

SAFETY DATA SHEET

SODIUM METASILICATE PENTAHYDRATE

THIS DOCUMENT COMPLIES WITH THE EUROPEAN DIRECTIVE 2001/58/EC (of 27 July 2001)

ISSUE NUMBER : 9
ISSUE DATE : 19/09/2005
CHANGES IN THIS VERSION : 6.1 ; 15

1. IDENTIFICATION

1.1. IDENTIFICATION OF THE SUBSTANCE

CHEMICAL NAME : Sodium metasilicate pentahydrate or
Disodiumtrioxosilicate, pentahydrate
FORMULA : $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$
CAS N° : 10213 – 79 – 3
CHEMICAL FAMILY : Soluble sodiumsilicates with molar ratio of 1.0

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.poisoncentre.be/>)

2. INFORMATION ON INGREDIENTS

2.1. COMPOSITION

100% disodiumtrioxosilicate, pentahydrate..... CAS N° : 10213 – 79 – 3
Einecs-Nr 229 – 912 – 9

2.2. CLASSIFICATION

C (corrosive) : R34 : Causes burns
R37 : Irritation to respiratory system



3. HAZARD IDENTIFICATION

- ⇒ Strongly alkaline product
- ⇒ Corrosive to eyes and skin
- ⇒ Irritating to respiratory system

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.
- ⇒ Medical attention required

4.2. SYMPTOMS AND EFFECTS

Causes burns. Irritating to respiratory system. Causes injury to the cornea and eyelids. Ingestion of product (or formulations containing > 10% of this product) can result in serious injury to health.

- ⇒ Ingestion : If the victim is conscious, rinse the mouth, allow water to be drunk
Do not induce vomiting
- ⇒ Inhalation : Bring to fresh air, rinse mouth and nose with fresh water
- ⇒ 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, do not breathe dust. See title 8
- ⇒ Spillages can cause slippery situations
- ⇒ Keep away from food, drink and animal feedingstuffs.

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 the creation of dust, do not breathe dust
- ⇒ Avoid contact with the concentrated product, see title 8
- ⇒ Wash thoroughly after handling

7.2. STORAGE

- ⇒ Keep packaging / storage vessel closed
- ⇒ Protect packaging from freezing, rain or direct sun
- ⇒ 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 such as to prevent formation of or exposure to dust.

8.2. PERSONAL PROTECTION

- ⇒ Respiratory protection : in the eventual risk of dust formation, prevent breathing of the dust (respirator with filter P2)
- ⇒ Hand protection : wear alkaline resistant gloves (natural latex), type EN 374, cat 3
Breakthrough time < 0.9 µg/cm²/min
- ⇒ Eye protection : wear suitable tightly fitting goggles
- ⇒ Skin protection : wear suitable protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

- ⇒ Appearance :white granules, odourless, hygroscopic
- ⇒ pH :± 12.5 (1% solution)
- ⇒ Boiling point/ range:± 110°C
- ⇒ Melting point/ range:± 72°C
- ⇒ Bulk density :0.9 – 1.0 kg/l
- ⇒ Water solubility :complete

10. STABILITY AND REACTIVITY

- ⇒ Stability : stable under recommended storage and handling conditions
- ⇒ Conditions to avoid : Avoid prolonged contact with ambient air : hygroscopic behaviour may induce formation of lumps.
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 metasilicates, by all routes, comes from its corrosivity caused by the high alkalinity.

- ⇒ Ingestion : LD50 Rat : 600 - 1350 mg/kg
- ⇒ Inhalation : irritating to respiratory system
- ⇒ Eye : Corrosive. May cause serious damage to eye, unless treated immediately
- ⇒ Skin : Corrosive

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 Number : UN 3253
- ⇒ UN Class :8
- ⇒ UN Proper shipping name :disodiumtrioxosilicate
- ⇒ UN Packing group :III
- ⇒ This material is NOT a Marine Pollutant (IMDG/IMO: page 8166-1)
- ⇒ see title 7.2 for incompatible materials



15. REGULATORY INFORMATION

- Hazard symbols : Corrosive (C)
- R-phrases :
 - ⇒ R34 : Causes burns
 - ⇒ R37 : Irritation to respiratory system
- S-phrases :
 - ⇒ S13: Keep away from food, drink and animal feedingstuffs.
 - ⇒ S24/25: Avoid contact with skin and eyes.
 - ⇒ S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection
 - ⇒ S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
 - ⇒ (only for general public applications S2 : Keep out of reach of children)

16. OTHER INFORMATION

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