SAFETY DATA SHEET
CALDE® SPRAYCAST BINDER

Version: 22
MAWX0017

The following Safety Data Sheet has been created according to the Regulation (EC) No 1272/2008 [CLP/GHS], the Regulation (EU) No 453/2010 and the Commission Regulation (EU) 2015/830 (28th of May 2015) on compilation of e-SDS.

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1. Product identifier

CALDE® SPRAYCAST BINDER

1.1.1. Dates and Modifier of the Safety Data Sheet

Creation Date	18/01/2018 (DD/MM/YY)
Revision Date:	18/01/2018

1.1.2. SDS (Safety Data Sheet) status:

New

1.2. Relevant identifier uses of the substances or mixture and uses advised against:

1.2.1. Relevant identified uses:

Usages of the product according to the ECHA (European CHemical Agency) - Guidance R.12 Use descriptor system - draft version 2.0
SU10; 13+NACE C23.2+PC 10+PROC 1; 2; 3; 4; 5; 8a; 9; 13; 14; 19; 21; 22; 23; 24; 26+ERC 2; 3; 5+AC 12-1; 12-2
Liquid binder to be added to a refractory material
Restricted to industrial or professional users for application as safety or wear linings and maintenance of both in all industrial devices at temperatures > 1000°C.

1.2.2. Uses advised against:

Non relevant.

1.3. Details of the supplier of the safety data sheet:

1.3.1. Supplier:

EUROPEAN ECONOMIC COMMUNITY :

Calderys
17, rue de Copenhague – Bât. F
F-38070 Saint Quentin Fallavier - France
Phone: +33 (0)4 74 99 99 64 - Fax: +33 (0)4 74 99 99 56

1.3.5. E-mail:

If another updated SDS is needed, please contact your local CALDERYS commercial desk.
For any precision about the content of this MSDS, please refer to the point 1.3.6.

1.3.6. National contact's name:

See local contact for your country at §16 - Point 16.9.
www,calderys.com

1.4. Emergency telephone number:

UK: The UK National Poisons Emergency number is 0870 600 6266 - (Outside the UK: +44 870 600 6266)
See enclosed annex for Emergency telephone

1.5. Opening hours (if not 24/24 h):

Non relevant.

SECTION 2: Hazards identification

2.1 Classification of the substance or the mixture:

2.1.0. Substances linked to the Classification of the product

Silicic acid, sodium salt - (CAS Nr. 1344-09-8)

2.1.1. Classification according to Regulation:

(EC) No 1272/2008 [CLP/GHS]
Met.Corr. 1 - Liquid corrosive to metals, hazard category 1; H290: May be corrosive to metals.
Skin Corr. 1B - Skin corrosion, hazard category 1B; H314: Causes severe skin burns and eye damage.
Eye Dam. 1 - Serious eye damage / Eye irritation, hazard category 1; H318: Causes serious eye damage.

- 2.1.1.1 Other:

Non relevant.

2.1.3. Additional information:

For full text of H, EUH-phrases: see section 16.

2.2. Label elements:

2.2.1.2. Signal word:

Danger

2.2.2.1. Symbol(s) in black/white or colour according to the Regulation:

(EC) No 1272/2008 [CLP/GHS]
GHS05: Corrosion

2.2.7. Authorization number(s) from ECHA:

Non relevant.

2.2.8. Labelling according to the Regulation:

(EC) No 1272/2008 [CLP/GHS]
Met.Corr. 1; H290
Skin Corr. 1B; H314
Eye Dam. 1; H318

2.2.9. GHS, Precautionary statement phrases (P)

2.2.9.1. GHS, Precautionary statements — Prevention

P262: Do not get in eyes, on skin, or on clothing.
P280: Wear protective gloves, protective clothing, eye protection and a face protection.

2.2.9.2. GHS, Precautionary statements — Response

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P350: IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+P360: IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P362: Take off contaminated clothing and wash before reuse.
P390: Absorb spillage to prevent material damage.

2.2.9.3. GHS, Precautionary statements — Storage

P404: Store in a closed container.

2.2.9.4. GHS, Precautionary statements — Disposal

P501: Dispose of contents/containers in accordance with local regulation

2.3. Other hazards:

Unknown at that date.

2.3.1. SVHC (Substance of Very High Concern):

No.

2.3.2. CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

No.

2.3.3. PBT : Persistent, Bioaccumulative and Toxic

No.

2.3.4. vPvB: very Persistent very Bioaccumulative

No.

2.3.5. POP: Persistent Organic Pollutant

No.

2.3.6. Formation of air contaminants during hardening or processing:

No.

2.3.7. Dust explosion hazard (VDI 2263):

No.

SECTION 3: Composition / Information on ingredients

3.1. Substance:

3.2.2. Hazardous components

Component	CAS N° / EC N°		Weight %
Silicic acid, sodium salt - Nr. REACH. 01-2119448725-31 Skin Corr.1B; H314 - Eye Dam.1; H318 - Met.Corr.1; H290	CAS : Einecs :	1344-09-8 *215-687-4*	>=50 <100

SECTION 4: First aid measures

4.1. Description of first aid measures

4.1.1. Eyes:

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

4.1.2. Skin:

Wash with soap and water, if irritation persists seek medical advice.
If skin irritation or rash occurs: Get medical advice/attention.
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

4.1.3. Ingestion:

If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
If swallowed, rinse mouth with water (only if the person is conscious).
If swallowed, drink copious amount of water (at least 0,5 liter), provided fresh air and seek medical advice immediately.

4.1.4. Inhalation:

If there is a sensation of nausea or dizziness, remove to fresh air and seek medical attention.
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

4.2. Most important symptoms and effects, both acute ans delayed.

Stinging to eyes
Redness, tearing.
Stinging to skin
Symptoms: Pain, redness and blurred vision.
Severe causticity with the possibility of severe ocular lesions

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

Non relevant.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

5.1.1. Suitable fire-fighting methods :

In case of fire use water based extinguishers or hosepipe.

5.1.2. Unsuitable extinguishing media:

Non relevant.

5.2. Special hazards arising from the substance or mixture

In standard storage conditions, non-combustible, non-explosive and non-flammable.
Causes severe skin burns and eye damage.

5.2.1. Hazardous decomposition products

None

5.3. Advice for firefighters

5.3.1. Personal precautions:

Personal precautions : see Section 8.

Fire fighter clothing according to European standard EN469.
Personal precautions : wear alkali resistant clothing and gloves.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

6.1.1.1. Protective equipment:

Personal precautions : see Section 8.
Personal precautions : wear alkali resistant clothing.

6.1.1.2. Emergency procedures

Avoid breathing vapour and contact with skin and eyes. Wear recommended personal protective equipment.

6.1.2. For emergency responders

Personal precautions : wear alkali resistant clothing and gloves.
Avoid breathing vapour and contact with skin and eyes. Wear recommended personal protective equipment.

6.2. Environmental precautions

Prevent access to water table, running or stagnant water, or drains.

6.3. Methods and material for containment and cleaning up

6.3.1. Appropriate containment techniques may include any of the following:

6.3.1. - (a) bunding, covering of drains;

Non relevant.

6.3.1. - (b) capping procedures.

Non relevant.

6.3.2. Appropriate advices on how to clean-up a spill. Appropriate clean-up procedures may include any of the following:

6.3.2. - (a) neutralisation techniques;

Neutralize spills with absorbent materials.

6.3.2. - (b) decontamination techniques;

Non relevant.

6.3.2. - (c) adsorbent materials;

Sand, diatomite earth, saw dust, vermiculite.

6.3.2. - (d) cleaning techniques;

To clean the floor and all objects contaminated by this material, wash immediately with plenty of warm water.

6.3.2. - (e) vacuuming techniques;

Non relevant.

6.3.2. - (f) equipment required for containment/clean-up (include the use of non-sparking tools and equipment where applicable).

Put in drums after neutralisation.
Collect the spillage in closable, corrosion resistant, suitable disposal containers.

6.3.3. Other information relating to spills and releases:

6.3.3.1. Non allowed techniques:

Non relevant.

6.4.1. References:

Personal precautions : see Section 8.
Dump according to the definition in section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

7.1.1. Protective measures:

7.1.1.- (a) Measures to prevent fire:

Non relevant.

7.1.1.- (b) Measures to prevent aerosol and dust generation:

Avoid breathing vapour and contact with skin and eyes. Wear recommended personal protective equipment.

7.1.1.- (c) Measures to protect environment:

Prevent access to water table, running or stagnant water, or drains.

7.1.2. Advice on general occupational hygiene:

When using do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities:

7.2.1. Technical measures and storage conditions:

Keep only in the original container at a temperature not exceeding 40°C.
Avoid breathing vapour and contact with skin and eyes. Wear recommended personal protective equipment.
Stacking height: up to 2 pallets maximum.

7.2.2. Recommended packing:

Plastic drums.
Plastic bottle.
Plastic shrink or cling film.
Wooden pallet with shrink film.
Always keep the main pallet label

7.2.3. Requirements for storage rooms and vessels:

Store away from direct source of heat to avoid product damage.
Avoid freezing conditions.
Do not store outside.
Store away from acids.
Store on alkali resistant floor.
Keep only in the original container in a cool, well-ventilated place
Avoid contact with incompatibles mentioned under item 10

7.2.4. Storage class (national):

Unknown at that date.

7.2.5. Further information on storage conditions:

Do not transfer to light alloy metal, aluminium, zinc or tin coated steel.
Keep only in the original container at a temperature not exceeding 40°C.
Always keep in the original packaging.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Substance	CAS N° / EC N°		L.T.E - 8 hr TWA mg/m3
Silicic acid, sodium salt - Nr. REACH. 01-2119448725-31 Skin Corr.1B; H314 - Eye Dam.1; H318 - Met.Corr.1; H290	CAS : Einecs :	1344-09-8 *215-687-4*	No data

8.2. Exposure Controls:

The chart above mentionnes the lowest exposure limit values known in the EU for each substance.
All the values indicated in the chart above are available in the (Worldwide) GESTIS database: http://limitvalue.ifa.dguv.de/
Customers are advised to check the limit values indicated , that could have been up-dated (in GESTIS) since the creation of this SDS.
The product is delivered as wet, so is not relevant to respirable dust.

8.2.0. DNEL (Derived no effect level)

Workers
Acronyms used in the following sentences.
DDD = DNEL Short Term exposure - Acute effect - Local
ROEX = Route of Exposure
INH = Inhalation dose in mg/m3
DERM = Dermal exposition in mg/kg bodyweight

8.2.0.1. Substance:

Silicic acid, sodium salt - CAS Nr.1344-09-8 - Einecs Nr.215-687-4 - DDD; ROEX; DERM = 1,59 - INH = 5,61

8.2.1. Appropriate engineering controls

Non relevant.

8.2.2. Individual protection measures, such as personal protective equipment

8.2.2.1. Good occupational hygiene practices

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.
For details about the following HS personal devices, please see the annex dedicated to. (Section .17)

8.2.2.2. Personal Protective Equipment

8.2.2.2. (a) Eye/face protection

Wear a face shield
Wear safety glasses with lateral protection (166 rev. S4KN2)

8.2.2.2. (b) Skin protection

Wear alkali resistant clothing.

8.2.2.2. (c) Hands:

The dry fraction of the product does not require special gloves, but with the added substance, the following gloves are required for the placing of the whole mix:
Wear alkali resistant gloves
Suitable material for gloves: Nitrile rubber (NBR) - Natural rubber (NR) - Neoprene
In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Not suitable are gloves made of the following materials: Leather gloves
Leather gloves should not be used for handling this product after mixing with its binder.

8.2.2.2. (d) Respiratory protection

The product is delivered as wet, so is not relevant to respirable dust.
Consult the local reglementation.

8.2.3. Environmental exposure controls

Prevent access to water table, running or stagnant water, or drains during installation or during washing the tools used for installation.

8.2.4. Exposure scenario:

Read carefully the relevant Exposure Scenario for sodium silicate placed as annex of the §17

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Viscous liquid
Color:	Colourless

Odour:	No particular odour
Packing Density (g/cm3) :	At 20°C, 1,5 g/cm3
Vapour density:	23 mm Hg (50°C)
pH:	10 < pH < 12
Segregation:	Non relevant.
Boiling point:	At 1013 hPa: 100°C
Flash point:	Non relevant.
Inflammability:	No.
Explosive properties:	No.
Combustive properties:	No.
Solubility solvent:	No.
Partition coefficient n-octanol/water:	Unknown at that date.
Viscosity:	Unknown at that date.
Hydrosolubility:	Full

SECTION 10: Stability and reactivity

10.1. Reactivity

May react vigorously with strong acids.

10.2. Chemical stability

Chemically stable refractory product

10.3. Possibility of hazardous reactions

Strong exothermic reaction with acids

10.4. Conditions to avoid

Danger : Hazardous reaction in contact with acids.
Danger: Hazardous reaction in contact with metals (may generates highly infammable hydrogen gas).
Avoid incompatible materials mentioned in section 10.5.

10.5. Incompatible materials

Avoid ordinary steels, bases, nitrates, chlorates, calcium carbide, cyanid, sulphurs and sulphites.
Avoid contact with light alloy metal, aluminium, zinc or tin coated steel.

10.6. Hazardous decomposition products

None

SECTION 11: Toxicological information

Substance	**CAS N° / EC N°**	
Silicic acid, sodium salt - Nr. REACH. 01-2119448725-31 Skin Corr.1B; H314 - Eye Dam.1; H318 - Met.Corr.1; H290	CAS : Einecs :	1344-09-8 *215-687-4*

11.1. Information on toxicological effects.

11.1.1. Substances.

11.1.1.1. The relevant hazard classes for which information shall be provided, are:

11.1.1.1. - (a) acute toxicity:

Non relevant.

11.1.1.1. - (b) skin corrosion/irritation:

Skin corrosion, hazard category 1B

11.1.1.1. - (c) serious eye damage/irritation:

Serious eye damage, hazard category 1

11.1.1.1. - (d) respiratory or skin sensitisation:

Non relevant.

11.1.1.1. - (e) germ cell mutagenicity:

Non relevant.

11.1.1.1. - (f) carcinogenicity:

Non relevant.

11.1.1.1. - (g) reproductive toxicity:

Non relevant.

11.1.1.1. - (h) STOT-single exposure:

Non relevant.

11.1.1.1. - (i) STOT - repeated exposure:

Non relevant.

11.1.1.1. - (j) aspiration hazard:

Non relevant.

11.1.2. Mixtures.

Non relevant.

11.1.2.1. The relevant effects classes for which information shall be provided, are:

Non relevant.

11.1.4. Toxicological properties of the hazardous substance or mixture, as placed on the market:

11.1.4.1. LD50: Lethal Dose, 50%.

Oral LD50 - rat - > 2000 mg / kg

SECTION 12: Ecological information

12.1. Toxicity

The following points are theoretical conclusions:
Spillage may be dangerous if it comes in contact with incompatible materials see section 10.

12.1.1. Air:

Non relevant.

12.1.2. Water:

Prevent access to water table, running or stagnant water, or drains.
The substance increases strongly the pH-value of water

12.1.2.0 Toxicity linked to fishes, Daphnia, Other aquatic invertebrates, Bacteria, Algae:

Acronyms used in the following sentences.
TOF LC50 = Toxicity on fish LC50
TOF NOEC = Toxicity on fish NOEC
TDOAI EC50 = Toxicity to daphnia and other aquatic invertebrates (EC50)
TDOAI NOEC = Toxicity to daphnia and other aquatic invertebrates NOEC

12.1.2.1 Substance:

Silicic acid, sodium salt - CAS Nr.1344-09-8 - Einecs Nr.215-687-4 - TOF LC50 = [1108 mg/l; 96 h] - Test unknown - [Fish: Danio Rerio] / TDOAI EC50 = [1700 mg/l; 48 h] - Test unknown - [Water flea: Daphnia magna] / TDOAI NOEC = [3480 mg/l; 18 h] - Test unknown - [Bacteria: Pseudomonas putida] / TTA EC50 = [207 mg/l; 72 h] - Test unknown - [Green Algae: Scenedesmus subspicatus]

12.1.2.2 PNEC : Predicted No-Effect Concentration

Acronyms used in the following sentences.
PNEC FW = PNEC Freshwater
PNEC SW = PNEC Seawater
PNEC WIR = PNEC Water intermittent release
PNEC Sd = PNEC Sediment
PNEC So = PNEC Soil
NR = Non relevant

12.1.2.3. Substance:

Silicic acid, sodium salt - CAS Nr.1344-09-8 - Einecs Nr.215-687-4 - PNEC FW: 7,5 mg / l - PNEC SW: 1 mg / l - PNEC WIR: 7,5 mg / l - PNEC Sd: NR - PNEC So: NR

12.1.3. Soil :

Unknown at that date.

12.1.4. Flora:

Unknown at that date.

12.1.5. Fauna:

Unknown at that date.

12.1.6. Bee:

Non relevant.

12.2. Persistence and degradability

Unknown at that date.

12.3. Bioaccumulative potential

Non relevant.

12.4. Mobility in soil

Unknown at that date.

12.5. Results of PBT and vPvB assessment

Non relevant.

12.6. Other adverse effects

Unknown at that date.
The product components are not classified as environmentally hazardous.
However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment;

SECTION 13: Disposal considerations

13.0. DIRECTIVE 2008/98/EC ON INDUSTRIAL WASTE. - Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal - UNEP

13.1. WASTE TREATMENT METHODS

Please consult local regulations and statuary European Union provisions
Used packaging should be treated in the same way as the received product
Dispose of substance in suitable containers in accordance with local, regional, national or international regulation. Do not dispose in waterways.
Offer surplus to a licensed disposal company.
Recycling and disposal of packaging has to be organised in cooperation with a suitable waste disposal company. The re-use of packaging is not recommended.
Do not flush into drains or surface water

13.1.1. DISPOSAL OPERATIONS

D 9 Physico-chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D 1 to D 12 (e.g. evaporation, drying, calcination, etc.)

13.1.2. RECOVERY OPERATIONS

Non relevant.

13.1.3. PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS

H 8 (Corrosive): substances and preparations which may destroy living tissue on contact.

13.2. POTENTIAL DANGER FROM THE WASTE:

Unknown at that date.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Packagings that cannot be cleaned are to be disposed of in the same manner as the product.
Before destruction and disposal of the refractory lining, customers are adviced to evaluate any changes to the product that may be induced by the introduction of substances, or operating conditions outside the control of the Vendor

13.3. EUROPEAN LIST OF HAZARDOUS WASTES (2000/532/EC)

As this product can be used in multiple industries, all categories are potentially valid.
Waste code according to EWC/AVV: 060316
06 03 wastes from the MFSU of salts and their solutions and metallic oxides
06 03 14 solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
10 02 : Wastes from the iron and steel industry
10 02 06 : Spent linings and refractories
10 09 : Wastes from casting of ferrous pieces
10 09 99 : Wastes not otherwise specified
10 10 : Wastes from casting of non-ferrous pieces
10 10 99 : Wastes not otherwise specified

SECTION 14: Transport information

ADR/RID/ADN class:

Non relevant to the UN classification on dangerous goods.

ICAO-TI / IATA-DGR class:

Non relevant to the UN classification on dangerous goods.

IMDG (marine) class:

Non relevant to the IMDG classification on dangerous goods.

14.1. UN number

Non relevant.

14.2. UN proper shipping name

Non relevant.

14.3. Transport hazard class(es)

Non relevant to the UN classification on dangerous goods.

14.4. Packing group:

Non relevant.

14.5. Environmental hazards:

Unknown at that date.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.2. Regulation 1907/2006/EC on REACH regulation.

The classification of this product has been established according to this regulation.

15.1.3. Regulation 1272/2008/EC on the GHS/CLP, including the EU 2017/776 (10th ATP)

The classification of this product has been established according to this regulation.

15.1.4. Regulation 2015/830/EC amending Regulation (EC) No 453/2010

This SDS has been created according to this regulation.

15.1.5. Other Regulation used to create this Safety Data Sheet:

The following Safety Data Sheet has been created according to the Regulation GHS Nr.6 (ST/SG/AC.10/30/Rev.6 - Dec.2015)

15.1.6. Directive 2006/8/EC on CMR and hazardous substances for environment.

This product does not meet the criteria for classification in that directive.

15.1.7. Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX 95)

This product does not meet the criteria for classification in that directive.

15.1.8. Directive 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres (ATEX 137)

This product does not meet the criteria for classification in that directive.

15.1.9. Decision No 2455/2001/EC on the list of priority substances in the field of water policy.

This product does not meet the criteria for classification in that directive.

15.1.10. MONTREAL Protocol on Substances That Deplete the Ozone Layer (7th revision)

Unknown at that date.

15.1.11. IBC: Institutional Biosafety Committee

This product does not meet the criteria for any biosafety classification.

15.1.12. MARPOL 73/78 (the International Convention for the Prevention of Pollution from Ships)

This product does not meet the criteria for classification in that directive.

15.1.13. STOCKHOLM convention on persistent organic pollutants (POPs)

This product does not meet the criteria for classification in that directive.

15.1.14. ROTTERDAM Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

This product does not meet the criteria for classification in that directive.

15.1.15. Directive 96/29 EURATOM :

This product does not meet the criteria for classification in that directive.

15.2. Chemical Safety Assessment

This product doesn't require a Chemical Safety Assessment.

15.3. Occupational illness

Commission Recommendation of 19 September 2003 concerning the European schedule of occupational diseases (Text with EEA relevance) (notified under document number C(2003) 3297)
Non relevant, the product is wet.

15.5. Other national relevant Safety, health and environmental regulations/legislation specific for the substance or mixture:

15.5.- (a) TA Air/TA Luft (German Technical Instructions on Air Quality Control)

This product does not meet the criteria for classification in that directive.

15.5.- (b) WgK: German Water hazard class (from the Administrative Regulation on substances hazardous to water - assessment):

The product, (according to German regulation) is classified as (in the sense of 18.04.2017):
WGK 1: slightly hazardous to water (self-classification)

SECTION 16: Other information

16.0. Additionnal safety information:

As announced in the Sub-section 2.1.3. find below the full text of the Hazard statement phrases (H - EUH) and Precautionary statement phrases (P) from GHS phrases indicated.

16.1. GHS Pictograms

16.1.1. Symbol(s) in black/white or colour according to the Regulation:

(EC) No 1272/2008 [CLP/GHS]

16.1.2. Labelling according to the Regulation:

(EC) No 1272/2008 [CLP/GHS]
Met.Corr. 1; H290
Skin Corr. 1B; H314
Eye Dam. 1; H318

16.1.3. Classification according to Regulation:

(EC) No 1272/2008 [CLP/GHS]
Met.Corr. 1 - Liquid corrosive to metals, hazard category 1; H290: May be corrosive to metals.
Skin Corr. 1B - Skin corrosion, hazard category 1B; H314: Causes severe skin burns and eye damage.
Eye Dam. 1 - Serious eye damage / Eye irritation, hazard category 1; H318: Causes serious eye damage.

16.1.4. Signal word:

Danger

16.1.5. GHS Hazard statement phrases (H) (linked to the product)

H290: May be corrosive to metals.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

16.2. GHS Precautionary statement phrases (P)

P233: Keep container tightly closed.
P280: Wear protective gloves, protective clothing, eye protection and a face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301 + P330 + P331: EN CAS D'INGESTION: Rincer la bouche. NE PAS faire vomir.
P302+P350: IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+P360: IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P337+P313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/containers in accordance with local regulation

16.3. Hazardous substances present, below GHS classification limits:

Non relevant.

16.5. Training:

Non relevant.

16.6. Other informations :

This safety data sheet (SDS) has been compiled according to Directive 453/2010/CE
This safety data sheet (SDS) has been compiled according to annexe II of the CE 1907/2007 (18th of december 2006) regulations concerning the adoption of REACH

16.7. Local contact for your country:

Australia: Jim Matthews - 2 Charcoal Close Unanderra NSW 2526 Australia - Phone: (02) 4271 0800 or 0434 745 006 - Fax: (02) 4272 2543 - jim.matthews@calderys.com
South-Africa: Robert Snelling - 6 Kariba Street, Vereeniging - Phone: +27(0)164406400 - Mail: robert.snelling@calderys.com
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USA: Mr. Fielding Clover - Calderys USA, Inc. - 917 Francis Street West - Jacksonville, Alabama 36265 - P.O. Box 909 - Emergency Telephone Number: 256-435-9342

SDS status :

Modifier JP Targe Modification Date : 18/01/2018

Modification:

New

As the Directive 1999/45 / EC [DPD] is obsolete now, this Safety Data Sheet does not contain anymore information related to the old system. All data information are now related only to Regulation (EC) No. 1272/2008 [CLP / GHS], Regulation (EU) No 453/2010 and to the Commission Regulation (EU) 2015/830 (28th of May 2015) on compilation of e-SDS. Therefore, all sections and sub-sections have been modified.

Acronyms and abbreviations used:

AAA = DNEL Long Term exposure - Chronic effect - Local
ADR: European regulation on transport of dangerous goods by road.
AOEL: Acceptable Operator Exposure Level
AOX: Adsorbable Organic Halogen
BBB = DNEL Long Term exposure - Acute effect - Local
BCF: Bioconcentration factor
BOD: Biochemical Oxygen Demand (BOD)
CAS: Chemical Abstracts Service
CCC = DNEL Short Term exposure - Chronic effect - Local
CLP : Classification, Labelling and Packaging of chemicals
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
COD: Chemical Oxygen Demand.
CSA : Chemical Safety Assessment
CSR : Chemical Safety Report
DDD = DNEL Short Term exposure - Acute effect - Local
DNEL : Derived No-Effect Level
EC: Ecotoxicity
EC50: Half maximal effective concentration
ECHA : European CHemical Agency
EINECS: European Inventory of Existing Commercial Chemical Substance.
ES : Exposure Scenario
eSDS : extended Safety Data Sheet
GefStoffV: German regulation on hazardous substances.
GHS : Global Harmonized System of classification and labelling of chemicals
GHS/CLP: Globally Harmonized System of Classification, Labelling and Packaging of chemicals
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulation by the International Air Transport Association
ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instruction by the International Air Transport Association
IMDG: International Maritime code for Dangerous Goods.
JAP-ISHA-C.O.Nr. = Japanese Industrial Safety and Health Act - Cabinet Order Nr.
JAP-PDSA-C.O.Nr. = Japanese Poisonous and Deleterious Substances Control Act - Cabinet Order Nr.
JAP-PRTR-C.O.Nr. = Japanese Pollutant Release and Transfer Register - Cabinet Order Nr.
LC50: Lethal Concentration, 50%.
LD50: Lethal Dose, 50%.
LOAEL: Lowest observed adverse effect level
MFSU: Manufacture, Formulation, Supply and Use
NEC: No effect concentration
NOEC: No Observed Effect Concentration
N.O.S. : Not Otherwise Specified
NLP : No-Longer Polymers
OECD: Organisation for Economic Co-operation and Development
PAH: Polycyclic Aromatic Hydrocarbon.
PBT : Persistent, Bioaccumulative and Toxic
PEC : Predicted Environmental Concentration
PNEC : Predicted No-Effect Concentration
PNEC Co = PNEC Coral
PNEC FW = PNEC Freshwater
PNEC Sd = PNEC Sediment
PNEC So = PNEC Soil
PNEC SW = PNEC Seawater
PNEC WIR = PNEC Water intermittent release
POP: Persistent Organic Pollutant
CSFF: Crystalline Silica Fine Fraction (according to the standard EN 481)
REACH : Registration, Evaluation, Authorisation and Restriction of CHemical substances
RID: International regulation on transport of dangerous goods by railway.
RIP : REACH Implementation Project
RMM : Risk Management Measure
ROEX = Route of Exposure

SVHC : Substance of Very High Concern
TDOAI EC50 = Toxicity to daphnia and other aquatic invertebrates (EC50)
TDOAI NOEC = Toxicity to daphnia and other aquatic invertebrates NOEC
TGD : Technical Guidance Document
ThOD: Theoretical Oxygen Demand
TOF LC50 = Toxicity on fish LC50
TOF NOEC = Toxicity on fish NOEC
TTA EC10 = Toxicity to algae EC10
TTA EC50 = Toxicity to algae EC50
TTA NOEC = Toxicity to algae NOEC
TTB EC0 = Toxicity to Bacteria (EC0)
TTB NOEC = Toxicity to Bacteria NOEC
UVCB : Substances of Unknown Variable composition, complex reaction products or Biological materials
vPvB: very Persistent very Bioaccumulative

17. Annexes:

Attached annex : Medical toxicology units
Attached annex: HS Devices - Personal protection
Attached annex : Silicic acid, sodium salt scenario exposure
Attached annex: ECHA, Guidance R.12 - Standard Use descriptors.

Annex: MEDICAL TOXICOLOGY UNITS

Australia:
1- South Australian Poisons Information Centre Women's and Children's Hospital,
72 King William Road North Adelaide SA 5006 - Tel: +61 82 04 72 22 - Fax: +61 82 04 60 49
2 - Canberra A.C.T. Poisons Information Service, Woden Valley Hospital, Garran, Yamba Drive -
Tel: +61 62443333 / +61 62852852 - Fax: +61 6244 3334

Belgique:
Brussels / Bruxelles : Centre Anti-Poisons/Antigifcentrum, Hôpital Militaire Reine Astrid, Rue Bruyn,
Brussels B -1120 - Emergency telephone: +32 70 245 245 - Fax: +32 2 264 9646

Brazil:
Centro de Informacao Toxicologica, Rua Domingos Cresencio, 132/8 andar CEP 90650-090
Porto Alegre-RS - Tel: +55 51-223-6110 - Fax: +55 51 2299067

Bulgaria - България
Национална Токсикологична информационен център, Институт за спешна медицинска
"Пирогов", 21 Totleben Boulevard, 1606 София - Телефон за спешни случаи: +359 2 9154 409

Croatia - Hrvatska
Otrovi Kontrolni centar, Institut za medicinska istraživanja i medicinu rada, Ksaverska cesta 2,
PP Box 291, HR-10000 Zagreb - Hitna Telefon: +385 1 234 8342

Czech Republic - česká republika
Toxikologické informační středisko, Klinika pro pracovní lékařství, 1. lékařská fakulta Univerzity Karlovy
Na Bojišti 1, 128 00 Praha 2 - Nouzové telefonní číslo: +42 2 2491 9293
nebo +42 2 2491 5402 - Fax: +42 2 2491 4570

Denmark:
Giftinformationscentralen - Bispebjerg Hospital, Bispebjerg Bakke 23, 60, 1, DK-2400 København NV -
Nødtelefon, offentlige: +45 82 12 12 12

España:
Servicio Nacional de Toxicologia, c/Luis Cabrera, 9 – 28002 Madrid, Tel: +34 915 62 04 20
Unitat de Toxicologia Clinica, Servicio de Urgencias, Hospital Clinic I Provincial de Barcelona,
C/Villarroel, 170 , E-08036 Barcelona - Telèfon d'urgències: +34 93 227 98 33 or +34 93 227 54 00

Finland - SUOMI
Myrkytystietokeskuksen P.O.B 790 (Tukholmankatu 17), SF - 00029 HUS, Helsinki -
Puhelin: +358 9 471 977, Fax: +358 9 4717 47 02

France:
système ORFILA, tél: 33 (0)1.45.42.59.59 (24h/24h)

Germany - DEUTSCHLAND
Giftnotruf Berlin, Berliner Betrieb für Zentrale Gesundheitliche Aufgaben, Institut für Toxikologie,
Oranienburger Straße 285, 13437 Berlin - Notrufnummer: +49 30 19240

Greece - ΕΛΛΆΔΑ, Αθήνα Αθηνών:
Νοσοκομείο Παίδων "Αγλαΐα Κυριακού" - 11527 Αθήνα - Τηλ: +30 1 779 3777 - Fax: +30 1748 6114

Hungary - Magyarország
Egészségügyi Toxikológiai Tájékoztató Szolgálat - 1097 Budapest, Nagyvárad tér 2.
Telefon: +36 80 20 11 99, Fax: +36 1 476 1138

India:
Poison Information Centre National Institute of Occupational Health Meghani Nagar, Ahmedabad - India 320016 - Tel: +91-272-867351 - Fax: +91-272-866630

Italia:
Roma : Centro Antiveleni, Dipartimento di Tossicologia Clinica, Universita Cattolica del Sacro Cuore, Largo Agostino Gemelli 8, I-00168 Roma - Telefono di emergenza: +39 06 305 4343

Nederland:
Rijkinstituut voor Volksgezondheid, Antonie van Leeuwenhoeklaan 9, 3720BA Bilthoven
Tel: +31 302 541 5 11 – Fax: +31 302 748 888

Norway - NORGE
Gift Informasjon, Direktoratet for Sosial-og helsedirektoratet, P.O. Box 7000, St. Olavs Plass, 0130 Oslo - Emergency telefon: +47 22 591300

Osterreich: Vergiftungsinformationszentrale
Stubenring 6, 1010 Wien - Notruf: +43 1 406 43 43 - Informationen & Anfragen: + 43 1 406 68 98 11

Poland - Polska:
Warszawa, Poison Control Warszawie i Centrum Informacji, Szpital Praski, Al. Solidarności 67, P-03 401 Warszawa
Telefon alarmowy: +48 22 619 66 54, +48 22 619 08 97

Romania:
S.O.S Vitan Birzesti 9, Sector 4, 75889 Bucureşti - Tel: +401 6 34 38 90 135 – Fax: +401 3 21 02 60
Departamentul de Toxicologie Clinică, Spitalul de Urgenta Floreasca, Calea Floreasca, Bucureşti
De telefon de urgenţă: +40 21 230 8000

RSA - South-Africa
Poison Information Centre, University of Cape Town, Department of Paediatrics and Child Health, Red Cross War Memorial Children's Hospital, Klipfontein Road, Rondesbosch, Cape 7700, South Africa - Tel: +27 21 658 5308 - Fax: +27 21 689 1287

Russia - Российская Федерация:
МЧС России - Центральный офис: 109012 Г.МОСКВА, ТЕАТРАЛЬНЫЙ ПР.,3 -
Телефон: (495) 449-99-99 или 122 (мобильный телефон) - Сайт: http://www.mchs.gov.ru
Исследования и прикладной токсикологии Центра (RATC) Федерального медико-биологического агентства, 3 Большая Сухаревская площадь, Блок 7, Москва 129090 -
Телефон экстренной связи: +7 495 628 16 87 (только на русском)

Slovenská republika:
Národné toxikologické informačné centrum SR :
24 – hodinová konzultačná služba pri akútnych intoxikáciách: +421 2 5477 4166
Univerzitná Nemocnica Bratislava, Limbová 5, 833 05 Bratislava - e-mail: ntic@ntic.sk
Tel: +421 2 5465 2307, Fax.: +421 2 5477 4605, Mobil: +421 911 166 066,

Sweden - SVERIGE
Svenska Giftinformationscentralen, Karolinska sjukhuset, SE-171 76 Stockholm - Telefonnummer för nödsituationer: +46 8 33 12 31 (International) 112 (Nationella)

Turkey - Türkiye
Toksikoloji Anabilim Dalı ve Zehir Merkezi, Refik Saydam Hıfzıssıhha Merkez Araştırma Enstitüsü
Cemal Gürsel Cad yok. 18, Sıhhiye, Ankara 06100 - Acil telefon numarası: 0 800 314 7900 (Türkiye), veya +90 0312 433 70 01 - Faks: +90 0312 433 70 00

United Kingdom:
The UK National Poisons Emergency number is 0870 600 6266

ROUTE OF EXPOSURE			
EYES	**SKIN**	**HANDS**	**INHALATION**
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled, cast, hydraulic bonded products, cold conditions.			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled, cast, hydraulic bonded products, hot conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled, gunned, hydraulic bonded products, cold conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled, gunned, hydraulic bonded products, hot conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled chemical bonded gunning mixes, cold installation			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled chemical bonded gunning mixes, hot installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Labelled hydraulic bonded products, cold installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	ISO6942	407 - 2122	EN 141:2000
DEDICATED USAGE: Labelled hydraulic bonded products, hot installation			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	ISO6529-463	3121 - 1994	Local rules
DEDICATED USAGE: Phosphate bonded products			
Face shield	Clothes	Gloves	Mask
166 rev, **F**4KN2	ISO17491-3	3121 - 1994	Local rules
DEDICATED USAGE: Sodium silicate bonded products			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	EN 141:2000
DEDICATED USAGE: Labelled dry mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled dry mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	Local rules
DEDICATED USAGE: Non labelled plastics or ramming mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Resin bonded products, cold installation.			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	ISO6942	407 - 2122	EN 141:2000
DEDICATED USAGE: Resin bonded products, hot installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, **S**4KN2	340 rev	388 - 3111	Local rules
DEDICATED USAGE: Non labelled cement, patched, sprayed or trowelled products			

CALDERYS table for Standard Use prescriptors

	Standard Use by Refractory producer	DEFINITION	Comments and explanations	CALDERYS examples	Standard Use by Refractory user	Definition, Comments or Examples
Sector of use						
SU a	**SU10**	*Companies mixing and blending chemicals (formulators) to produce preparations (mixtures).*	Monolithics producers.		**SU3**	*Industrial end-users*
SU b	**SU13**	*Manufacture of other non-metallic mineral products, e.g. plasters, cement*	Monolithics producers.		**SU13**	*Use of refractory products at e.g. cement, glass or lime industy*
SU c					**SU14**	*Use of refractory products at e.g. metal industy*
SU d					**SU 0-1**	*Other activity related to manufacturing of chemical products*
NACE	**C23.2**	*Manufacturing of refractory products*	Monolithics producers.			
Chemical Product category						
PC a	**PC 10**	*Building and construction preparations not covered elsewhere*	Monolithics producers.		**PC 10**	*Building and construction preparations not covered elsewhere.*
Process categories						
PROC a	**PROC 1**	*Use in closed process, no likelihood of exposure*	Use of the substances in high integrity contained system where little potential exists for exposures	Plant but mainly linked to research and control labs.	**PROC 1**	*General terms of use at refractories. Producers and Users.*
PROC b	**PROC 2**	*Use in closed, continuous process with occasional controlled exposure (e.g. sampling)*	Continuous process not specifically aimed at minimizing emissions It is not high integrity and occasional expose will arise.	Plant but mainly linked to research and control labs.	**PROC 2**	*General terms of use at refractories. Producers and Users.*
PROC c	**PROC 3**	*Use in closed batch process (synthesis or formulation)*	Batch manufacture of a chemical or formulation where the predominant handling is in a contained manner, but where some opportunity for contact occurs.	Plant but mainly linked to research and control labs.	**PROC 3**	*General terms of use at refractories. Producers and Users.*
PROC d	**PROC 4**	*Use in batch and other process (synthesis) where*	Use in batch manufacture of a chemical where	Plant but mainly linked to research and control labs.	**PROC 4**	*General terms of use at refractories. Producers and Users.*

		opportunity for exposure arises	significant opportunity for exposure arises, and when the nature of the design is likely to result in exposure.				
PROC e	**PROC 5**	*Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)*	Manufacture or formulation of chemical products or articles using technologies related to mixing and blending of solid or liquid materials, and where the process is in stages and provides the opportunity for significant contact at any stage.	Mixing minerals and/or binders.		**PROC 5**	Mixing minerals and/or binders at users's site.
PROC g	**PROC 8a**	*Transfer of substance or preparation (charging/discharging from/to vessels/large containers at non-dedicated facilities*	Sampling, loading, filling, transfer, dumping, bagging in nondedicated facilities. Exposure related to dust, vapour, aerosols or spillage, and cleaning of equipment to be expected.	Transport of material at refractory producer, pumping castables at customer		**PROC 8a**	Transport of material by pumping castables at customers' site.
PROC h	**PROC 9**	*Transfer of substance or preparation into small containers (dedicated filling line, including weighing)*	Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage	Sacking castables o. mortar at refractory producer			
PROC i	**PROC 13**	*Treatment of articles by dipping and pouring*	Treatment of articles by dipping, pouring, immersing, soaking, washing out or washing in substances; including cold formation or **resin type matrix**.	E.g. Tap-Hole clays		**PROC 13**	E.g. Tap-Hole clays
PROC j	**PROC 14**	*Production of preparations or articles by tabletting, compression, extrusion, pelletisation*	Extrusion!	E.g. Tap-Hole clays, plastics.			
PROC k	**PROC 19**	*Hand-mixing with intimate contact and only PPE available.*	Addresses occupations where intimate and intentional contact with substances occurs without any specific exposure controls other than PPE.	Producer handling material (e.g. chemical bonded mortar), e.g. during control.		**PROC 19**	Customer using material (e.g. chemical bonded mortar) at site.

PROC l	**PROC 21**	*Low energy manipulation of substances in form of massive metal or bound in other materials and/or articles.*	Manual cutting, cold rolling or assembly / disassembly of material/article, possibly resulting in the release of fibres, rubber fumes, metal fumes or dust	SR fibres or aluminium powder handling. Demolition of precast pieces.		**PROC 21**	Use and demolition of refractory material at customers' sites.
PROC m	**PROC 22**	*Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting.*	Activities at furnaces, Exposure related to dust and fumes to be expected. Emission from direct cooling may be relevant.	E.g. Heating precast pieces.		**PROC 22**	Firing refractory material, at customers' sites.
PROC n	**PROC 23**	*Open processing and transfer operations with minerals/metals at elevated temperature.*	Exposure related to dust and fumes to be expected.	E.g. Heating precast pieces.		**PROC 23**	Firing refractory material, at customers' sites.
PROC o	**PROC 24**	*High (mechanical) energy work-up of massive metals or substances bound in materials and/or articles.*	Substantial thermal or kinetic energy applied to substance by mechanical cutting or drilling. Exposure is predominantly expected to be to dust.	Plant but mainly linked to research and control labs.		**PROC 24**	Use and demolition of refractory material at customers' sites.
PROC p	**PROC 26**	*Handling of solid inorganic substances at ambient temperature (no corresponding TRA entry).*	Transfer and handling of ores, concentrates, raw metal oxides and scrap; packaging, un-packaging, mixing/blending and weighing of metal powders or other minerals;	Standard monolithics process.		**PROC 26**	Handling castables at customers' sites.
Environmental Release Categories							
ERC a	**ERC 2**	*Formulation of preparations (not included into matrix).*	Mixing and blending of substances into preparations in all types of formulating industries.	E.g. castables formulation.		**ERC 1**	Mixing of raw materials, castables, mortars at customers' sites.
ERC b	**ERC 3**	*Formulation of preparations (inclusion into/onto matrix).*	Mixing or blending of substances, which will be physically or chemically bound into or onto a matrix (material) such as plastics.	E.g. Plastics formulation, mortars …		**ERC 2**	Mixing of raw materials, castables, mortars at customers' sites.
ERC d	**ERC 5**	*Industrial use resulting in inclusion into or onto a matrix.*	Industrial use of substances as such or in preparations (non-processing aids), which will be physically or chemically bound into or onto a matrix (material) such as binding. The	E.g. use of reclaims such as MgO/C bricks, or Al_2O_3/C/SiC products.		**ERC 5**	Handling scraps at customers' sites.

			category covers substances in articles with a particular function and also substances remaining in the article after having been used as processing aid in an earlier life cycle stage.				
ERC e						**ERC 10a**	*Wide dispersive outdoor use of long-life articles and materials with low release. Low release of substances included into or onto articles and materials during their service life.*
ERC f						**ERC 11a**	*Wide dispersive indoor use of long-life articles and materials with low release. Low release of substances included into or onto articles and materials during their service life.*
Article categories for articles with no intended release							
AC a	**AC 12-1**	*Constructional articles and building material: insulating material (without indoor flooring).*				**AC 12-1**	
AC b	**AC 12-2**	*Constructional articles and building material: wall construction material ceramic*				**AC 12-2**	*For consumers*
TARIC 3801	Artificial graphite; colloidal or semi-colloidal graphite; preparations based on graphite or other carbon in the form of pastes, blocks, plates or other semi-manufactures						
TARIC 3816	Refractory cements, mortars, concretes and similar compositions, other than products of heading 3801						
TARIC 6901	Bricks, blocks, tiles and other ceramic goods of siliceous fossil meals (for example, kieselguhr, tripolite or diatomite) or of similar siliceous earths						
TARIC 6902	Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than those of siliceous fossil meals or similar siliceous earths						

1. Short title of exposure scenario 1
Workplace exposure to sodium silicate solutions: Manufacture of the substance as well as industrial uses.
Sector of use (SU): Descriptive purpose only, not relevant for exposure assessment.
SU3: Industrial uses: Uses of substances as such or in preparations* at industrial sites 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 SU0: Others: Laboratories (all scales)
Product category (PC): Descriptive purpose only, not relevant for exposure assessment.
PC7: Base metals and alloys PC21: Laboratory chemicals
Process category (PROC)
PROC1: Use in closed, continuous process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact. PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available PROC22: Potentially closed processing operations with minerals/metals at elevated temperature (Industrial settings) PROC23: Open processing and transfer operations with minerals/metals at elevated temperature PROC25: Other hot work operations with metals PROC26: Handling of solid inorganic substances at ambient temperature
Article category (AC): Not relevant for exposure assessment, not intended for release.
AC4: Stone, plaster, cement, glass and ceramic articles AC01: Paving blocks, slabs, bricks, moulded glass, ceramic, refractory cements, mortars and concretes, etc.
Environmental release category (ERC): Not relevant for exposure assessment, not classified as dangerous for the environment
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: Industrial use resulting in inclusion into or onto a matrix ERC6A: Industrial use resulting in manufacture of another substance (use of intermediates) ERC6B: Industrial use of reactive processing aids 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

ERC8F: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9A: Wide dispersive indoor use of substances in closed systems ERC10A: Wide dispersive outdoor use of long life articles and materials with low release ERC11A: Wide dispersive indoor use of long life articles and materials with low release.

3. Operational conditions for which the exposure scenario ensures control of risk
3. 1 Operational conditions related with substance/ product
Physical form of product in which the substance is contained: Liquid % solution (vapour pressure 0.00016 kPa % 1172 °C)
Concentration of substance in preparation or article: Covers percentage substance in the product up to 100 %
Duration of exposure at workplace: > 4 hours/day - Except for PROCs 7 and 11: Avoid operations for more than 1 hour
Frequency of exposure at workplace: Covers frequency up to: daily use, weekly, monthly and yearly.
Annual amount used: Unlimited
3.3 Other relevant operational conditions: Indoor and outdoor operations.
4. RMMs that, in combination with the operational conditions of use, ensure control of risk.
4.1 RMMs related to workers.
General: Whenever handling sodium silicate as a substance on its own (powder/ granules or liquid) or in a mixture outside closed systems, suitable personal protective equipment are the preferred and only measure of control. Definition of PPE will depend on the use and concentration.
Organisational measures: Procedural and/or control technologies are required to minimise emissions and the resulting exposure during cleaning and maintenance procedures or if there is a risk of the occupational exposure limit being exceeded.
Technical measures: PROC 7, 11: Provide enhanced general ventilation by mechanical means if respiratory protection is not available.
Respiratory protection: Wear a respirator conforming to EN140 with Type A/P2 filter or better. Specifically required for PROC 7, 11.
Hand protection: Wear suitable gloves (tested to EN374).
Eye protection: Wearing of eye/face protection is required. Chemical goggles should be consistent with EN 166 or equivalent.
Skin and body protection: Wearing of suitable protective clothing is required.
Hygiene measures:

Good basic standards of occupational hygiene assumed to be implemented: Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work. Keep work clothes separate. Take off immediately all contaminated clothing. Wash thoroughly after open handling of the product.
4.2 Environment related measures; type and efficiency of single options or combination of options on exposure to be quantified; options to be phrased as instructive guidance
Not required, as soluble silicates, including sodium silicate, 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.

5. Prediction of exposure resulting from the conditions described above and the substance properties.
Workers (oral): Negligible oral exposure due to good hygiene practice
Workers (dermal): DNEL (dermal, worker): 1.59 mg/ bw kg/day Estimated Exposure Concentrations: 0 mg/cm2 Dermal exposure is prevented by personal protective equipment (protective clothing, gloves, goggles) which is mandatory because of potential corrosive properties of sodium silicate.
Workers (inhalation): DNEL (inhalation, worker): 5.61 mg/ m3 Calculated with ECETOC TRA Spraying operation with PPE – 25% solutions: 3.7 mg/m3 Spraying operation with PPE – > 25% solutions – < 1hr: 4.9 mg/m3
Environment: Not required
6. Guidance to check compliance with the Exposure Scenario
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in this exposure scenario are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.