SECTION 1: IDENTIFICATION

Product Name	KS500
Chemical Family	No Data Available
Chemical Formula	No Data Available
Chemical Name	Potassium Silicate Solutions
Product Description	No Data Available

Supplier information

New Zealand Decorative Concrete Ltd T/A Permacolour

42A Egmont Road, Waiwhakaiho, New Plymouth

0508 444 555 or 06 755 3320

www.permacolour.co.nz

SECTION 2: HAZARDS IDENTIFICATION

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Label ling 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 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.

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.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards
6.1D Substances that are acutely toxic - Harmful
6.3A Substances that are irritating to the skin
6.4A Substances that are irritating to the eye

Environmental Hazards
9.3C Substances that are harmful to terrestrial vertebrates

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Potassium Silicate	No Data Available	1312-76-1	15.00—30.00 %
	No Data Available	7732-18-5	Balance %

SECTION 4: FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.
Eye	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation persists after washing.
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. Get medical attention if health effects develop or persist
Inhaled	Remove victim from exposure to fresh air. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. Treat symptomatically as for strong alkalis.
Medical Conditions Aggravated by Exposure	Prolonged or repeated skin contact may cause dry skin. Deflating of the skin can result in irritation and dermatitis (inflammation of the skin).

SECTION 5: FIRE-FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	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	In case of fire, appropriate extinguishing media include dry chemical, water spray, regular foam and carbon dioxide.
Fire and Explosion Hazard	Non-combustible liquid. 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 Combustion	Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.
Special Fire Fighting Instructions	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. All combustion residues and contaminated water from fire-fighting should be disposed of according to regulations.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).

Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

SECTION 6: ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. Increase ventilation. Avoid walking through spilled product as it is slippery when spilt. Use clean, non-sparking tools and equipment. Shut off all possible sources of ignition. 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.

Clean Up Procedures	**Large Spills:** Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. **Small Spills**: Wipe up spilled material and place in a suitable container for disposal. Never return spills in original containers for re-use.
Containment	Stop leak if safe to do so. Isolate the danger area.
Decontamination	Wash area with soap and water. Wash contaminated area with water.
Environmental Precautionary Measures	Sinks and mixes with water. High pH of this material is harmful to aquatic life. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

SECTION 7: HANDLING AND STORAGE

Handling	Be aware of potential for surfaces to become slippery. Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with a cloth.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. 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 below 50 Deg c. C. Loading temperature 45-95 deg C. Do not store in aluminium, fibreglass, copper, brass, zinc or galvanized containers. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer. 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

General

No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC).

Potassium Silicate solutions CAS No: 1312-76-1

TWA: 5 mg/m3

STEL: 5 mg/m3

NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Exposure Limits No Data Available

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: Safety glasses, goggles or face shield as appropriate (AS1336/1337).
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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear Liquid
Odour	Odourless
Colour	Clear to hazy, colourless
pH	11 - 13
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	100 °C
Melting Point	Approx 0 °C
Freezing Point	No Data Available
Solubility	Soluble
Specific Gravity	1.2 - 1.7
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	15% - 30%
VOC Volume	No Data Available
Additional Characteristics	Some corrosive effects on Aluminium, Copper, Tin, Zinc, Lead etc
Potential for Dust Explosion	Product is a liquid.
Fast or Intensely Burning Characteristics	Non combustible liquid.
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards a Fire	Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	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.
Release of Invisible Flammable Vapours and Gases	No Data Available

SECTION 10: STABILITY AND REACTIVITY

General Information	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical Stability	Stable in sealed containers. Absorbs carbon dioxide on exposure to air, which results in the deposition of insoluble silica.
Conditions to Avoid	Avoid leaving solutions exposed to carbon dioxide in the air. Excessive heat. Freezing. Contact with incompatible materials.
Materials to Avoid	Incompatible with strong acids and metals. 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. Flammable hydrogen gas will form on reaction with aluminium, copper, zinc etc.
Hazardous Decomposition Products	May form flammable hydrogen gas when in contact with some metals such as aluminium, tin, lead and zinc and their alloys. Reacts readily with various reducing sugars (i.e. fructose, galactose, maltose, dry whey solids) to produce carbon monoxide.
Hazardous Polymerisation	No Data Available

SECTION 11: TOXICOLOGICAL INFORMATION

General Information

Dermal, Rat, > 5000 mg/kg
Inhalation, Rat, > 2.06 mg/l
Oral, Rat, > 5000 mg/kg|
The acute oral toxicity of this product has not been tested. When chemically similar Sodium Silicates were tested on a 100% solids basis, their single dose acute oral LD50 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 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 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 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.

Subchronic Data: 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 2.4g/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 Sodium Silicate in their drinking water at 600 and 1200 ppm.

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 kidney stones and other siliceous urinary calculi in humans. Potassium Silicate is not listed by IARC, NTP or OSHA as a carcinogen.

Eye Irritant

A severe eye irritant. May cause conjunctivitis (inflammation of the eyes) and possibly corneal burns and ulceration. 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.

Ingestion

Swallowing can result in nausea, vomiting, abdominal pain and diarrhoea. May cause severe irritation to the mouth, throat and stomach. May cause irritation of the gastrointestinal tract.

Inhalation

High mist concentrations may cause irritation of respiratory tract.

Skin Irritant

Irritating skin. When tested for primary skin irritation potential, similar 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. May cause itching and skin rash. Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin).

Carcinogen Category

No Data Available

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms. The ecotoxicity of Potassium Silicate has not been tested The following data is reported for chemically similar Sodium Silicates on a 100% solid 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 am phipoda 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 unnaturalized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes 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 depolymerizes to yield dissolved silica in a form that is Mobility indistinguishable from natural dissolved silica.
Environmental Fate	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Bioaccumulation Potential	Neither silica nor potassium will appreciably bioconcentrate up the food chain.
Environmental Impact	No Data Available

SECTION 13: DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/ reconditioned at an approved facility. Normally suitable for disposal at approved land waste site after dilution or neutralisation.
Special Precautions for Land Fill	After dilution or neutralisation may be land filled. Not suitable for incineration. Normally suitable for disposal at approved land waste site after dilution or neutralisation.

SECTION 14: TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (Malaysia)
ADR

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (United States of America)
US DOT

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport
IMDG Code

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

EMS	No Data Available
Marine Pollutant	No

Air Transport
IATA DGR

Proper Shipping Name	Potassium Silicate Soln 1552
Class No	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available

Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of DangerousGoods by Road & Rail (ADG Code)

SECTION 15: REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	5

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR004658

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined

Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

SECTION 16: OTHER INFORMATION

New Zealand Decorative Concrete Ltd has compiled the information and recommendations contained in this Safety Data Sheet from sources believed to be reliable and to represent the most reasonable current opinion on the subject at the date quoted in section sixteen of the Safety Data Sheet. No warranty, guarantee or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine the environmental regulatory compliance obligations under any applicable New Zealand laws. In providing this disclaimer New Zealand Decorative Concrete Ltd removes itself from any responsibility/liability of damages/harm caused by the information or lack thereof in this Safety Data Sheet document.