

SAFETY DATA SHEET

CALDE® TAP OPTI 21 ZEN

Version: 23
Revision: 0
MGT00057

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® TAP OPTI 21 ZEN

1.1.1. Modification of Safety Data Sheet

Creation Date 02/02/2017 (DD/MM/YY)

Revision Date: 12/08/2021

1.1.2. SDS (Safety Data Sheet) status:

Revision

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

1.2.1. Relevant identified uses:

Uses of the product according to the ECHA (European Chemical Agency) - Guidance R.12 Use descriptor system - version 3.0
LCS: F; SU13, SU0 (NACE: C23.2), PC0 (UCN: K35900); PROC 1; 2; 3; 4; 5; 8a; 9; 13; 14; 19; 21; 22; 23; 24; 26+ERC 2; 3; 5
Unshaped refractory material
Plastic mass for injection in Blast Furnace.
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:

Not to be used in oxidizing conditions

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

1.3.1. Supplier:

EUROPEAN UNION

Calderys
43, quai de Grenelle
F-75015 Paris - France
Phone: +33 (0)1 71 76 98 82

1.3.5. E-mail:

<https://customernet.calderys.com>
For any precision about the content of this MSDS, please refer to the point 1.3.6.

1.3.6. National contact's name:

SDS.information@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):

08.00h - 12.00h / 14.00h - 18.00h (local time)

SECTION 2: Hazards identification

2.1 Classification of the substance or the mixture:

2.1.0. Substances linked to the Classification of the product

Formaldehyd - (CAS Nr. 50-00-0)
4-Nonylphenol, branched. - (CAS Nr. 84852-15-3)

2.1.1. Classification according to Regulation:

(EC) No 1272/2008 [CLP/GHS]
Aquatic Chronic 3 - Aquatic Chronic hazard category 3; H412: Harmful to aquatic life with long lasting effects.
EUH208 (317) Contains Formaldehyde . May cause an allergic skin reaction.

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:

The above classification does not require any pictogram, nor any signal word.

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

(EC) No 1272/2008 [CLP/GHS]
None

2.2.8. Labelling according to the Regulation:

(EC) No 1272/2008 [CLP/GHS]
Safety warning : EUH208
Aquatic Chronic 3; H412

2.2.9. GHS, Precautionary statement phrases (P)

2.2.9.1. GHS, Precautionary statements — Prevention

P260: Do not breathe fumes and vapours.
P273: Avoid release to the environment.
P280: Wear protective gloves, protective clothing and eye protection.

2.2.9.2. GHS, Precautionary statements — Response

P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

2.2.9.4. GHS, Precautionary statements — Disposal

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

2.3. Other hazards:

Presence of a substance classified as CMR but below the European specific limits, see the SECTION 16.

2.3.1. SVHC (Substance of Very High Concern):

Contains a substance placed in the ECHA candidate list (Annex XIV) : Formaldehyd (CAS: 50-00-0)

Contains a substance classified as CMR but not placed in the ECHA candidate list (Annex XIV) : Phenol (CAS Nr.108-95-2)

2.3.2. CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

Presence of a substance classified as CMR (Carcinogenic) : Formaldehyde. CAS Nr. 50-00-0.

Presence of a substance classified as CMR (Germ cell mutagenicity) : Formaldehyde. CAS Nr. 50-00-0.

Presence of a substance classified as CMR (Germ cell mutagenicity) : Phenol. CAS Nr. 108-95-2.

Presence of a substance classified as CMR (Reproductive toxicity) : 4-Nonylphenol, branched. CAS Nr. 84252-15-3.

2.3.3. PBT : Persistent, Bioaccumulative and Toxic

Unknown at that date.

2.3.4. vPvB: very Persistent very Bioaccumulative

Unknown at that date.

2.3.5. POP: Persistent Organic Pollutant

Unknown at that date.

2.3.6. Formation of air contaminants during hardening or processing:

Decomposition of a phenolic resin during heating.

2.3.7. Dust explosion hazard (VDI 2263):

No.

SECTION 3: Composition / Information on ingredients

3.2.1. Non hazardous components

Component	CAS N° / EC N°	Weight %
Alpha-quartz - REACH: Substance exempted in accordance with Annex V.7	CAS : 14808-60-7 Einecs : 238-878-4	>=25 <50
Siliceous clay (quartz) - REACH: Substance exempted in accordance with Annex V.7	CAS : NO CAS Nr. Einecs :	>=10 <25
Coke (petroleum), calcined - Nr. REACH: Exempted (Annex V)	CAS : 64743-05-1 Einecs : 265-210-9	>=2.5 <10
Silicon carbide - REACH Nr. 01-2119402892-42	CAS : 409-21-2 Einecs : 206-991-8	>=2.5 <10
Bauxite calcined - REACH: Substance exempted in accordance with Annex V.7	CAS : 92797-42-7 Einecs : 296-578-9	>=2.5 <10
Graphite - REACH Nr. 01-2119486977-12	CAS : 7782-42-5 Einecs : 231-955-3	>=2.5 <10

3.2.2. Hazardous components

Component	CAS N° / EC N°	Weight %
Ethane-1,2-diol - Nr. REACH. 01-2119456816-28	CAS : 107-21-1	>=2.5 <10
Acute Tox.4; H302	Einecs : 203-473-3	
Hydrocarbons, C10-C13, aromatics, <1% naphthalene - Nr. REACH. 01-2119457017-41	CAS : 1174522-16-7	>=1 <2.5
Asp.Tox 1; H304 - Aquatic Chronic 3; H412 - EUH066	Einecs : 922-153-0	
Phenol - Nr. REACH. 01-2119471329-32		
Acute Tox.3; H301 - Acute Tox.3; H311 - Acute Tox.3; H331 - Muta.2; H341 - Skin Corr.1B; H314 - Eye Dam.1; H318 - STOT RE2; H373 - Aquatic Chronic 2; H411	CAS : 108-95-2 Einecs : 203-632-7	>=0.5 <1
4-Nonylphenol, branched. - Nr. REACH. 01-2119510715-45	CAS : 84852-15-3	>=0.1 <0.25
Skin Corr.1B; H314 - Repr.2; H361fd - Aquatic Acute 1; H400 - Aquatic Chronic 1; H410 - Acute Tox.4; H302	Einecs : 284-325-5	
Formaldehyd - Nr. REACH. 01-2119488953-20		
Acute Tox.3; H331 - Acute Tox.3; H311 - Acute Tox.3; H301 - Carc.1B; H350 - Muta 2; H341 - Skin Corr.1B; H314 - Skin Sens.1; H317	CAS : 50-00-0 Einecs : 200-001-8	<0.1

SECTION 4: First aid measures

4.1. Description of first aid measures

4.1.1. Eyes:

Because of the physical form of the product, eye contact is considered an unlikely hazard.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Non relevant, this product is handled with its packaging.

4.1.2. Skin:

Non relevant, this product is handled with its packaging.

Take off immediately all contaminated clothing.

If skin irritation or rash occurs: Get medical advice/attention.

4.1.3. Ingestion:

Due to the physical form of the product, ingestion is considered an unlikely route of entry.

Non relevant, this product is handled with its packaging.

If swallowed, seek medical advice immediately and show this container or label.

4.1.4. Inhalation:

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 and delayed.

May cause sensitisation by skin contact.

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

Non relevant, this product is handled with its packaging.
Contains Formaldehyde . May produce an allergic reaction.

SECTION 5: Fire-fighting measures

5.0. General Information:

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

5.1. Extinguishing media

5.1.1. Suitable fire-fighting methods :

In the event of fire, use carbon dioxide foam type fire extinguishers, never use water.
In the event of larger fires, use carbon dioxide foam type fire extinguishers.

5.1.2. Unsuitable extinguishing media:

Never use water.

5.2. Special hazards arising from the substance or mixture

In standard storage conditions, non-combustible, non-explosive and non-flammable.
May cause sensitisation by skin contact.
May cause an allergic skin reaction.

5.2.1. Hazardous decomposition products

Polycyclic Aromatic Hydrocarbons (PAHs)
CO, CO₂
Phenol

5.3.1. Personal precautions:

Personal precautions : see Section 8.
Fire fighter clothing according to European standard EN469.

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.

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

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.

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

Non relevant.

6.3.1. - (b) capping procedures.

Non relevant.

6.3.2. - (a) neutralisation techniques;

Non relevant.

6.3.2. - (b) decontamination techniques;

Non relevant.

6.3.2. - (c) adsorbent materials;

Non relevant.

6.3.2. - (d) cleaning techniques;

Remove spilt material with brush and shovel.
Sweep spilled substance; eliminate waste water in accordance with regulation

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).

Collect the spillage in closable, corrosion resistant, suitable disposal containers.

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

7.1.1.- (a) Measures to prevent fire:

Non relevant.

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

It is recommended to arrange all work procedures in such a way that the following points are excluded: Dust formation - Dust deposits -
Inhalation of dusts / particles.

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.

7.2.1. Technical measures and storage conditions:

Keep only in the original container at a temperature not exceeding 40°C.
Stacking height: up to 2 pallets maximum.

7.2.2. Recommended packing:

Plastic shrink or cling film.
Wooden pallet with shrink film.
Extruded block wrapped in plastic shrinkfilm
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.
Keep only in the original container in a cool, well-ventilated place

7.2.4. Storage class (national):

Non relevant.

7.2.5. Further information on storage conditions:

Keep only in the original container at a temperature not exceeding 40°C.

7.3. Specific end uses:

Non relevant.

7.3.1. Recommendations:

Stacking height: up to 2 pallets maximum.

SECTION 8: Exposure controls/personal protection

8.0. General Information:

Technical measures and the application of appropriate working methods take precedence over the use of personal protective equipment.

8.1. Control parameters

Substance	CAS N° / EC N°	L.T.E - 8 hr TWA mg/m3
Alpha-quartz - REACH: Substance exempted in accordance with Annex V.7	CAS : 14808-60-7 Einecs : 238-878-4	0.1
Siliceous clay (quartz) - REACH: Substance exempted in accordance with Annex V.7	CAS : NO CAS Nr. Einecs :	0.15
Coke (petroleum), calcined - Nr. REACH: Exempted (Annex V)	CAS : 64743-05-1 Einecs : 265-210-9	No data
Silicon carbide - REACH Nr. 01-2119402892-42	CAS : 409-21-2 Einecs : 206-991-8	1.5
Ethane-1,2-diol - Nr. REACH. 01-2119456816-28 Acute Tox.4; H302	CAS : 107-21-1 Einecs : 203-473-3	10
Bauxite calcined - REACH: Substance exempted in accordance with Annex V.7	CAS : 92797-42-7 Einecs : 296-578-9	No data
Graphite - REACH Nr. 01-2119486977-12	CAS : 7782-42-5 Einecs : 231-955-3	1.5
Hydrocarbons, C10-C13, aromatics, <1% naphthalene - Nr. REACH. 01-2119457017-41 Asp.Tox 1; H304 - Aquatic Chronic 3; H412 - EUH066	CAS : 1174522-16-7 Einecs : 922-153-0	1
Phenol - Nr. REACH. 01-2119471329-32 Acute Tox.3; H301 - Acute Tox.3; H311 - Acute Tox.3; H331 - Muta.2; H341 - Skin Corr.1B; H314 - Eye Dam.1; H318 - STOT RE2; H373 - Aquatic Chronic 2; H411	CAS : 108-95-2 Einecs : 203-632-7	4
4-Nonylphenol, branched. - Nr. REACH. 01-2119510715-45 Skin Corr.1B; H314 - Repr.2; H361fd - Aquatic Acute 1; H400 - Aquatic Chronic 1; H410 - Acute Tox.4; H302	CAS : 84852-15-3 Einecs : 284-325-5	No data
Formaldehyd - Nr. REACH. 01-2119488953-20 Acute Tox.3; H331 - Acute Tox.3; H311 - Acute Tox.3; H301 - Carc.1B; H350 - Muta 2; H341 - Skin Corr.1B; H314 - Skin Sens.1; H317	CAS : 50-00-0 Einecs : 200-001-8	0.15

8.2. Exposure Controls:

The chart above mentions 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/>
The product is delivered as wet, so is not relevant to respirable dust.
Contains some substances without any approved Occupational Exposure values

8.2.0. DNEL (Derived no effect level)

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

8.2.0.1. Substance:

Ethane-1,2-diol - CAS Nr.107-21-1 - Einecs Nr.203-473-3 - AAA - ROEX; DERM = 106 - AAA - ROEX; INH = 35
Formaldehyde - CAS Nr.50-00-0 - Einecs Nr.200-001-8: AAA-ROEX; DERM = 37µg/cm2 - AAA-ROEX; INH = 375µg/m3 - CCC-ROEX; INH = 750µg/cm3
4-Nonylphenol, branched. - CAS Nr.84852-15-3 - Einecs Nr.284-325-5: AAA-ROEX; DERM = 7.5mg/Kg bw/day - CCC-ROEX; DERM = 15mg/Kg bw/day - AAA-ROEX; INH = 500µg/m3 - CCC-ROEX; INH = 1µg/cm3
Hydrocarbons, C10-C13, aromatics, < 1% naphthalene - CAS Nr.1174522-16-7 - Einecs Nr. 922-153-0: AAA-ROEX; DERM = 12.5mg/Kg bw/day - AAA-ROEX; INH = 151 mg/m3

8.2.1. Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined workplace exposure limit is not exceeded.

8.2.2.1. Good occupational hygiene practices

For details about the following HS personal devices, please see the annex dedicated to. (Section .17)

8.2.2.2. (a) Eye/face protection

Safety glasses
Wear safety glasses with lateral protection (166 rev. S4KN2)



8.2.2.2. (b) Skin protection

Standard industrial clothing is suitable for installations at ambient temperatures (ISO 6942)



8.2.2.2. (c) Hands:

Wear leather security gloves (EN 388-2003).
The product is handled with its packaging, no needs for special security gloves.



8.2.2.2. (d) Respiratory protection

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



8.2.2.2. (e) Thermal hazards (> 100°C)

The product is injected in an hot airtight vessel, inhalation is not more hazardous.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Plastic mixture of aggregates and fine powders
Color:	Black
Odour:	Typical phenolic resin odour: Weak
Packing Density (g/cm³) :	Non relevant.
Vapour density:	Unknown at that date.
pH:	Unable to determine: Plastic mixture of aggregates and fine powders
Segregation:	Non relevant.
Boiling point:	Unknown at that date.
Flash point:	Unknown at that date.
Inflammability:	Unknown at that date.
Explosive properties:	No.
Combustive properties:	No.
Solubility solvent:	< 5%
Partition coefficient n-octanol/water:	Unknown at that date.
Viscosity:	Non relevant.
Hydrosolubility:	Lower than 2,5%

9.2. Other informations:

All non relevant data are linked to the nature of our products - mineral mixtures.

SECTION 10: Stability and reactivity

10.1. Reactivity

Yes, during first heating of the product

10.2. Chemical stability

Chemically stable refractory product

10.3. Possibility of hazardous reactions

Chemically stable refractory product
Non relevant, this product is handled with its packaging.

10.4. Conditions to avoid

Chemically stable refractory product
Non relevant, this product is handled with its packaging.

10.5. Incompatible materials

Chemically stable refractory product

10.6. Hazardous decomposition products

Polycyclic Aromatic Hydrocarbons (PAHs)
CO, CO₂
Phenol

SECTION 11: Toxicological information

Substance	CAS N° / EC N°
Ethane-1,2-diol - Nr. REACH. 01-2119456816-28 Acute Tox.4; H302	CAS : 107-21-1 Einecs : 203-473-3
Hydrocarbons, C10-C13, aromatics, <1% naphthalene - Nr. REACH. 01-2119457017-41 Asp.Tox 1; H304 - Aquatic Chronic 3; H412 - EUH066	CAS : 1174522-16-7 Einecs : 922-153-0
Phenol - Nr. REACH. 01-2119471329-32 Acute Tox.3; H301 - Acute Tox.3; H311 - Acute Tox.3; H331 - Muta.2; H341 - Skin Corr.1B; H314 - Eye Dam.1; H318 - STOT RE2; H373 - Aquatic Chronic 2; H411	CAS : 108-95-2 Einecs : 203-632-7
4-Nonylphenol, branched. - Nr. REACH. 01-2119510715-45	CAS : 84852-15-3

Skin Corr.1B; H314 - Repr.2; H361fd - Aquatic Acute 1; H400 - Aquatic Chronic 1; H410 - Acute Tox.4; H302	Einecs :	284-325-5
Formaldehyd - Nr. REACH. 01-2119488953-20	CAS :	50-00-0
Acute Tox.3; H331 - Acute Tox.3; H311 - Acute Tox.3; H301 - Carc.1B; H350 - Muta 2; H341 - Skin Corr.1B; H314 - Skin Sens.1; H317	Einecs :	200-001-8

11.1.1. Substances.

Non relevant.

11.1.2. Mixtures.

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

11.1.2.1. - (a) acute toxicity:

Non relevant.

11.1.2.1. - (b) skin corrosion/irritation:

Non relevant.

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

Non relevant.

11.1.2.1. - (d) respiratory or skin sensitisation:

Contains Formaldehyde . May cause an allergic skin reaction.

11.1.2.1. - (e) germ cell mutagenicity:

Non relevant.

11.1.2.1. - (f) carcinogenicity:

Non relevant.

11.1.2.1. - (g) reproductive toxicity:

Non relevant.

11.1.2.1. - (h) STOT-single exposure:

Non relevant.

11.1.2.1. - (i) STOT - repeated exposure:

Non relevant.

11.1.2.1. - (j) aspiration hazard:

Non relevant.

11.1.2.2.1. GHS: Germ cell mutagenicity - Carcinogenicity - Reproductive toxicity

Non relevant.

11.1.2.3. Other health effects of the mixture.

The mixture wasn't tested as whole, read the information given for the substances used.

11.1.4.1. LD50: Lethal Dose, 50%.

Unknown at that date.

11.1.4.2. LC50: Lethal Concentration, 50%.

Unknown at that date.

SECTION 12: Ecological information

12.1. Toxicity

The following points are theoretical conclusions:

12.1.1. Air:

Unknown at that date.

12.1.2. Water:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Harmful to aquatic life with long lasting effects.

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

Acronyms used in the following sentences.
TTA EC50 = Toxicity to algae EC50
TOFWF LC 50 = Toxicity on fish [Freshwater] LC50 (96 h)

12.1.2.1 Substance:

Ethane-1 ,2-diol - CAS Nr.107-21-1 - Einecs Nr.203-473-3 - TTA EC 50 [> 100 mg/l; 48 h - Water flea: Daphnia Magna] - TOFWF LC 50 = [freshwater fish: Pimephales promelas : 72 860 mg/l; 96 h]

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

12.1.2.3. Substance:

Ethane-1 ,2-diol - CAS Nr.107-21-1 - Einecs Nr.203-473-3 - PNEC FW : 10 mg/l - PNEC SW : 1 mg/l - PNEC WIR = 10 mg/l - PNEC SD = 37mg/Kg (freshwater) / 3.7mg/Kg (marine water)
Formaldehyde - CAS Nr.50-00-0 - Einecs Nr.200-001-8 - PNEC FW : 440 µg/l - PNEC SW : 440 mg/l - PNEC WIR (freshwater) = 4.44 mg/l - PNEC SD = 2.3mg/Kg (freshwater) / 2.3mg/Kg (marine water)
4-Nonylphenol, branched. - CAS Nr.84852-15-3 - Einecs Nr.284-325-5: PNEC FW : 644 ng/L - PNEC SW : 548 ng/L - PNEC WIR (freshwater) = 170 ng/L - PNEC SD = 4.62mg/Kg (freshwater) / 1.23mg/Kg (marine water)
Phenol - CAS Nr.108-95-2 - Einecs Nr.203-632-7 - PNEC FW : 7.7 µg/L - PNEC SW : 770 ng/L - PNEC WIR (freshwater) = 31 µg/L - PNEC SD = 91.5 µg/Kg (freshwater) / 9.15 µg/Kg (marine water)

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:

Unknown at that date.

12.2. Persistence and degradability

Unknown at that date.

12.3. Bioaccumulative potential

Unknown at that date.

12.4. Mobility in soil

Unknown at that date.

12.5. Results of PBT and vPvB assessment

Unknown at that date.

12.6. Other adverse effects

Unknown at that date.

SECTION 13: Disposal considerations

13.1. WASTE TREATMENT METHODS

There is no waste after using the product.
Burn in a chemical incinerator equipped with an afterburner and scrubber.
Please consult local regulations and statutory European Union provisions
Do not flush into drains or surface water

13.1.1. DISPOSAL OPERATIONS

There is no waste after using the product.
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

R 5 Recycling/reclamation of other inorganic materials.

13.1.3. PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS

There is no waste after using the product.
H 13 (Sensitizing): substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced.
H 14 (Ecotoxic): waste which presents or may present immediate or delayed risks for one or more sectors of the environment.

13.2. POTENTIAL DANGER FROM THE WASTE:

There is no waste after using the product.
Harmful to aquatic life with long lasting effects.

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

Waste code according to EWC/AVV: 060316
10 02 : Wastes from the iron and steel industry
10 02 06 : Spent linings and refractories
10 04 : Wastes from lead thermal metallurgy
10 04 08 : Spent linings and refractories
10 05 : Wastes from zinc thermal metallurgy
10 05 07 : Spent linings and refractories
10 06 : Wastes from copper thermal metallurgy
10 06 08 : Spent linings and refractories
10 08 : Wastes from other non-ferrous thermal metallurgy
10 08 07 : 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

15.1.2. 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.

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

Contains a substance placed in the ECHA candidate list (Annex XIV) : 4-Nonylphenol, branched (CAS Nr. 84852-15-3)

Contains a substance placed in the ECHA candidate list (Annex XIV) : Formaldehyd (CAS: 50-00-0)

Contains a substance classified as CMR but not placed in the ECHA candidate list (Annex XIV) : Phenol (CAS Nr.108-95-2)

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.

Unknown at that date.

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

This product does not meet the criteria for classification in that protocol: Mixture of inert minerals.

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

No Chemical Safety Assessment has been completed for this product

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)

15.3.1. Diseases caused by the following chemical agents:

124 Formaldehyde

128.01 Phenols or counterparts or halogenated derivatives thereof

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

Contains: Formaldehyde ; CAS Nr. 50-00-0 - Carcinogenic 5.2.7.1.1

Contains: 4-Nonylphenol, branched.; CAS Nr. 84852-15-3 / EINECS 284-325-5 - Reproduction Toxic Substances 5.2.7.1.3

Contains: Phenol ; CAS Nr. 108-95-2 - Mutagenic Substances 5.2.7.1.2

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 2: significantly hazardous to water (self-classification)

15.5.- (h) Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal - UNEP

This Convention is applied in the points 13.1.1, 13.1.2. and 13.1.3.

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]

The classification given below requires no hazard symbol.

16.1.2. Labelling according to the Regulation:

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

Aquatic Chronic 3; H412

EUH208 (317) Contains Formaldehyde . May cause an allergic skin reaction.

16.1.3. Classification according to Regulation:

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

Aquatic Chronic 3 - Aquatic Chronic hazard category 3; H412: Harmful to aquatic life with long lasting effects.

Safety warning : EUH208

16.1.4. Signal word:

No signal word

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

H412: Harmful to aquatic life with long lasting effects.

EUH208: Contains Formaldehyde . May produce an allergic reaction.

16.1.6. GHS Hazard statement phrases (H, EUH), linked to the product's retained substances, even if not relevant for the final classification:

H301: Toxic if swallowed.

H302: Harmful if swallowed.

H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage.

H317: Contains Formaldehyde . May cause an allergic skin reaction.

H331: Toxic if inhaled.

H341: Suspected of causing genetic defects.

H350: May cause cancer.

H361fd : Suspected of damaging fertility. Suspected of damaging the unborn child.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

16.2. GHS Precautionary statement phrases (P)

P260: Do not breathe fumes and vapours.

P273: Avoid release to the environment.

P280: Wear protective gloves, protective clothing and eye protection.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

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

16.3. Hazardous substances present, below GHS classification limits:

Ethane-1,2-diol - (CAS Nr. 107-21-1)

Hydrocarbons, C10-C13, aromatics, < 1% naphthalene - (CAS Nr. 1174522-16-7)

Phenol - (CAS Nr. 108-95-2)

16.4. GHS/CLP Hazard statement phrases (H - EUH): (linked to the substances cited in the point 16.3)

H301: Toxic if swallowed.

H302: Harmful if swallowed.

H304: May be fatal if swallowed and enters airways.

H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

H331: Toxic if inhaled.

H341: Suspected of causing genetic defects in contact with skin.

H341: Suspected of causing genetic defects if inhaled.

H341: Suspected of causing genetic defects if swallowed.

H373: May cause damage to organs through prolonged or repeated exposure in contact with skin.

H373: May cause damage to lungs through prolonged or repeated exposure if inhaled.

H373: May cause damage to organs through prolonged or repeated exposure if swallowed.

H412: Harmful to aquatic life with long lasting effects.

EUH066: Repeated exposure may cause skin dryness or cracking.

16.6. Other informations :

This safety data sheet (SDS) has been compiled according to Directive 453/2010/CE

The limits shown are from annex VI of the GHS as of 07/10/2012

16.7. Local contact for your country:

SDS.information@calderys.com

SDS status :

Modifier

Modification Date : 12/08/2021

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: 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 Tottleben 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 Toxicología, c/Luis Cabrera, 9 – 28002 Madrid, Tel: +34 915 62 04 20
Unitat de Toxicologia Clínica, 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 - ΕΛΛΑΔΑ, Αθήνα Αθηνών:

Νοσοκομείο Παιδών "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 Antiveneni, Dipartimento di Tossicologia Clinica, Università 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 București - Tel: +401 6 34 38 90 135 – Fax: +401 3 21 02 60
Departamentul de Toxicologie Clinică, Spitalul de Urgenta Floreasca, Calea Floreasca, București
De telefon de urgență: +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, Rondebosch, 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 Сухареvская 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 Hıfızısıhha 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, S4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled, cast, hydraulic bonded products, cold conditions.			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled, cast, hydraulic bonded products, hot conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled, gunned, hydraulic bonded products, cold conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled, gunned, hydraulic bonded products, hot conditions.			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled chemical bonded gunning mixes, cold installation			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	ISO6942	407 - 2122	FFP3
DEDICATED USAGE: Non labelled chemical bonded gunning mixes, hot installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Labelled hydraulic bonded products, cold installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	ISO6942	407 - 2122	EN 141:2000
DEDICATED USAGE: Labelled hydraulic bonded products, hot installation			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	ISO6529-463	3121 - 1994	Local rules
DEDICATED USAGE: Phosphate bonded products			
Face shield	Clothes	Gloves	Mask
166 rev, F4KN2	ISO17491-3	3121 - 1994	Local rules
DEDICATED USAGE: Sodium silicate bonded products			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	340 rev	388 - 3111	EN 141:2000
DEDICATED USAGE: Labelled dry mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	340 rev	388 - 3111	FFP3
DEDICATED USAGE: Non labelled dry mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	340 rev	388 - 3111	Local rules
DEDICATED USAGE: Non labelled plastics or ramming mixes			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	340 rev	388 - 3111	FFP3

DEDICATED USAGE: Resin bonded products, cold installation.			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	ISO6942	407 - 2122	EN 141:2000
DEDICATED USAGE: Resin bonded products, hot installation			
Glasses with lateral protection	Clothes	Gloves	Mask
166 rev, S4KN2	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	<i>Companies mixing and blending chemicals (formulators) to produce preparations (mixtures).</i>	Monolithics producers.		SU3	<i>Industrial end-users</i>
SU b	SU13	<i>Manufacture of other non-metallic mineral products, e.g. plasters, cement</i>	Monolithics producers.		SU13	<i>Use of refractory products at e.g. cement, glass or lime industry</i>
SU c					SU14	<i>Use of refractory products at e.g. metal industry</i>
SU d					SU 0-1	<i>Other activity related to manufacturing of chemical products</i>
NACE	C23.2	<i>Manufacturing of refractory products</i>	Monolithics producers.			
Chemical Product category						
PC a	PC 10	<i>Building and construction preparations not covered elsewhere</i>	Monolithics producers.		PC 10	<i>Building and construction preparations not covered elsewhere.</i>
Process categories						
PROC a	PROC 1	<i>Use in closed process, no likelihood of exposure</i>	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	<i>General terms of use at refractories. Producers and Users.</i>
PROC b	PROC 2	<i>Use in closed, continuous process with occasional controlled exposure (e.g. sampling)</i>	Continuous process not specifically aimed at minimizing emissions. It is not high integrity and occasional exposure will arise.	Plant but mainly linked to research and control labs.	PROC 2	<i>General terms of use at refractories. Producers and Users.</i>
PROC c	PROC 3	<i>Use in closed batch process (synthesis or formulation)</i>	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	<i>General terms of use at refractories. Producers and Users.</i>
PROC d	PROC 4	<i>Use in batch and other process (synthesis) where opportunity for exposure arises</i>	Use in batch manufacture of a chemical where significant opportunity for exposure arises, and when the nature of the design is likely to result in exposure.	Plant but mainly linked to research and control labs.	PROC 4	<i>General terms of use at refractories. Producers and Users.</i>
PROC e	PROC 5	<i>Mixing or blending in batch processes for formulation of preparations and articles (multistage)</i>	Manufacture or formulation of chemical products or articles using technologies related	Mixing minerals and/or binders.	PROC 5	<i>Mixing minerals and/or binders at users's site.</i>

		and/or significant contact)	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.			
PROC g	PROC 8a	<i>Transfer of substance or preparation (charging/discharging from/to vessels/large containers at non-dedicated facilities</i>	Sampling, loading, filling, transfer, dumping, bagging in non-dedicated 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	<i>Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</i>	Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage	Sacking castables or mortar at refractory producer		
PROC i	PROC 13	<i>Treatment of articles by dipping and pouring</i>	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	<i>Production of preparations or articles by tableting, compression, extrusion, pelletisation</i>	Extrusion!	E.g. Tap-Hole clays, plastics.		
PROC k	PROC 19	<i>Hand-mixing with intimate contact and only PPE available.</i>	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	<i>Low energy manipulation of substances in form of massive metal or bound in other materials and/or articles.</i>	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	<i>Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting.</i>	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	<i>Open processing and transfer operations with minerals/metals at elevated temperature.</i>	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	<i>High (mechanical) energy work-up of massive metals or substances bound in materials and/or articles.</i>	Substantial thermal or kinetic energy applied to substance by mechanical cutting or drilling. Exposure is predominantly	Plant but mainly linked to research and control labs.	PROC 24	Use and demolition of refractory material at customers' sites.

			expected to be to dust.			
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 category covers substances in articles with a particular function and <u>also substances remaining in the article after having been used as processing aid in an earlier life cycle stage.</u>	E.g. use of reclaims such as MgO/C bricks, or Al ₂ O ₃ /C/SiC products.	ERC 5	Handling scraps at customers' sites.
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