritating to eyes and skin.
Safety Phrase(s)	S24/25, S26, S28, S37/39 Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable gloves and eye/face protection.
Human Health Effects	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 it's 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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterisation Ingredients Liquid

Name	CAS Number	Proportion Hazard Symbol	Risk Phrase
Water	7732-18-5	30-60 %	
Potassium Silicate	1312-76-1	30-60 %	

4. FIRST AID MEASURES

First Aid Measures

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have the SDS with you when you call.

Inhalation

Remove victim to fresh air. Get 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. Get 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 neutralise the alkalie with acid solutions, as this could aggravate the burns. Get medical attention if health effects develop or persist.

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.

First Aid Facilities

Safety shower and eye wash 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.

Hazards from Combustion Products

Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead and zinc.

**Special Protective Equipment for
fire fighters**

Wear full protective clothing, including self-contained breathing equipment.

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.

Decomposition Temp.

Water boils off at 105 to 108°C.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal

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.

Clean-up Methods - Small Spillages

Mop up and neutralise liquid, then discharge to sewer in accordance with federal, state and local regulations or permits.

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, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralise contaminated area and flush with large quantities of water.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep containers closed. Promptly clean residue from closures with cloth.

Conditions for 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, fibreglass, 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 Potassium Silicate solution to be stored and thick enough to prevent seepage of water.

8. EXPOSURE CONTROLS / 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.

National Exposure Standards

No exposure standard has been established for this product.

Potassium Silicate solutions: TWA - 5, STEL - 5 mg/m³

This standard is the manufacturers recommended limit for good practice. All atmospheric contamination should be minimised.

Engineering Controls

Use in well ventilated area. Avoid generating and inhaling mists.

Personal Protective Equipment

Avoid skin and eye contact. Avoid inhaling the vapour or mist. Follow normal industry 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 faceshield 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	LIQUID
Physical and Chemical Properties	Varying proportions of potassium oxide, silica and water depending on the grade. Mean weight ratio for $\text{SiO}_2/\text{K}_2\text{O}$ is from 1.5 to 3.5.
Appearance	CLEAR TO HAZY, COLOURLESS, THICK.
Odour	ODOURLESS
Decomposition Temperature	WATER BOILS OFF AT 105 TO 108°C.
Melting Point	0°C APPROX.
Boiling Point	105 - 108°C
Solubility in Water	SOLUBLE
Specific Gravity	1.38 to 1.40
pH Value	11.6
Vapour Pressure	NOT DETERMINED
Vapour Density (Air=1)	NOT APPLICABLE
Volatile Component	30 - 60%
Octanol/Water Partition Coefficient	NOT AVAILABLE
Flash Point	Not applicable to aqueous solutions.
Flammability	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.
Auto-Ignition Temperature	Not applicable to aqueous solutions.
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

Stability and Reactivity	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.
Incompatible Materials	Strong acids.
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.
Other Information	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 properly removed.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity-Oral

LDSO, rat: Not determined.

The acute oral toxicity of this product has not been tested. When chemically similar Sodium Silicates were tested on a 100% solid basis, their single dose acute oral LDSO 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 LDSO, 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 Sodium 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 potassium silicate solutions 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 when abrasion may occur.

Subchronic/Chronic Toxicity

The subchronic 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 2.4 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.

Other Information

Special Studies: 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 of 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

Ecological Information

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 Sodium Silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnaea*) 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 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 potassium 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.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations

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 Australia Code for the Transport of Dangerous Goods by Road and Rail.

15. REGULATORY INFORMATION

Poisons Schedule

S5

Hazard Category

Irritant

AICS (Australia)

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

16. OTHER INFORMATION

Disclaimer

This document has been prepared by Rural Liquid Fertilisers (RLF), 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.

While RLF 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, RLF 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.

As the use of the products described in this document is outside the control of RLF, we make no representation or warranty concerning the suitability or fitness of this product for any purpose. It is your sole responsibility to ensure that the product will have the qualities and attributes that will make them fit for and ordinary or special purpose required of them, even if that purpose is made known to us at any time. This includes responsibility on your part to conduct in a timely manner all appropriate tests and quality checks on the product and any goods made from them. We disclaim any liability if any products are not suitable or fit for any such purpose.

Revision: 1

SDS Date: 28 September 2017

End of SDS