Safety Data Sheet

Product Name: ITS Alleviate Plus

1. IDENTIFICATION OF THE SUPPLIER AND CHEMICAL MATERIAL

Supplier Name:	Independent Turf Services VIC
Address:	PO Box 1539, Tullamarine VIC 3043
Telephone:	+61 (3) 9333 2155
Emergency:	0419 599 933
Email:	scott@independentturf.com.au
Website:	www.independentturf.com.au

Product Name: **ITS ALLEVIATE PLUS**

Synonym(s): Foliar Spray; Liquid Fertiliser; Fertigation; Turf

Uses(s): Maybe used as an acid neutralising agent for soil and foliar applications, and as a silica source for enhancing soil fertility. ITS Alleviate Plus increases compression resistance of cell walls and prevents leaking of cell-fluids. This product is an agricultural fertiliser for soil and foliar applications.

SDS Approved Date: 12 SEPT 2019

2. HAZARDS IDENTIFICATION

Signal Word:	**WARNING**
Dangerous Goods Information:	Not a Dangerous Good according to the ADG Code.
Hazardous Chemical Information:	Hazardous Chemical according to WHS
Hazardous Substance Information:	Hazardous Substance according to NOSHC
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.

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 ptrotection/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 miniutes. 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

Chemical Identity of Ingredients	CAS No.	Proportion	Risk Phrases as 100%
Calcium Lignosulphonate (Ca)	8061-52-7	< 7.0 %	N/A
Magnesium Lignosulphonate (Mg)	8061-54-9	< 1.0 %	N/A
Potassium Lignosulphonate (K)	37314-65-1	< 6.0 %	N/A
Nitrogen Slow Release (N)	572-13-6	10.0 %	N/A
Iron (EDHA) (Fe)	3931-38-9	< 1.0 %	N/A
Manganese Hydrolysate (Mn)	68186-83-4	< 1.0 %	N/A
Zinc Hydrolysate (Zn)	57866-49-6	< 1.0 %	N/A
Copper Lignosulphonate (Cu)	6127-83-6	< 1.0 %	N/A
Boron Gluconate (B)	10043-35-3	< 1.0 %	N/A
Potassium Molybdate (Mo)	10102-40-6	< 1.0 %	N/A
Modified Humates, Fulvates	N/A	< 30.0 %	N/A
Potassium Silicate	1312-76-1	3.0 %	R36/38
Water	7732-18-5	REMAINDER	N/A

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.

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.

6. ACCIDENTAL RELEASE MEASURES

Emergency: Procedures

SMALL SPILL CLEANUP: Mop up and neutralise 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, neutralise contaminated area and flush with large quantities of water.

SEE SECTION 14 FOR DISPOSAL CONSIDERATIONS.

Special Issues: Spilled material is very slippery.

7. HANDLING AND STORAGE

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

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^{0}C. Loading temperature 45-95^{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 ITS Alleviate Plus to be stored and thick enough to prevent seepage of water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure: No exposure standards have been established for the ingredients in this product by Standards NOHSC (Worksafe Australia).

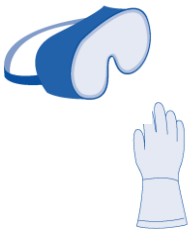
Substance	**TWA**		**STEL**	
	ppm	mg/m^3	ppm	mg/m^3
Potassium Silicate Solutions	-	5	-	5

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

Design and: Engineering Control Measures Use in well ventilated area. Avoid generating and inhaling mists.

PPE: Avoid skin and eye contact. Avoid inhaling the vapour or mist. Follow normal industrial safety practices.

Equipment: The use of protective clothing and equipment depends on the degree and nature of exposure.



The following personal protective equipment should be used:

i) Safety glasses, goggles or face shield as appropriate.
ii) Plastic or Rubber gloves.
iii) Chemical resistant safety boots.
iv) 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.

Where applicable refer to the following Standards:

AS/NZS 1337	Eye protectors for industrial applications.
AS 2161	Industrial safety gloves and mittens.
AS 2210	Safety Footwear.
AS 3765	Clothing for protection against hazardous chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odour:	Black Liquid.
Chemical Formula:	Varying proportions of potassium, oxide, silica and water depending on the grade. Mean weight ration of SiO2/K2O is from 1.5 – 3.5.
Melting/Boiling Point:	0^0C approx..
Decomposition Temp:	Water boils off at 105^0C – 108^0C
Vapour Pressure:	N/D
Relative Vapour Pressure:	N/A
Specific Gravity/Density:	1.2 – 1.3 (typical range)
Solubility:	Liquid
pH:	11.0 – 13.0 (of the concentrate)
% Volatile:	30 – 60%
Octanol/Water Partition:	log P (octanol/water) – N/A
Co-efficient: Corrosiveness	Some corrosive effects on Aluminium, copper, tin, zinc, lead, etc…
Flammable Properties:	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:	N/A
Flammability Limits:	N/A
Autoignition Temp:	N/A

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.
Incompatible Materials:	Strong Acids.
Unsuitable Container: Materials	ITS Alleviate Plus is strongly alkaline and not compatible with aluminium, copper, brass, bronze, zinc, tin and lead.
Hazardous Decomposition: Products	**IF OVERHEATED:** The solution will boil.
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

TOXICITY DATA

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. Sinks and mixes with water. Only water will evaporate from this material.
Ecotoxicity Data:	The ecotoxicity of this material has not been tested. 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

Road & Rail:	**NOT DEFINED AS A DANGEROUS GOOD:** by the Australian Code for the Transport of Dangerous Goods by Road & Rail.
Sea:	**NOT A DANGEROUS GOOD:** according to the International Maritime Dangerous Goods Code (IMDG Code).
Air:	**NOT A DANGEROUS GOOD:** according to the International Air Transport Association (IATA) Dangerous Goods Regulations.

15. REGULATORY INFORMATION

Labelling: **Workplace Hazardous Substance Labelling**

HAZARD CATEGORY: IRRITANT

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

SDS DATES & REVISIONS

SDS Preparation Date: 01 SEPT 2019

ACRONYMS USED

ADG Code	Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road & Rail.
AICS	Australian Inventory of Chemical Substances.
CAS No.	Chemical Abstracts Service Registry Number.
GHS	Globally Harmonised System of Classification and Labelling of Chemicals proposed by the UN.
IATA	International Air Transport Association.
IARC	International Agency for Research on Cancer.
IMDG	International Maritime Dangerous Goods Code.
NOHSC	Australian National Occupational Health and Safety Commission.
NTP	National Toxicology Program.
OSHA	Occupational Safety and Health Administration.
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.

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

This SDS summarises to the best of our knowledge the health and safety hazard information on the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace, including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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END OF SDS