

SAFETY DATA SHEET

M5420 - EU - BE



SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

EXPOSURE SCENARIO PRODUCT LIST:
M5420-ES1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifiers

Product Identifier:	SODIUM METASILICATE ANHYDROUS
REACH Registration No:	Disodium metasilicate - 01-2119449811-37-0006.
CAS-No.:	6834-92-0
EC No.:	229-912-9
Trade Name:	Special Grade S-25; Sodium Metasilicate Anhydrous Fines; S-25
Synonyms:	Anhydrous Metasilicate, Sodium Metasilicate Anhydrous, Anhydrous Sodium Metasilicate.

1.2 Relevant Identified Uses of the Substance or Mixture, and Uses Advised Against

Product Use:	Cleaner; detergents / soaps; drilling fluids
Sector of Use (SU):	SU2a - Mining, (without offshore industries) SU2b - Offshore industries SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites SU4 - Manufacture of food products SU5 - Manufacture of textiles, leather, fur SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU9 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

SU13 - Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU14 - Manufacture of basic metals, including alloys
SU15 - Manufacture of fabricated metal products, except machinery and equipment
SU16 - Manufacture of computer, electronic and optical products, electrical equipment
SU17 - General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU18 - Manufacture of furniture
SU19 - Building and construction work
SU20 - Health services
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU23 - Electricity, steam, gas water supply and sewage treatment

Generic Use Conditions:

PROC 1 Use in closed process, no likelihood of exposure
PROC 2 Use in closed, continuous process with occasional controlled exposure
PROC 3 Use in closed batch process (synthesis or formulation)
PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC 5 Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
PROC 7 Industrial spraying
PROC 8a/b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at either dedicated and/or non-dedicated facilities
PROC 9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC 10 Roller application or brushing
PROC 11 Non industrial spraying
PROC 13 Treatment of articles by dipping and pouring
PROC 14 Production of preparations or articles by tableting, compression, extrusion, pelettisation
PROC 15 Use a laboratory reagent
PROC 17 Lubrication at high energy conditions and in partly open process
PROC 19 Hand-mixing with intimate contact and only PPE available
PROC 20 Heat and pressure transfer fluids in dispersive professional use but closed systems
PROC 21 Low energy manipulation of substances bound in materials and/or articles
PROC 22 Potentially closed processing operations with minerals/metals at elevated temperature, Industrial setting.
PROC 23 Open processing and transfer operations with minerals/metals at elevated temperature
PROC 24 High (mechanical) energy work-up of substances bound in materials and/or articles
PROC 25 Other hot work operations with metals
PROC 26 Handling of solid inorganic substances at ambient temperature

Application Conditions:

PC1 - Adhesives, sealants
PC3 - Air care products
PC4 - Anti-freeze and de-icing products
PC8 - Biocidal products (e.g. disinfectants, pest control)
PC9 - Coatings and paints, fillers, putties, thinners

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

PC14 Metal surface treatment products, including galvanic and electroplating products
PC15 Non-metal-surface treatment products
PC18 Ink and toners
PC19 Intermediate
PC20 pH-regulators, flocculants, precipitants, neutralization agents
PC21 Laboratory chemicals
PC23 Leather tanning, dye, finishing, impregnation and care products
PC24 Lubricants, greases and release products
PC25 Metal working fluids
PC31 Polishes and wax blends
PC32 Polymer preparations and compounds
PC34 Textile dyes, finishing and impregnating products
PC35 Washing and cleaning products
PC37 Water treatment chemicals
PC39 Cosmetics, personal care products

Environmental Release Category (ERC):
ERC1 - Manufacture of substances
ERC2 - Formulation of preparations
ERC3 - Formulation in materials
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 - Into or onto a matrix
ERC6b - Industrial use of reactive processing aids
ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers
ERC7- Industrial use of substances in closed systems
ERC8a- Wide dispersive indoor use of processing aids in open systems
ERC8b- Wide dispersive indoor use of reactive substances in open systems
ERC8c- Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8d- Wide dispersive outdoor use of processing aids in open systems
ERC9a- Wide dispersive indoor use of substances in closed systems
ERC9b- Wide dispersive outdoor use of substances in closed systems

1.3 Details of the Supplier of the Safety Data Sheet

Company Identification:

Occidental Chemical Corporation
14555 Dallas Parkway, Suite 400
P.O. Box 809050
Dallas, TX 75254

Supplier:

Occidental Chemical Belgium BVBA
A.Z. De Vunt 13/9
3220 Holsbeek, Belgium
Phone: (32) 16-47-98-90

To Request an SDS: MSDS@oxy.com or 1-972-404-3245

Customer Service: 1-800-752-5151 or 1-972-404-3700

Email of competent person responsible for SDS: SDS_Tech@oxy.com

1.4 Emergency Telephone Number

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Country Specific Poison Center Ireland: National Poisons Information Centre (24/365) phone number: 01 8092566
Phone Number(s): United Kingdom: No country specific phone number available

24 Hour Emergency Telephone 1-972-404-3228 (U.S.); 32.3.575.55.55 (Europe); +(32)-28083237 (Belgium)
Number(s):

1.5 Additional Information

Supersedes Date (EU): 2017-3-May

This Safety Data Sheet (SDS) has been prepared in accordance with REACH Regulations 1907/2006 and 453/2010.

This SDS complies with the requirements of the Turkish By-Law on the Classification, Packaging and Labeling of Dangerous Substances and Preparations.

2. HAZARDS IDENTIFICATION**GHS CLASSIFICATION:**

Classification according to Regulation (EC) No 1272/2008 (CLP)

NOTE: The GHS classification is aligned with the European (REACH Regulation - SIEF) harmonized classification of sodium metasilicate. The data/methods used for the harmonized GHS classification may not reflect Occidental's self-classification for other countries.

2.1 Classification of the substance or mixture**CLP Classification:**

- Listed below

CLP Classification: DANGER

GHS: PHYSICAL HAZARD(S):	Category 1 - May be corrosive to metals
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: CONTACT HAZARD - SKIN:	Category 1B - Causes severe skin burns and eye damage
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause respiratory tract irritation

2.2 Label Elements**GHS SYMBOL:**

Corrosive, Exclamation mark

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May



GHS SIGNAL WORD: DANGER

GHS - Physical Hazard Statement(s)

Corrosive to metals - Category 1

GHS - Health Hazard Statement(s)

H314 - Causes severe skin burns and eye damage

H335 - May cause respiratory irritation

GHS Precautionary Statement(s) - Prevention

P234 - Keep only in original container

P260 - Do not breathe dusts or mists

P264 - Wash skin and contaminated clothing thoroughly after handling

P280 - Wear protective gloves, protective clothing, eye and face protection

P271 - Use only outdoors or in a well-ventilated area

GHS Precautionary Statement(s) - Response

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water

P310 - IF EXPOSED (skin): Immediately call a POISON CENTER OR PHYSICIAN

P363 - Wash contaminated clothing before reuse

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P304 + P312 - IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell

P305 + P351 + P338 - IF IN EYES - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - If EXPOSED (eyes): Immediately call a POISON CENTER or doctor/physician

P321 - Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)

P390 - Absorb spillage to prevent material damage

GHS Precautionary Statement(s) - Storage

P405 - Store in a secure manner

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P406 - Store in corrosive resistant and NON-ALUMINUM container with a resistant inner liner (NOTE: flammable hydrogen gas may be generated if aluminum container and/or aluminum fittings are used with dissolved material)

GHS Precautionary Statement(s) - Disposal

P501 - Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

2.3 Other Hazards

Hazards from Company's GHS Self-Classification Not Otherwise Mentioned

• Acute Toxicity - Oral: Category 4 (Harmful if swallowed)

PBT and vPvB assessment: According to Annex XIII of the REACH Regulation 1907/2006/EC inorganic substances do not need to be subjected to a PBT assessment.

Authorisation Number: This substance is not subject to authorisation

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1/2 Substance/Mixture**

Component	EU: EINECS Nr.	REACH Reg. No.	CAS Number	Percent [%]	CLP Classification	PBT/PvB
Sodium Metasilicate	229-912-9	01-2119449811-37-0006	6834-92-0	95 - 99	Skin Corr. 1B (H314) STOT SE 3 (H335)	Not a PBT/PvB
Water	231-791-2	-----	7732-18-5	0 - 2	Not classified	Not a PBT/PvB
Sodium Carbonate	207-838-8	-----	497-19-8	0 - 3	Eye Irrit. 2 (H319)	Not a PBT/PvB

3.3 Additional Information

For the full text of physical and health codes mentioned in this Section, see Section 2 or Section 16

4. FIRST AID MEASURES**4.1 Description of first aid measures**

INHALATION: If inhalation of this material occurs and adverse effects result, move person to fresh air and keep comfortable for breathing. Call a Poison Center or seek medical attention if you feel unwell.

SKIN CONTACT: Immediately brush off excess chemical and flush contaminated areas with plenty of water. Immediately remove all contaminated clothing, jewelry, and shoes. Rinse skin with large amounts of water/shower. Immediately contact a poison center, physician, or get medical attention. **SPECIFIC TREATMENT:** Wash with lots of water. Discard contaminated leather goods. Wash contaminated clothing before reuse.

EYE CONTACT: If in eyes, immediately rinse eyes cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

INGESTION: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Contact a Poison Center, or a doctor/physician, or get medical attention if you feel unwell.

Protection of First-Aiders: Avoid contact with skin and eyes. Do not breathe dust. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation (Breathing):

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. The pulmonary edema may develop several hours after a severe acute exposure.

Skin:

Skin Corrosion. Skin exposure may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye:

Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye. The full extent of the injury may not be immediately apparent.

Ingestion (Swallowing):

Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

Delayed Symptoms/Effects:

- Repeated and prolonged skin contact may cause a dermatitis

4.3 Indication of any immediate medical attention and special treatment needed

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as: Eye disorders that decrease tear production or have reduced integrity. Skin disorders that compromise the integrity of the skin such as: psoriasis, rashes, eczema, skin infections. Pulmonary disorders that compromise the integrity of the lungs such as asthma.

Notes to Physician: Treat as a corrosive substance. Treat symptoms with supportive care. There is no specific antidote. The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. It may take 48-72 hours to assess the extent of an ocular burn. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguishing Media: Use media appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Fire Hazard: Negligible fire hazard.

Hazardous Combustion Products: No information available

5.3 Advice for firefighters

Fire Fighting: Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

5.4 Additional fire hazard information

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Flash point: Not flammable

Autoignition Temperature: No information available

GHS: PHYSICAL HAZARD(S):

Category 1 - May be corrosive to metals

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Personal Precautions:

Do not get in eyes, on skin or on clothing. Avoid breathing dust. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling. Wet material may pose a slipping hazard. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

6.2 Environmental precautions

Environmental Precautions:

This material is alkaline and may raise the pH of surface waters with low buffering capacity. Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

6.3 Methods and material for containment and cleaning up

Methods and Materials for Containment, Confinement, and/or Abatement:

Shovel dry material into suitable container. Vacuum any remaining material into a suitable container. Flush spill area with water, if appropriate. Liquid material may be removed with a vacuum truck. Wet material is slippery under foot.

6.4 Reference to other sections

Reference to other sections: See section 8 for information on personal protective equipment. See section 13 for disposal information. See section 7 for storage and handling information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for Safe Handling: Do not get in eyes, on skin, or on clothing. Avoid creation of dust. Avoid breathing dust. Do not eat, drink or smoke in areas where this material is used. Wash thoroughly after handling. Wet material may pose a slipping hazard. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS.

7.2 Conditions for safe storage, including any incompatibilities

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store dissolved material in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Incompatibilities/ Materials to Avoid: Can generate heat when mixed with acids, When wet avoid prolonged contact with alkali sensitive metals such as: aluminum, brass, bronze, copper, lead, tin, zinc because flammable hydrogen gas can be generated

7.3 Specific end use(s)

Specific Product Use(s): This product should only be used for applications described in Section 1.2

7.4 Additional information**GHS - Physical Hazard Statement(s)**

Corrosive to metals - Category 1

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**8.1 Control parameters**

Regulatory Exposure Limit(s): As listed below.

Component	European Union	Austria	Belgium	Bulgaria	Czech Republic
Sodium Metasilicate 6834-92-0	-----		-----	-----	-----
Sodium Carbonate 497-19-8			-----	-----	TWA 5 mg/m ³ Ceiling 10 mg/m ³

Derived No Effects Level (DNEL): Workers

Long-Term Exposure (Systemic Effects): Dermal - 1.49 mg/kg bw/day.

Long-Term Exposure (Systemic Effects): Inhalation - 6.22 mg/m³

Derived No Effects Level (DNEL): Population

Long-Term Exposure (Systemic Effects): Dermal - 0.74 mg/kg bw/day

Long-Term Exposure (Systemic Effects): Oral - 0.74 mg/kg bw/day

Long-Term Exposure (Systemic Effects): Inhalation - 1.55 mg/m³

Predicted No Effect Concentration (PNEC): Environment

PNEC: Aquatic - PNEC aqua (freshwater): 7.5 mg/L

PNEC aqua (marine water): 1 mg/L

PNEC aqua (intermittent releases): 7.5 mg/L

PNEC Soil - No PNEC available

PNEC: Atmospheric Compartment -

Due to the physic-chemical properties of soluble silicates (i.e. very low vapour pressure) a release into the atmosphere during use is not expected

PNEC: Sewage Treatment Plant - PNEC STP: 1000 mg/L

PNEC Mammals (oral) - There are no tests and no PNEC available

Secondary poisoning can be excluded, since the bioaccumulation potential is low

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Non-Regulatory Exposure Limit(s): This product does not contain any components that have advisory (non-regulatory) occupational exposure limits (OELs); however, the manufacturer has established recommended exposure levels (RELs) as noted below.

Recommended Exposure Limits (REL's) are non-regulatory occupational exposure limits that the manufacturer has established based on health effects data

Manufacturer [OXY] Recommended Exposure Limit (REL):	3 mg/m ³ = REL ceiling (internal Occupation Exposure Limit based on data from analogous chemicals)
---	---

8.2 Exposure controls**RISK MANAGEMENT MEASURES (RMM):****RMM: HEALTH**

Worker Exposure: The manufacture, processing, and packaging of soluble silicates takes place in closed systems. Therefore, exposure of workers during these processes is assumed to be rather low. This assumption is confirmed by workplace measurements taken. If possible, local exhaust ventilation should be used. In addition, whenever disodium metasilicate as a substance on its own (powder/granules or liquid) or in a preparation is handled outside closed systems, depending on the use concentration suitable personal protective equipment (gloves, goggles, dust masks or respirators) is the preferred and only measure of control.

exposure: Some product uses could result in local irritation (skin and eyes) if highly concentrated products, which is usually not the case, are used. This hazard is addressed, if necessary, by appropriate labelling and the advice to use household gloves on the consumer product. In general, dermal, inhalation and oral consumer exposure to commercially available products is minimized by formulation measures (use of limited concentrations, reduction of dust potential by agglomeration or use of tablets and gels), packaging devices (sealing of tablets, child-resistant fastenings) or denaturing.

RMM: ENVIRONMENT

Disodium metasilicate does not meet the criteria for classification as dangerous to the environment according to 67/548/EEC (See Article 14.4 of Reach Regulation). Disodium metasilicate is generally alkaline and therefore it is recommended that neutralization should be carried out before discharging to water/effluent systems. Once neutralized, no adverse effects on aquatic organisms are expected.

ENGINEERING CONTROLS: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. If eye contact is likely, wear chemical resistant safety goggles. Wear chemical safety goggles and/or a face-shield to protect against skin and eye contact when appropriate. When wet mixing, wear safety goggles with a face-shield. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When potential for contact with wet material exists, wear Tychem® or similar chemical protective suit. When potential for contact with dry material exists, wear disposable coveralls suitable for dust exposure, such as Tyvek®.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Butyl rubber, Natural rubber, Neoprene, Nitrile, Tychem®, Tyvek®

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Respiratory Protection: An approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. A respiratory protection program that meets applicable regulatory requirements must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Slightly granular
Appearance:	Granular, Powder
Color:	White to faintly colored
Odor:	Odorless
Odor Threshold [ppm]:	No data available
Molecular Formula:	Na ₂ SiO ₃
Boiling Point/Range:	Not applicable
Freezing Point/Range:	Not applicable to solids
Melting Point/Range:	1088 °C
Decomposition Temperature:	No information available
Vapor Pressure:	Not applicable
Vapor Density (air=1):	Not applicable
Specific Gravity (water=1):	2.61 g/cm ³ (solutions)
Bulk Density:	54 - 70 lbs/ft ³ (loose)
Water Solubility:	16% @ 20 °C; 210 g/L @ 20 °C
pH:	12.7 (1% aqueous solution)
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	No data available
Flammability (solid, gas):	Not flammable
Flash point:	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Autoignition Temperature:	No information available
Viscosity:	Not applicable

9.2 Other information

Volatility: Not applicable

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not reactive under normal temperatures and pressures.

10.2 Chemical stability

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Stable at normal temperatures and pressures.

10.3 Possibility of hazardous reactions

Contact with acids will cause evolution of heat. Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces. When wet, may react with alkali sensitive metals to form flammable hydrogen gas.

10.4 Conditions to Avoid

None known.

10.5 Incompatible Materials

Can generate heat when mixed with acids, When wet avoid prolonged contact with alkali sensitive metals such as: aluminum, brass, bronze, copper, lead, tin, zinc because flammable hydrogen gas can be generated

10.6 Hazardous Decomposition Products

None known

Hazardous Polymerization: Will not occur.**11. TOXICOLOGICAL INFORMATION****11.1 Information on Toxicological Effects**

Standard Draize (Skin): SODIUM METASILICATE: 250 mg/24 hour(s) skin-human severe; 250 mg/24 hour(s) skin-rabbit severe; 250 mg/24 hour(s) skin-guinea pig moderate

TOXICITY DATA:**PRODUCT TOXICITY DATA:**

S - 25, SODIUM METASILICATE ANHYDROUS

The test material for the toxicological studies was sodium metasilicate

LD50 Oral: 1280 mg/kg (Rat)	LD50 Dermal: No data available	LC50 Inhalation: No data available
---------------------------------------	--	--

COMPONENT TOXICITY DATA:

The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Sodium Metasilicate 6834-92-0	1153 mg/kg (Rat)	-----	-----
Sodium Carbonate 497-19-8	4090 mg/kg (Rat)	-----	-----

POTENTIAL HEALTH EFFECTS:

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Inhalation:

May cause irritation of the respiratory tract with coughing, choking, pain and possibly burns of the mucous membranes. Upon contact with moist mucous membranes, sodium metasilicate is highly alkaline and may cause corrosive damage.

Skin contact:

Causes severe skin burns. May cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye contact:

Causes serious eye damage. May cause severe irritation, pain and corneal burns (possibly leading to blindness). The full extent of the injury may not be immediately apparent.

Ingestion:

Harmful if swallowed. May cause immediate pain and severe burns of the upper and lower gastrointestinal tract with vomiting, nausea, and diarrhea.

Chronic Effects:

Repeated or prolonged skin contact may result in dermatitis

SIGNS AND SYMPTOMS OF EXPOSURE: Solutions of sodium metasilicate are alkaline. Exposure to alkaline solutions may result in irritation to any contacted tissue, including possible burns, depending on the concentration, duration, and nature of the exposure. This material is not a crystalline silica, and it does not cause pulmonary silicosis.

Inhalation (Breathing):

Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. The pulmonary edema may develop several hours after a severe acute exposure.

Skin:

Skin Corrosion. Skin exposure may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye:

Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye. The full extent of the injury may not be immediately apparent.

Ingestion (Swallowing):

Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

Interaction with Other Chemicals Which Enhance Toxicity: None known

EU - GHS HEALTH HAZARDS: Listed below.

NOTE: The GHS classification is aligned with the European (REACH Regulation - SIEF) harmonized classification of sodium metasilicate. The data/methods used for the harmonized GHS classification may not reflect Occidental's self-classification for other countries.

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

GHS: CONTACT HAZARD - SKIN: Category 1B - Causes severe skin burns and eye damage

Skin Absorbent / Dermal Route: NO

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):

Category 3 - May cause respiratory tract irritation

REPRODUCTIVE TOXICITY: The available data on toxicity for reproduction are limited. The substance is not classified as toxic for reproduction, according to GHS.

DEVELOPMENTAL TOXICITY: Not classified as a developmental or reproductive toxin per GHS criteria.

ENDOCRINE DISRUPTOR: Not available

NEUROTOXICITY: Not Available.

Hazards from Company's GHS Self-Classification Not Otherwise Mentioned

• Acute Toxicity - Oral: Category 4 (Harmful if swallowed)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

ECOTOXICITY DATA:

Aquatic Toxicity:

This material has exhibited moderate toxicity to aquatic organisms.

Component	<u>Freshwater Fish</u>	<u>Invertebrate Toxicity:</u>	<u>Algae Toxicity:</u>	<u>Other Toxicity:</u>
Sodium Metasilicate 6834-92-0 (95 - 99)	*LC50 Brachydanio rerio: 210 mg/L 96h *LC50 Brachydanio rerio: 210 mg/L 96h semi-static	*EC50 Daphnia magna: 216 mg/L 96h		
Sodium Carbonate 497-19-8 (0 - 3)	*LC50 Lepomis macrochirus: 300 mg/L 96h static *LC50 Pimephales promelas: 310 - 1220 mg/L 96h static	*EC50 Daphnia magna: 265 mg/L 48h	*EC50 Nitzschia (120 h) =242 mg/L	

12.2 Persistence and degradability

FATE AND TRANSPORT:

PERSISTENCE: This material is believed to persist in the environment.

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

12.3 Bioaccumulative potential

BIOACCUMULATIVE POTENTIAL: Toxicokinetic data on vertebrates revealed a low potential for bioaccumulation.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

12.4 Mobility in soil

No information available.

12.5 Result of PBT and vPvB assessment

PBT and vPvB assessment: According to Annex XIII of the REACH Regulation 1907/2006/EC inorganic substances do not need to be subjected to a PBT assessment.

12.6 Other adverse effects

ADDITIONAL ECOLOGICAL INFORMATION:

This material has exhibited slight toxicity to terrestrial organisms.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from material:

Reuse or recycle if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER: UN3262

PROPER SHIPPING NAME: Corrosive solid, basic, inorganic, n.o.s. (SODIUM METASILICATE)

HAZARD CLASS/ DIVISION: 8

PACKING GROUP: II

LABELING REQUIREMENTS: 8

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN3262

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

SHIPPING NAME: Corrosive solid, basic, inorganic, n.o.s. (SODIUM METASILICATE)
CLASS OR DIVISION: 8
PACKING/RISK GROUP: II
LABELING REQUIREMENTS: 8

LAND TRANSPORT RID:

UN Number: UN3262
Proper shipping name: Corrosive solid, basic, inorganic, n.o.s. (SODIUM METASILICATE)
Hazard Class: 8
Packing Group: II
Labels: 8

LAND TRANSPORT ADR:

UN Number: UN3262
Proper shipping name: Corrosive solid, basic, inorganic, n.o.s. (SODIUM METASILICATE)
Hazard Class: 8
Packing group: II
Labels: 8

MARITIME TRANSPORT IMO / IMDG:

UN NUMBER: UN3262
PROPER SHIPPING NAME: Corrosive solid, basic, inorganic, n.o.s. (SODIUM METASILICATE)
HAZARD CLASS/ DIVISION: 8
Packing Group: II
LABELING REQUIREMENTS: 8

15. REGULATORY INFORMATION**15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture****15.1 NATIONAL REGULATORY STATUS:****Germany, Water Endangering Classes (VwVwS):**

Component	German - Water Hazard Classes	German - Water Hazard Class Annex 1	German - Water Hazard Class Annex 3
Sodium Metasilicate 6834-92-0	847 1314		
Sodium Carbonate 497-19-8	222		

International Inventory Status:**Australian Chemical Inventory:**

Component	AICS	Australia - Standard for the Uniform Scheduling of Drugs and Poisons
Sodium Metasilicate 6834-92-0	Present	
Sodium Carbonate	Present	

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

497-19-8		
----------	--	--

Canadian Chemical Inventory:

Component	DSL	NDSL
Sodium Metasilicate 6834-92-0	Listed	
Sodium Carbonate 497-19-8	Listed	

China Chemical Inventory:

Component	IECS
Sodium Metasilicate 6834-92-0	v 13833
Sodium Carbonate 497-19-8	v 34127

European Union Inventory:

Component	EU - NLPL	ELINCS	EU: EINECS Nr.
Sodium Metasilicate 6834-92-0			229-912-9
Sodium Carbonate 497-19-8			207-838-8

Japan Chemical Inventory:

Component	ENCS
Sodium Metasilicate 6834-92-0	(1)-508
Sodium Carbonate 497-19-8	(1)-164

Korean Chemical Inventory:

Component	KECL
Sodium Metasilicate 6834-92-0	KE-12354
Sodium Carbonate 497-19-8	KE-31380

Mexico - National Inventory of Chemical Substances (INSQ)

Component	Mexico - National Inventory of Chemical Substances (INSQ)
Sodium Metasilicate 6834-92-0	Present
Sodium Carbonate 497-19-8	Present

New Zealand Chemical Inventory:

Component	NZIOC
Sodium Metasilicate 6834-92-0	Listed
Sodium Carbonate 497-19-8	Listed

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Philippines - Priority Chemical List:

Component	PICCS
Sodium Metasilicate 6834-92-0	Present
Sodium Carbonate 497-19-8	Present

Taiwan - Taiwan Chemical Substance Inventory (TCSI)

Component	Taiwan - Taiwan Chemical Substance Inventory (TCSI)
Sodium Metasilicate	Present
Sodium Carbonate	Present

Thailand - FDA Existing Chemicals Inventory (TECI)

Component	Thailand - FDA Existing Chemicals Inventory (TECI)
Sodium Metasilicate 6834-92-0	55-1-05387
Sodium Carbonate 497-19-8	55-1-03922

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA	TSCA ACTIVE LIST	TSCA 12(b)	TSCA - Section 5
Sodium Metasilicate 6834-92-0	Listed	ACTIVE		
Sodium Carbonate 497-19-8	Listed	ACTIVE		

Vietnam - National Chemicals Inventory (NCI) (DRAFT)

Component	Vietnam - National Chemicals Inventory (NCI) (DRAFT)
Sodium Metasilicate 6834-92-0	Present 10915
Water 7732-18-5	Present 11499
Sodium Carbonate 497-19-8	Present 03840

15.2 Chemical Safety Assessment**Chemical Safety Assessment:**

- The Exposure Scenario(s) attached to the SDS are an abridged version for ease of reading

16. OTHER INFORMATION**16.1 Further Information**

Prepared by: OxyChem Corporate HESS - Product Stewardship

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

Turkey Certified Authorer: This SDS has been prepared by persons qualified to author and translate this document.

Email of competent person responsible for SDS: SDS_Tech@oxy.com

SDS Revision Date: 08/29/2019

16.2 Relevant H-statements**GHS - Physical Hazard Statement(s)**

Corrosive to metals - Category 1

GHS - Health Hazard Statement(s)

H314 - Causes severe skin burns and eye damage

H335 - May cause respiratory irritation

16.3 Indication of changes**Reason for Revision (EU):**

- Added CAS and EC numbers to Section 1.1
- Added Sector of Use for REACH compliance: SEE SECTION 1
- Added Generic Use, Application Conditions, and Environmental Release Category for REACH compliance: See Section 1.2
- Added or revised Precautionary Statements: SEE SECTION 2
- Added GHS classification from company self-classification for reference in appropriate sections of SDS
- Added PBT and vPvB assessment information for REACH compliance: See sections 2.3 and 12.5
- Revised Risk Management Measures for Health: See Section 8.2
- Added Risk Management Measures (RMM) for Environment: See section 8.2
- Added aquatic toxicity data from LOLI: See Section 12.1
- Added bioaccumulative potential: See section 12.3
- Added Inventory Status for Mexico, Taiwan, Thailand, and Vietnam: See section 15.1
- Added statement concerning status of exposure scenarios: SEE SECTION 15
- Added Exposure Scenarios: SEE EXPOSURE SCENARIO ANNEX

16.4 Additional information**IMPORTANT:**

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any federal, state, local or foreign laws.

OSHA Statement

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

M5420 - EU - BE

SODIUM METASILICATE ANHYDROUS

SDS No.: M5420

Rev. Date: 08/29/2019

Supersedes Date (EU): 2017-3-May

End of Safety Data Sheet

EXPOSURE SCENARIO ANNEX TO SDS

M5420-ES1 - ES - BE

SODIUM METASILICATE - ES1

ES #: M5420-ES1
Rev. Num. 01

Rev. Date: 08/29/2019

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	SODIUM METASILICATE - ES1
-------------------------	---------------------------

1. Short title of Exposure Scenario: Industrial and professional use of Sodium Metasilicate

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU):

SU2a - Mining, (without offshore industries)
SU2b - Offshore industries
SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites
SU4 - Manufacture of food products
SU5 - Manufacture of textiles, leather, fur
SU6b - Manufacture of pulp, paper and paper products
SU7 - Printing and reproduction of recorded media
SU9 - Manufacture of fine chemicals
SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU11 - Manufacture of rubber products
SU12 - Manufacture of plastics products, including compounding and conversion
SU13 - Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU14 - Manufacture of basic metals, including alloys
SU15 - Manufacture of fabricated metal products, except machinery and equipment
SU16 - Manufacture of computer, electronic and optical products, electrical equipment
SU17 - General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU18 - Manufacture of furniture
SU19 - Building and construction work
SU20 - Health services
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU23 - Electricity, steam, gas water supply and sewage treatment

Product Category (PC):

PC0 Bulk Chemical
PC1 - Adhesives, sealants
PC3 - Air care products
PC4 - Anti-freeze and de-icing products
PC8 - Biocidal products (e.g. disinfectants, pest control)
PC9 - Coatings and paints, fillers, putties, thinners
PC14 - Metal surface treatment products, including galvanic and electroplating

SODIUM METASILICATE - ES1

SDS No.: M5420-ES1

Rev. Date: 08/29/2019

Rev. Num.

01

products
 PC15 - Non-metal-surface treatment products
 PC18 - Ink and toners
 PC19 - Intermediate
 PC20 - pH-regulators, flocculants, precipitants, neutralization agents
 PC21 - Laboratory chemicals
 PC23 - Leather tanning, dye, finishing, impregnation and care products
 PC24 - Lubricants, greases and release products
 PC25 - Metal working fluids
 PC31 - Polishes and wax blends
 PC32 - Polymer preparations and compounds
 PC34 - Textile dyes, finishing and impregnating products
 PC35 - Washing and cleaning products
 PC37 - Water treatment chemicals
 PC39 - Cosmetics, personal care products

Process Category (PROC): PROC 1 - Use in closed process, no likelihood of exposure
 PROC 2 - Use in closed, continuous process with occasional controlled exposure
 PROC 3 - Use in closed batch process (synthesis or formulation)
 PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC 5 - Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
 PROC 7 - Industrial spraying
 PROC 8a/b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at either dedicated and/or non-dedicated facilities
 PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC 10 - Roller application or brushing
 PROC 11 - Non industrial spraying
 PROC 13 - Treatment of articles by dipping and pouring
 PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelettisation
 PROC 15 - Use a laboratory reagent
 PROC 17 - Lubrication at high energy conditions and in partly open process
 PROC 19 - Hand-mixing with intimate contact and only PPE available
 PROC 20 - Heat and pressure transfer fluids in dispersive professional use but closed systems
 PROC 21 - Low energy manipulation of substances bound in materials and/or articles
 PROC 22 - Potentially closed processing operations with minerals/metals at elevated temperature, Industrial setting.
 PROC 23 - Open processing and transfer operations with minerals/metals at elevated temperature
 PROC 24 - High (mechanical) energy work-up of substances bound in materials and/or articles
 PROC 25 - Other hot work operations with metals
 PROC 26 - Handling of solid inorganic substances at ambient temperature

Environmental Release Category (ERC):

ERC1 - Manufacture of substances
 ERC2 - Formulation of preparations
 ERC3 - Formulation in materials
 ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

SODIUM METASILICATE - ES1

SDS No.: M5420-ES1

Rev. Date: 08/29/2019

Rev. Num.

01

ERC5 - Into or onto a matrix
ERC6b - Industrial use of reactive processing aids
ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers
ERC7- Industrial use of substances in closed systems
ERC8a- Wide dispersive indoor use of processing aids in open systems
ERC8b- Wide dispersive indoor use of reactive substances in open systems
ERC8c- Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8d- Wide dispersive outdoor use of processing aids in open systems
ERC9a- Wide dispersive indoor use of substances in closed systems
ERC9b- Wide dispersive outdoor use of substances in closed systems

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

Workers (on-site and non-dispersive) may be exposed to disodium metasilicate during manufacture and processing (formulation, packaging). Professional downstream users may be exposed during the formulation or the use of products/preparations containing disodium metasilicate. During manufacture and processing, workers may potentially be exposed to disodium metasilicate by the dermal and respiratory routes. Professional downstream users may be exposed to liquid and/or aerosol (liquid silicates) or dust (silicate powders) by the dermal and respiratory routes.

3.1 Duration and frequency of use:

Covers frequency up to: daily use, weekly, monthly, yearly.

4.1 Physical form of substance or preparation:

Solid, powder, liquid, solution, vapour pressure 0.00103 kPa (1175 C). Identified uses of solutions of disodium metasilicate are covered by the worst case exposure concentrations calculated for the powders. In addition, exposure estimations for the use of granules are covered by the exposure estimations for powders since powders can be regarded as worst case scenario due to their higher dustiness resulting in higher workplace concentrations. In granular products 96 - 98% of the particles are between 200 and 1250 µm, in powdered products 80 - 90% are greater than 50 µm, i.e. well above the respirable range. The overall dust category is medium.

4.2 Product Specification (Concentration of substance in preparation or article):

- Solid: Covers percentage substance in the product up to 100%
- Liquid: Covers percentage substance in the product up to 25%

4.3 Maximum amount per time or activity:

> 4 hours per day.

5. Other relevant operational conditions of use:

- Assumes a good basic standard of occupational hygiene has been implemented
 - The work occurs inside as well as outside
-

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

SODIUM METASILICATE - ES1

SDS No.: M5420-ES1

Rev. Date: 08/29/2019

Rev. Num. 01

Risk Management Measures Targeted to Workers (Industrial):

- The manufacture, processing and packaging of soluble silicates takes place in closed systems. Therefore, exposure of workers during these processes is assumed to be rather low. If possible, local exhaust ventilation should be used. In addition, whenever disodium metasilicate as a substance on its own (powder/granules or liquid) or in a preparation is handled outside closed systems, depending on the use concentration suitable personal protective equipment (gloves, goggles, dust masks or respirators) is the preferred and only measure of control.
- Wear suitable gloves tested to EN374 for PROCs covering non-dispersive uses.
- Provide enhanced general ventilation by mechanical means for PROCs covering on-site uses.
- Wear a respirator conforming to EN140 with Type A filter or better for PROCs covering wide-dispersive uses.

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment**Environmental Release Category (ERC):**

ERC1 - Manufacture of substances

ERC2 - Formulation of preparations

ERC3 - Formulation in materials

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 - Into or onto a matrix

ERC6b - Industrial use of reactive processing aids

ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers

ERC7- Industrial use of substances in closed systems

ERC8a- Wide dispersive indoor use of processing aids in open systems

ERC8b- Wide dispersive indoor use of reactive substances in open systems

ERC8c- Wide dispersive indoor use resulting in inclusion into or onto a matrix

ERC8d- Wide dispersive outdoor use of processing aids in open systems

ERC9a- Wide dispersive indoor use of substances in closed systems

ERC9b- Wide dispersive outdoor use of substances in closed systems

Risk Management Measures Targeted to Protect the Environment:

Not required, as soluble silicates, including disodium metasilicate, do not meet the criteria for classification as dangerous to the environment according to 67/548/EEC (See Article 14.4 of REACH Regulation). Furthermore, as high production volume substances, soluble silicates have been reviewed to a great extent for their exposure potential to the environment and the possible risks arising from their release (Van Dokkum et al. 2002, OECD SIDS 2004, HERA 2005, and CEES 2008). It was concluded that soluble silicates are currently of low priority for further work because of their low hazard profile.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures**Waste Related Measures: General**

Not applicable.

INFORMATION ON ESTIMATED EXPOSURE

8.1 Exposure Estimations for Human Health

EXPOSURE ESTIMATION FOR WORKERS

During the manufacturing process, the highest workplace concentrations were measured for the forming and granulation process without local exhaust ventilation. The inhalable fraction was 5.28 mg/m³ (OEL 10 mg/m³) and the respirable fraction was determined to be 0.38 mg/m³ (OEL 3 mg/m³). The efficiency of local exhaust ventilation is shown by the measured workplace concentration values for inhalable and respirable dust, respectively (0.79 and <0.36 mg/m³). Even without local exhaust ventilation, the operational exposure limit as well as the very conservative DNEL of 6.22 was not exceeded for both the inhalable and respirable fraction.

disodium metasilicate or sodium silicate, actual measurements conducted in three processing plants at different workplaces are available. The inhalable fraction of total dust collected ranged from 0.29 to 5.28 mg/m³. The respirable fraction of total dust was equal to or below 0.38 mg/m³ (for more details see table below). The estimated exposure concentration for inhalation according to ECETOC TRA is 20 mg/m³ without any RMM. When applying local exhaust ventilation or wearing a dust mask, the estimated exposure concentrations are 1 mg/m³ and 2 mg/m³, respectively. Both values are below the DNEL, demonstrating the safe use of disodium metasilicate. Moreover, safe use of disodium metasilicate is confirmed by the maximum measured exposure concentrations of 5.28 mg/m³ for the inhalable fraction and 0.38 mg/m³ for the respirable dust fraction (without LEV). Both concentrations are well below the corresponding OELs of 10 and 3 mg/m³, respectively.

8.2 Exposure Estimations for Environment

EXPOSURE ESTIMATION FOR ENVIRONMENT

As the hazard assessment, carried out according to the Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, did not identify any foreseeable hazards for environmental safety, all identified uses are considered to be safe for the environment.

GUIDANCE TO DOWNSTREAM USER (DU)

9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:

Dermal exposure is prevented by personal protective equipment (protective clothing, gloves, goggles) which is mandatory because of the corrosive properties of disodium metasilicate. If possible, local exhaust ventilation should be used. In addition, whenever disodium metasilicate as a substance on its own (powder/granules or liquid) or in a preparation is handled outside closed systems, depending on the use concentration suitable personal protective equipment (gloves, goggles, dust masks or respirators) is the preferred and only measure of control.
