Potassium Silicate

SECTION 1: IDENTIFICATION OF SUBSTANCE / MIXTURE

Product name: Silicate Up
Fertilizer formula: Not Applicable
Product type: Liquid
Product usage: pH Adjustment
Restrictions on use: n/a
Initial Supplier: Plantlife Products
Emergency Telephone Number: 250-491-0255

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture
Classified according to the US Hazard Communication Standard (HCS 2012).
Classification: Not applicable

2.2 Label elements
P280 Wear protective gloves/eye protection/face protection.
Response:
P370 + P378 In case of fire: Use water spray or fog to extinguish.
Disposal:
P501 Dispose of contents and container in accordance with local, regional, national and international regulations

2.3 Other hazards Dries to form glass film, which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

SECTION 3: COMPOSITION / IDENTIFICATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Concentration</th>
<th>Other Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Silicate</td>
<td>1312-76-1</td>
<td>29%</td>
<td>Silicic acid, potassium salt</td>
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</tbody>
</table>

Note: There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to
SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures
Eyes contact: In case of contact with eyes, rinse immediately with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Get medical attention if irritation occurs.

Inhalation: Remove the victim from site of exposure to fresh air. If breathing is difficult, give oxygen. If not breathing give artificial respiration. Get medical attention.

Ingestion: Do not induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Alkaline. Risk of serious damage to eyes. Irritating to skin. The toxicity of potassium silicate is dependent on the silica to alkali ratio and on the pH.

4.3 Indication of any immediate medical attention and special treatment needed
Obtain immediate medical attention.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Compatible with all standard fire fighting techniques.

5.2 Special hazards arising from the substance or mixture
Not applicable. Aqueous solution. Non-combustible.

5.3 Advice for firefighters
None

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear suitable protective clothing. Wear eye/face protection.
6.2 Environmental precautions
Do not allow to enter drains, sewers or watercourses. Advise authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

6.3 Methods and materials for containment and cleaning up
Caution - spillages may be slippery. Contain spillages with sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery.

6.4 Reference to other sections
See Also Section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with eyes, skin and clothing. Avoid generation of mist. Provide adequate ventilation. Emergency shower and eye wash facilities should be readily available. See Also Section 8

7.2 Conditions for safe storage, including any incompatibilities
Storage temperature 0-95º C. Loading temperature 45-95 º C. Provide an adequate bund wall. Unsuitable containers: Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers. See Also Section 10.

7.3 Specific use(s):
Not available

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters
Potassium Silicate: No Occupational Exposure Limit assigned. An exposure limit of 2 mg/m3 (15 min TWA) is recommended by analogy with potassium hydroxide (UK EH40).

8.2 Appropriate engineering controls General ventilation is usually adequate. Use local exhaust ventilation and enclosure, if necessary to control amount in the air.

8.3 Individual protection measures, such as personal protective equipment
General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Eye/face protection: Wear safety glasses with side shields (or goggles).
Skin protection Hand protection: Chemical resistant gloves

Other: Wear suitable protective clothing.

Respiratory protection: In case of inadequate ventilation, use respiratory protection.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

The primary hazard of potassium silicate is the alkalinity. Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance: Colourless
Odour: Odorless
Odour threshold: Odorless
pH: 11-12
Initial boiling point/boiling range: > 100°C
Flash point: Not applicable
Evaporation rate: Not volatile (butyl acetate=1)
Flammability: Not flammable
Upper/lower flammability or explosive limits:
Vapor pressure: Not Applicable
Vapor density: Not volatile Relative Density: 1.0 at 25.1±0.5°C (water=1)
Solubility(ies):
Water solubility- Miscible
Partition coefficient Octanol/Water: The product is more soluble in water;
log(octanol/water) <1
Auto-ignition temperature: Not applicable
Decomposition temperature: Not available
Viscosity: Not viscous
Explosive properties: Not explosive
Oxidizing properties: Not oxidizer

9.2 Other information
Melting point/Freezing point: < 0°C
VOC: Not an organic compound
Specific Gravity: 1.39 ±0.05
Miscibility: Miscible
Fat solubility: Not applicable
SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
See Section: 10.3

10.2 Chemical stability
The product is stable under normal handling and storage conditions described in Section 7. Reacts with acids and alkalis.

10.3 Possibility of hazardous reactions
When arc welding vessels containing aqueous solutions of this material, take care to control any explosion risk from hydrogen evolved by electrolysis. Aqueous solutions will react with aluminium, zinc, tin and their alloys evolving hydrogen gas which can form an explosive mixture with air. Can react violently if in contact with acids. Can react with sugar residues to form carbon monoxide.

10.4 Conditions to avoid
Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.

10.5 Incompatible materials
See Section: 10.3

10.6 Hazardous decomposition products
None known

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on likely routes of exposure
All symptoms of acute toxicity are due to high alkalinity. Material will cause irritation.

11.2 Information on toxicological effects
Acute toxicity (list all possible routes of exposure)
Oral Product: Oral LD50 (rat) >5000 mg/kg
Dermal Product: Irritating to skin.
Inhalation Product: No data available.
Repeated dose toxicity Product: No data available.
Skin corrosion/irritation Product: Not sensitising.
Serious eye damage/eye irritation: Irritating to eyes. Risk of serious damage to eyes.
Respiratory or skin sensitization Product: Not a skin sensitizer.
Carcinogenicity Product: This substance has no evidence of carcinogenic properties. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: No carcinogenic components identified
US. National Toxicology Program (NTP) Report on Carcinogens: No carcinogenic components identified

Germ cell mutagenicity
In vitro Product: No mutagenic components identified
In vivo Product: No mutagenic components identified
Reproductive toxicity Product: No components toxic to reproduction
Specific target organ toxicity - single exposure Product: None known
Specific target organ toxicity - repeated exposure Product: None known
Aspiration hazard Product: Not classified
Other effects: None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Fish (Leuciscus idus) LC50 (48 hour) >146 mg/l
Aquatic invertebrates: (Daphnia magna) EC50 (24 hour) >146 mg/l

12.2 Persistence and Degradability
Inorganic. Soluble silicates, upon dilution, rapidly depolymerise into molecular species indistinguishable from natural dissolved silica.

12.3 Bioaccumulative potential
Inorganic. The substance has no potential for bioaccumulation.

12.4 Mobility in soil
Soil/water partition coefficient (Koc): N/A
Mobility: Soluble in water.

12.5 Results of PBT and vPvB assessment
Not applicable

12.6 Other adverse effects
The alkalinity of this material will have a local effect on ecosystems sensitive to changes in pH.
SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls. Dispose of this material and its container to hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation.

Waste material is classified as a RCRA Hazardous waste if it exhibits the corrosive characteristic (pH greater than or equal to 12.5).

Packing: Empty containers should be taken for local recycling, recovery or waste disposal.

SECTION 14: TRANSPORT INFORMATION

Canadian TDG: Not Regulated
US DOT: Not Regulated

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: REGULATORY INFORMATION

TSCA inventory: Not Listed
Australia AICS: On or in compliance with the inventory
Canada DSL Inventory List: On or in compliance with the inventory
EINECS, ELINCS or NLP: On or in compliance with the inventory
Japan (ENCS) List: On or in compliance with the inventory
China Inv. Existing Chemical Substances: Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI): On or in compliance with the inventory
Canada NDSL Inventory: Not in compliance with the inventory.
Philippines PICCS: On or in compliance with the inventory
US TSCA Inventory: On or in compliance with the inventory
New Zealand Inventory of Chemicals: On or in compliance with the inventory
Japan ISHL Listing: On or in compliance with the inventory
Japan Pharmacopoeia Listing: Not in compliance with the inventory.

SECTION 16: OTHER INFORMATION

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