

MATERIAL SAFETY DATA SHEET

According to EU Directive 2001/58/EC

1. Identification of the Material and Supplier

Product name:

HiPERHARD

Product use

Concrete floor surface hardener.

Supplier :

Husqvarna Belgium SA
ZI n°2, Avenue des Artisans 50
7822 ATH
BELGIUM
Tel : +32 68 251 211

For emergencies

Contact the Poisson Information Centre

2. Composition/Information on Ingredients

Chemical Identity of Ingredients

Propriety Information

Chemical Identity of Ingredients

Potassium Silicate
Water

CAS No.

1312-76-1
7732-18-5

Risk Phrases as 100%

R36/38
-

3. Hazards Identification

Emergency Overview:

Clear to hazy, colorless, odorless, 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.

Non-combustible, but flammable hydrogen gas may be produced on prolonged contact with metals such as aluminium, tin, lead, and zinc.

Acute Health Effects:

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.

Irritating to skin:

May cause itching and skin rash.

Inhalation:

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

Prolonged or repeated skin contact may cause dry skin. Defatting of the skin can result in irritation and dermatitis (inflammation of the skin).

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 neutralize 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 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.

Precautions & Chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

6. Accidental Release Measures

Emergency Procedures:

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.

See Section 13 for Disposal Considerations

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

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° C. Loading temperature 45-95 ° C. Do not store in aluminium, fibreglass, 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 solution to be stored and thick enough to prevent seepage of water.

8. Exposure Controls / Personal Protection

SUBSTANCE	ACGIH(TLV)	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. Use in well ventilated area. Avoid generating and inhaling mists.

Design and Engineering Control Measures

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 industrial 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:

Safety glasses, goggles or face shield as appropriate.

Plastic or Rubber gloves.

Chemical resistant safety boots.

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

Appearance and Odour:

Clear to hazy, colourless, odourless, thick liquid.

Chemical Formula:

Varying proportions of potassium oxide, silica and water depending on the grade. Mean weight ratio for SiO₂/K₂O: is from 1.5 to 3.5

Melting Point and Boiling Point:

MP: 0 °C BP: 105-108 °C

Vapour Pressure:

Not determined

Relative Vapour Density:

Not applicable

Specific Gravity or Density:

1.2 to 1.7 (typical range)

Solubility:

Soluble in water.

pH:

11 to 13 (of the concentrate)

Percent Volatile:

30-60%

Corrosiveness:

Some corrosive effects on Aluminium, Copper, Tin, Zinc, Lead e.t.c.

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:

Not applicable to aqueous solutions.

Flammability Limits (FL) (%):

Not applicable to aqueous solutions.

Auto ignition Temp:

Not applicable to aqueous solutions.

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:

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 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. Reactions: 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): Not Determined

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 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 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.

12. Ecological Information

General:

Avoid contaminating waterways. Soluble in water. Sinks and mixes with water. Only water will evaporate from this material.

Ecotoxicity Data:

The ecotoxicity of 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 (*Lymnea*) 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 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 & Containers:

Disposal to be in accordance with Local & Federal waste regulations. Normally suitable for disposal at approved land waste site after dilution or neutralisation.

Landfill & Incineration:

After dilution or neutralisation may be land filled. Not suitable for incineration.

14. Transport Information

ROAD & RAIL:

Not defined as a Dangerous Good.

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.

Packaging

Not a Dangerous Good.

Mild steel is the most suitable material of construction for drums, tanks, valves, pipe work, etc.

16. Other Information

This MSDS 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 MSDS 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.

Information sources

Current legislation at the time of the revision and technical documentation from the raw material supplier.

Text of R-phrases from Section 2 (not the classification of the formulation!)
R36/R38 Irritating to eyes and skin.