

SAFETY DATA SHEET

SODIUMSILICATE LIQUID (Molratio 1.6 - 3.2)

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CHANGES IN THIS VERSION : 1.2 ; 8.2

1. IDENTIFICATION

1.1. IDENTIFICATION OF THE SUBSTANCE

CHEMICAL NAME : Sodium silicate, Alcaline type
FORMULA : $\text{Na}_2\text{O} \cdot x\text{SiO}_2 + \text{H}_2\text{O}$ (x = 1.6 - 3.2)
CAS N° : 1344 - 09 - 8
CHEMICAL FAMILY : Sodium silicates solution with molar ratio between 1.6 – 3.2

1.2. USE OF THE SUBSTANCE

The uses of alkali metal silicates are manifold and can only be illustrated by selected important examples (Lagaly et al., 2001; Kuhr, 1998):

- **Raw materials for industrial products** (silica sols, silica gels, precipitated silicas, zeolites, aluminosilicates, magnesium silicates, synthetic clays, ceramics, and catalysts)
- **Detergents** (fabric washing powders, dishwasher detergents, industrial cleansing agents)
- **Adhesives and binders** (paperboard and cardboard, coal dust briquettes, roofing tiles, bricks and ceramics, refractory cements, plasters and mortars, foundry molds and cores, and welding rods)
- **Surface Coatings** (TiO_2 production, concrete, paints for masonry and glass surfaces, fire-proof glass, spray-coating in tunnel construction and mining)
- **Pulp and paper manufacture** (deinking and bleaching)
- **Water Treatment** (corrosion protection)
- **Civil Engineering** (soil sealing and stabilisation in drilling, tunnelling, and mining, sealing of landfills, building pits, and coastline stabilisation)
- **Enhanced Oil Recovery** (oil flow improvers)
- **Textile processing** (bleach and dye stabilizer)
- **Ceramic products** (liquefying agent in porcelain slips)

1.3. IDENTIFICATION OF THE COMPANY

SILMACO N.V. (website: <http://www.silmaco.com/>)
INDUSTRIEWEG 90
B-3620 LANAKEN
BELGIUM
TEL +32 (0)89 / 730 222
FAX +32 (0)89 / 722 724

1.4. EMERGENCY TELEPHONE

+32 (0)70 / 245 245 (website: <http://www.poissoncentre.be/>)

2. INFORMATION ON INGREDIENTS

2.1. COMPOSITION

20-60% sodiumsilicate CAS N° : 1344 - 09 - 8
Einecs-Nr 215-687-4
Balance, 40-80% water

2.2. CLASSIFICATION

Xi (irritant) : R38 : Irritating to skin
R41 : Risk of serious damage to eyes

3. HAZARD IDENTIFICATION

- ⇒ Alkaline solution
- ⇒ Irritating to skin
- ⇒ Risk of serious damage to eyes

4. FIRST AID MEASURES

4.1. GENERAL INFORMATION

- ⇒ Speed in removal of material is of prime importance
- ⇒ Remove soiled clothing immediately
- ⇒ Workplace should be equipped with shower and eye rinsing apparatus.

4.2. SYMPTOMS AND EFFECTS

Irritating to skin, risk of serious damage to eyes

- ⇒ Ingestion : If the victim is conscious, rinse the mouth
Allow water to be drunk
Do not induce vomiting
Obtain medical attention
- ⇒ Inhalation : Bring to fresh air
- ⇒ Skin contact : Remove material and contaminated clothing. Wash off with plenty of water
- ⇒ Eye contact : Immediately rinse thoroughly with water during 15 minutes
Medical attention required

5. FIRE-FIGHTING MEASURES

THE PRODUCT IS NON FLAMMABLE

- ⇒ Suitable extinguishing media : Not applicable. Inorganic material. Not combustible, therefore define extinguishing measures according to neighbouring conditions
- ⇒ Exposure hazards arising from material or its combustion products : none
- ⇒ Special protective fire-fighting equipment: none

6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS

- ⇒ Avoid contact with skin and eyes, see title 8
- ⇒ Spillages can cause slippery situations

6.2. ENVIRONMENTAL PRECAUTIONS

- ⇒ Do not allow to enter drains or water courses. Prevent the spreading of the product into the environment by diking with soil or other absorbent material
- ⇒ Contact the authorities in case of large spillage

6.3. METHODS OF CLEANING

- ⇒ Collect as much as possible in a (clean) container or by absorbent material
- ⇒ Remove last traces by diluting with plenty of (warm) water
- ⇒ See also title 13

7. HANDLING AND STORAGE

7.1. HANDLING

- ⇒ Avoid contact with the concentrated product, see title 8
- ⇒ The product is sticky

7.2. STORAGE

- ⇒ Keep packaging / storage vessel closed
- ⇒ Protect from freezing
- ⇒ Keep away from acids
- ⇒ Compatible materials : (Stainless) steel
- ⇒ Incompatible materials : Zinc, Tin, Aluminum, Copper and their alloys
- ⇒ See also title 10

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1. EXPOSURE CONTROLE

- ⇒ Engineering measures / system design: ventilation if (due to the application) a product mist can be formed see incompatible materials under title 7

8.2. PERSONAL PROTECTION

- ⇒ Respiratory protection : in the eventual risk of spray, prevent breathing of the spray
- ⇒ Hand protection : wear alkaline resistant gloves (natural latex), type EN 374, cat 3
Breakthrough time < 0.9 µg/cm²/min
- ⇒ Eye protection : wear suitable goggles
- ⇒ Skin protection : wear suitable protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

- ⇒ Appearance :viscous liquid, colourless to translucent
- ⇒ pH :1% solution ranges from 11 to 13
- ⇒ Boiling point/ range:± 100°C
- ⇒ Vapour pressure :similar to H₂O
- ⇒ Relative density :ranges from 1.3 to 1.6 kg/l
- ⇒ Water solubility :complete
- ⇒ Viscosityranges from 10 to 10 000 mPas

10. STABILITY AND REACTIVITY

- ⇒ Stability : stable
- ⇒ Conditions to avoid : avoid contact in concentrated form with acids
- ⇒ Materials to avoid : avoid contact with Aluminum, Zinc, Tin, Copper and their alloys
- ⇒ Hazardous decomposition products : Can form hydrogen if brought in contact with the above incompatible materials, causing a risk for explosion. Exothermic reaction with acids

11. TOXICOLOGICAL INFORMATION

The hazard of sodium silicates, by all routes, comes from its alkalinity

- ⇒ Ingestion : LD50 Rat : > 2000 mg/kg
- ⇒ Inhalation : unlikely to occur, unless the product is airborne due to spraying
In the case of inhalation, irritation of the respiratory system can be expected
- ⇒ Eye : Severely irritating. May cause serious damage to eye, unless treated immediately
- ⇒ Skin : Irritation

12. ECOLOGICAL INFORMATION

- ⇒ General consideration : soluble silicates upon dilution rapidly depolymerise into molecular species indistinguishable from natural dissolved silica. They combine with ions like Ca, Mg, Fe, Al and others to end up as insoluble compounds similar to constituents of natural soils. However, the pH of most undiluted silicate solutions is above acceptable limits for direct discharge into waterbodies.
- ⇒ Mobility : not mobile
- ⇒ Biodegradability : not applicable on inorganic substances
- ⇒ Accumulation : no
- ⇒ Ecotoxicity :
 - LC₅₀ Fish : 3185mg product/litre (by analogy with sodiumsilicate with MR 3.36, 35%)
 - EC₅₀ Bacteria : > 1000mg product/litre (by analogy with sodiumsilicate with MR 3.36, 35%)
 - EC₅₀ Daphnia: 4857mg product/litre (by analogy with sodiumsilicate with MR 3.2, 35%)

13. DISPOSAL CONSIDERATIONS

- ⇒ Waste disposal according national or regional regulations, neutralisation prior to disposal is advisory
- ⇒ Dispose contaminated packaging according national or regional regulations, preliminary cleaning with water is advisory
- ⇒ EWC (European Waste Catalog) -number : 06 02 99

14. TRANSPORT INFORMATION

- ⇒ UN substance identification : not assigned
- ⇒ Packing group : none
- ⇒ See title 7.2 for incompatible construction materials of the transportation vessels

- Land transport , road (ADR) :..... no restrictions
- Land transport , rail (RID) : no restrictions
- Maritime transport (IMDG/IMO) : no restrictions
Marine pollutant :..... no
- Air transport (ICAO/IATA) :..... no restrictions

15. REGULATORY INFORMATION

- Hazard symbols : Irritant (Xi)
- R-phrases :
 - ⇒ R38 : Irritating to skin
 - ⇒ R41 : Risk of serious damage to eyes
- S-phrases :
 - ⇒ S26: In case of contact with eyes, rinse immediately with plenty of water seek medical advice
 - ⇒ S36/37/39 : Wear suitable protective clothing gloves and eye/face protection

16. OTHER INFORMATION

- ⇒ The product is meant for professional / industrial use
- ⇒ Restrictions : /
- ⇒ Sources of key data : IUCLID