91/155/EEC and "Dangerous Substances and Preparation Related to Informatıon Security Regulation an Preparation of Forms and Distributions" (26.12.2008-27092 possible, place) was prepared in accordance.

ÇİMENTO
CEMENT

Form No: SDS-05 **Revision No: 00**
Issue Date:06.09.2019 **Revision Date: -**

1. Identification of the substance/mixture and of the company/undertaking

a. Product identifier

Trade Name	Cement a mixture of portland clinker, limestone and gypsum from the manufacture of cement clinker
Product Name	CEM I 52,5 N CEM I 42,5 R CEM I 42,5 R- SR 5 CEM I 42,5 N - SR 5 CEM II/A-LL 42,5 R CEM II/ B-LL 32,5 N
Other Names	None
Chemical Name	Cement, portland, chemicals, limestone, Portland cement
Index Number as listed in Annex VI CLP	Not included in Annex VI of Regulation 1272/2008 (CLP)
CAS No	65997-15-1 for Portland Cement Clinker 1317-65-3 for Limestone 13397-24-5 for Gypsum
EC No	266-043-4 for Portland Cement Clinker 1317-65-3 for Limestone 603-783-2 for Gypsum
REACH Registration Number	Cement is a preparation under reach and is not subject to registration. Cement clinker is exempt from registration(Art.2,7 (b) and Annex V.10 of reach)

b. Relevant identified uses of the substance or mixture and uses advised against

USE(S):

Cement are used in industrial installations to manufacture formulate hyrdraulic binders for building and construction work, such as ready-mixed concrete, mortars, renders, grouts, plasters as well as precast concrete.

Common cements and cement containing mixes (hyraulic binders) are used industrially, by professionals as well as by consumers in building and construction work, indoor and outdoor. The identified uses of cements and cement containing mixes cover the dry products in a wet suspension (paste).

PROC (uses)	Identified uses- Use description	Manufacture/formulatıon of building materials	Professional / industrial use building materials
2	Use in closed, continuous processes with occasional, controlled exposure	X	X
3	Use in closed batch processes	X	X
5	Mixing or blending in batch processes to from preparations and articles	X	X
7	İndustrial spraying		X
8a	Transfer of substance or preparation from/to vessels/large containers at non decicated facilities		X
8b	Transfer of substance or prepartion from to vesses/large continers at non decicated facilities	X	X
9	Transfer of substance or preparation into small containers	X	X
10	Roller application or brushing		X
11	Non industrial spraying		X

13	Treatment of articles by dipping and pouring		X
14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation	X	X
19	Hand mixing with indimate contact and only PPE available	X	X
22	Potentially closed processing operations with minerals metals at elevated temperature in industrial setting		
26	Handling of solid inorganic substances at ambient temperature	X	X

Uses advised aganist: Unknown

c. Details of the Supplier of the Safety Data Sheet

Manufacture, Importer, supplier	Name: MEDCEM CEMENT PLANT Adress: Bağalanı Mevkii Akdere SİLİFKE / MERSİN TÜRKİYE Tel: 0324 744 40 00
Responsible Person fort the SDS	Caner YILMAZ Email: caner.yilmaz@medcem.com.tr

d. Emergency Telephone

Emergency telephone number	Tel: 0324 744 40 00
Unique number for emergencies	112 EMERGENCY FIRST AID CENTER 114 POSION CENTER 110 FIRE

2. Hazards identification

a. Classification of the substance or mixture

Classification according to Regulation 1272/2008 (CLP)		
Hazard statements	H318	Causes serious eye damage
	H315	Causes skin irritation
	H317	May cause an allergic skin reaction
	H335	May cause respiratory irritation
Classification according to Directive 67/548 (DSD)		
Risk phrases	Xi	Irritant
	R37/38	Irritating to respiratory system and skin
	R41	Risk of serious damage to eyes
	R43	May cause sensitisation by skin contact

Cement dust may cause irritation of the respiratory system.

When cement reacts with water, for instance when making concrete or mortar, or when the cement becomes damp, a strong alkaline solution is produced. Due to the high alkalinity, wet cement may provoke skin and eye irritation.

It may also cause an allergic reaction in some individuals due to the soluble Cr(VI) content.

b. Label Elements

Labelling in accordance With regulation 1272/2008 (CLP)

Pictogram (s) GHS05 – Corrosive GHS07 – Attention		
Hazard statements	H318	Causes serious eye damage
	H315	Causes skin irritation
	H317	May cause an allergic skin reaction
	H335	May cause respiratory irritation
Precautionary statements	P102	Keep out of reach of children
	P280	Wear protective gloves/protective clothing/eye protection/face protection
	P305+P351+P338+P310	If in eyes: Rinse cautiously with water for several minutes Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a doctor/physician or a poison center.
	P302+P352+P333+P313	If on skin: Wash thoroughly with soap and water. If skin irritation or a rash occurs, Get medical advice/attention.
	P261+P304+P340+P312	Avoid breathing dust/fume/gas/mist/vapours/spray. If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/ physician or a poison center if you feel unwell.
	P501	Dispose of packaging according to statutory requirements

Labelling according to directive 1999/45/EC

Pictogram(s) Xi- Irritanat		
Risk Phrases	R37/38	Irritating to respiratory system and skin
	R41	Risk of serious damage to eyes
	R43	May cause sensitisation by skin contact
Safety Advice	S2	Keep out of reach of children
	S22	Do not breathe dust
	S24/25	Avoid contact with skin and eyes
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
	S46	If swallowed, seek medical advice immediately and show this container or label

c. Other hazards

PBT/ vPvB	Cement does not meet the criteria for PBT /persistent, bioaccumulative toxins/ or vPvB /very persistent and very bioaccumulative/ according to Annex XIII of REACH (Regulation (EC) No.1907/2006)

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3. Composition / information on ingredients

Composition – main components;

	Cement Composition According to EN 197-1			
Cement Type	**Designation**	**Conc. Range (W/W in cement)**		
		Clinker	**Limestone**	**Minor Constituents**
CEM I 52,5 N	**Portland**	**%95-100**	**-**	**%5-0**
CEM I 42,5 R	**Portland**	**%95-100**	**-**	**%5-0**
CEM I 42,5 R- SR 5	**Sulfate Resistance Portland**	**%95-100**	**-**	**%5-0**
CEM I 42,5 N- SR 5	**Sulfate Resistance Portland**	**%95-100**	**-**	**%5-0**
CEM II/A-LL 42,5 R	**Portland Limestone**	**%94-80**	**% 6-20**	**%5-0**
CEM II/B-LL 32,5 N	**Portland Limestone**	**%79-65**	**% 21-35**	**%5-0**

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Substance	Composition (% w/w)	Registration number	EINECS No.	CAS No.	Classification under 67/548/EEC		Classification under Regulation 1272/2008	
					Symbol [C&L]	R	Hazard-class, category	Hazard statement
Portland cement clinker	65-100 %	Cement clinker is not subject to registration	266-043-4	65997-15-1	Xi	R37 R38 R41 R43	STOT SE 3 Specific target organ toxicity Skin irritation 2 Serious eye damage/ eye irritation 1 Skin sensitisation 1	H335: May cause respiratory irritation H315: Causes skin irritation H318: Causes serious eye damage H317: May cause an allergic skin reaction
Limestone	35-0%		215-279-6	1317-65-3	Xİ	R37 R38 R41 R43	STOT SE 3 Specific target organ toxicity Skin irritation 2 Serious eye damage/ eye irritation 1 Skin sensitisation 1	H335: May cause respiratory irritation H315: Causes skin irritation H318: Causes serious eye damage H317: May cause an allergic skin reaction

Substance	Composition (% w/w)	Registration number	EINECS No.	CAS No.	Classification under 67/548/EEC		Classification under Regulation 1272/2008	
					Symbol [C&L]	R	Hazard-class, category	Hazard statement
Gypsum	0 / 5%		603-783-2	13397-24-5	-	-	-	

4. First aid measures

a. **Description of first aid measures:** No personal protective equipment is needed for victim and first aid responders. The latter should avoid contact with wet cement or wet cement containing preparations.

Following contact with eyes:	Do not rub eyes in order to avoid possible cornea damage as a result of mechanical stress. Remove contact lenses if any. Incline head to injured eye, open the eyelid(s) widely and flush eye(s)immediately by thoroug ly rinsing with plenty of clean water for at least 20 minutes to remove all particles. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.
Following skin contact:	For dry cement, remove and rinse abundantly with water. For wet cement, wash skin with plenty of water. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.
Following ingestion	Do not induce vomiting. If the person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact the anti poison centre.
Following inhalation:	Move the person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops or if discomfort, coughing or other symptoms persist.

b. Most important symptoms and effects, both acute and delayed

Acute reactions	**Eyes:** Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries. **Inhalation***:* Repeated inhalation of dust of Portland cement clinker over a long period of time increases the risk of developing lung diseases. **Skin**: Cement may have an irritating effect on moist skin (due to sweat or humidity) after prolonged contact or may cause contact dermatitis after repeated contact. Prolonged skin contact with wet cement or wet concrete may cause serious burns because they develop without pain being felt (for example when kneeling in wet concrete even when wearing trousers). *For more details see Reference (1).* **Environment:** Under normal use, common cement is not hazardous to the environment
Delayed reactions	**Eyes***:* Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries. **Eyes***:* Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries. **Skin***:* Cement may have an irritating effect on moist skin (due to sweat or humidity) after prolonged contact or may cause contact dermatitis after repeated contact. Prolonged skin contact with wet cement or wet concrete may cause serious burns because they develop without pain being felt (for example when kneeling in wet concrete even when wearing trousers). For more details see Reference (1). **Environment***:* Under normal use, common cement is not hazardous to the environment

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

When contacting a physician, take this SDS with you.

5. **Fire-Fighting Measures**

a. **Extinguishing media;** Common cements are not flammable.

b. **Special hazards arising from the substance or mixture;** Cements are non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials

c. **Advice for fire-fighters;** Cement poses no fire-related hazards. No need for special protective equipment for fire fighters. Special protective equipment – not required. Special precautions – not required

6. **Accidental Release Measures**

a. **Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel; Wear protective equipment as described under Section 8 and follow the advice for safe handling and use given under Section 7.

For emergency responders; Emergency procedures are not required. However, respiratory protection is needed in situations with high dust levels.

b. **Environmental precautions**

Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).

c. **Methods and material for containment and cleaning up**

Collect the spillage in a dry state if possible**.**

Dry cement

Use cleanup methods such as vacuum clean-up or vacuum extraction (Industrial portable units, equipped with high efficiency air filters (EPA and HEPA filters, EN 1822-1:2009) or equivalent technique) which do not cause airborne dispersion. Never use compressed air. Alternatively, wipe-up the dust by mopping, wet brushing or by using water sprays or hoses (fine mist to avoid that the dust becomes airborne) and remove slurry. If not possible, remove by slurrying with water (see wet cement). When wet cleaning or vacuum cleaning is not possible and only dry cleaning with brushes can be done, ensure that the workers wear the appropriate personal protective equipment and prevent dust from spreading. Avoid inhalation of cement and contact with skin. Place spilled materials into a container. Solidify before disposal as described under Section 13**.**

Wet cement

Clean up wet cement and place in a container. Allow material to dry and solidify before disposal as described under Section 13.

d. Reference to other sections
See sections 8 anda 13 for more details**.**

7. Handling and Storage

a. Precautions for safe handling

Technical protective measures:

Follow the recommendations as given under Section 8.

To clean up dry cement, see Subsection 6.c.

Measures to prevent fire; Not applicable.

Measures to prevent aerosol and dust generation; Do not sweep. Use dry cleanup methods such as vacuum clean-up or vacuum extraction, which do not cause airborne dispersion.

Measure to protect the environment; No particular measures**.**

General (occupational hygiene):

Do not handle or store near food and beverages or smoking materials. In dusty environment, wear dust mask and protective goggles. Use protective gloves to avoid skin contact.

b. Conditions for safe storage, including any incompatibilities

Storage conditions; Bulk cement should be stored in silos that are waterproof, dry (i.e. with internal condensation minimised), clean and protected from contamination.

Engulfment hazard: Cement can build-up or adhere to the walls of a confined space and later release, collapse or fall unexpectedly. To prevent engulfment or suffocation, do not enter a confined space, such as a silo, bin, bulk truck, or other storage container or vessel that stores or contains cement without taking the proper security measures.

Packed products should be stored in unopened bags clear of the ground in cool, dry conditions and protected from excessive draught in order to avoid degradation of quality. Bags should be stacked in a stable manner.

Incompatible substances/mixtures; Do not use aluminium containers due to incompatibility of the materials.

c. Specific end use(s); No additional information for the specific end uses (see section 1.b).

8. Exposure controls/personal protection

a. Control parameters

Legal grounds: Regulation No 13 for protection of workers against risks related to exposure to chemical agents at work.

Limit values of professional exposure	DNEL, inhalation /8 hours/	3 mg/m3
	DNEL, dermal	inapplicable
	DNEL, oral	inapplicable
	PNEC /predicted no-effect concentration/ for water	inapplicable
	PNEC for sediment	inapplicable
	PNEC for soil	inapplicable

b. Exposure control

Appropriate engineering control: Measures to prevent generation and spreading of dust, for example suitable ventilation systems and cleaning methods, which do not stir up dust.

Exposure scenario (ES)	PROC *	Exposure	Localized Control	Efficiency
Industrial manufacturing/ formulation of hydraulic binding agents and building materials	2, 3 14, 26 5, 8b, 9	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	not required A) not required or B) generic local exhaust ventilation A/generic ventilation or B) generic local exhaust ventilation	- - 78% 17% 78%
Industrial use of dry hydraulic binding agents and building materials (indoor, outdoor)	2 14, 22, 26 5, 8b, 9	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	not required A) not required or B) generic local exhaust ventilation A/generic ventilation or B) generic local exhaust ventilation	- - 78% 17% 78%

Industrial use of wet suspensions of building materials	7 2, 5, 8b, 9, 10, 13, 14	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	A/ not required or B) generic local exhaust ventilation not required	- 78% -
Professional use of dry buildng materials (indoor, outdoor)	2 9,26 5,8a,8b,14	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	Not required A / not required or B) generic local exhaust ventilation A/ not required or B) integrated local exhaust ventilation Local ventilation is inaplicated. The process takes place only outdoors or in well- ven tilated rooms.	- - 72 % - 87 % 50%
Professional use of wet suspensions of building materials	11 2, 5,8a, 8b,9,10, 13, 14, 19	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	A/ not required or B) generic local exhaust ventilation Not required	- 72 % -
PROC refers to Uses – see section 1.b				

Individual protection measures and personal protective equipment

Respiratory protection: Use adequate respirator masks when exposure limit values are exceeded. These protection means must comply with the requirements applicable to the level of dust pollution as defined in the respective European standard EN (e.g. EN 149, EN 140, EN 14387, EN 1827) or a corresponding national standard. Thermal hazards - Inapplicable.

Exposure scenario	**PROC***	**Exposure**	**Specification of respiratory protective equipment (RPE)**	**RPE efficiency – assigned protection factor (APF)**
Industrial manufacturing/ formulation of hydraulic binding agents and building materials	2, 3 14, 26 5, 8b, 9	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	Not required A/ Mask P1 (FF, FM) or B/ Not required A/Mask P2 (FF, FM) or B/ Mask P1 (FF, FM)	- APF=4 - APF=10 APF=4
Industrial use of dry hydraulic binding agents and building materials (indoor, outdoor)	2 14, 22, 26 5, 8b, 9	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	Not required A/ Mask P1 (FF, FM) or B/ Not requiredo A/ Mask P2(FF,FM) or B/ Mask P1 (FF, FM)	- APF=4 - APF=10 APF=4
Industrial use of wet suspensions of building materials	7 2, 5, 8b, 9, 10, 13, 14	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	A/ Mask P1 (FF, FM) or B/ Not required Not required	APF=4 - -
Professional use of dry building materials (indoor, outdoor)	2 9, 26 5, 8a, 8b, 14 19	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	Mask P1 (FF, FM) A/ Mask P2(FF,FM) or B/ Mask P1 (FF, FM) A/ Mask P3(FF,FM) or B/ Mask P1 (FF, FM) Mask P2(FF,FM)	APF=4 APF=10 APF=4 APF=20 APF=4 APF=10
Professional use of wet suspensions of building materials	11 2, 5,8a, 8b,9,10, 13, 14, 19	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	A/ Mask P2(FF,FM) or B/ Mask P1 (FF, FM) Not required	APF=10 APF=4 -

*PROC refers to Uses – see Section 1.b

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Hands protection:	Use waterproof, abrasion and alkali resistant gloves (made of low soluble Cr (VI) containing material) internally lined with cotton, boots, closed long-sleeved protective clothing as well as skin care products (including barrier creams) to protect the skin from prolonged contact with wet cement. Particular care should be taken to ensure that wet cement does not enter the boots. In some circumstances, such as when laying concrete or screed, waterproof trousers or kneepads are necessary.
Eyes/face protection:	Wear approved glasses or safety goggles according to EN 166 when handling dry or wet cement to prevent contact with eyes
Skin protection:	Use waterproof, abrasion and alkali resistant gloves (made of low soluble Cr (VI) containing material) internally lined with cotton, boots, closed long-sleeved protective clothing as well as skin care products (including barrier creams) to protect the skin from prolonged contact with wet cement. Particular care should be taken to ensure that wet cement does not enter the boots. In some circumstances, such as when laying concrete or screed, waterproof trousers or kneepads are necessary.
Occupational hygiene measures:	During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn. Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth. Before starting to work with cement, apply a barrier creme and reapply it at regular intervals. Immediately after working with cement or cement containing materials, workers should wash or shower or use skin moisturisers. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using.

Environmental exposure controls:

Environmental exposure control for the emission of cement particles into air has to be in accordance with the available technology and regulations for the emission of general dust particles.

Environmental exposure control is relevant for the aquatic environment as emissions of cement in the different life-cycle stages (production and use) mainly apply to ground and waste water. The aquatic effect and risk assessment cover the effect on organisms/ecosystems due to possible pH changes related to hydroxide discharges. The toxicity of other dissolved inorganic ions is expected to

be negligible compared to the potential pH effect. Any effects that might occur during production and use would be expected to take place on a local scale. The pH of effluent and surface water should not exceed 9. Otherwise it could have an impact on municipal sewage treatment plants (STPs) and industrial waste water treatment plants (WWTPs). For that assessment of the exposure, a stepwise approach is recommended:

Tier 1: Retrieve information on effluent pH and the contribution of the cement on the resulting pH. Should the pH be above 9 and be predominantly attributable to cement, then further actions are required to demonstrate safe use.

Tier 2: Retrieve information on receiving water pH after the discharge point. The pH of the receiving water shall not exceed the value of 9.

Tier 3: Measure the pH in the receiving water after the discharge point. If pH is below 9, safe use is reasonably demonstrated. If pH is found to be above 9, risk management measures have to be implemented: the effluent has to undergo neutralisation, thus ensuring safe use of cement during production or use phase.

No special emission control measures are necessary for the exposure to the terrestrial environment.

9. Physical and Chemical Properties

a. Informatıon on basic physical and chemical properties This information applies to the whole mixture.

Appearance	Dry cement is a finely ground solid inorganic material (grey powder). Main particle size: 5-30 µm.
Odour	Odourless Odour threshold: none.
pH: (T = 20°C in water, water-solid ratio 1:2)	11 - 13.5
Melting point	> 1250 °C
Boiling point	under normal atmospheric conditions, boiling point >1 250°C
Flash point	Not applicable as is not a liquid
Evaporation rate	Not applicable as is not a liquid
Flammability (solid, gas)	Not applicable as is a solid which is non combustible and does not cause or contribute to fire through friction
Upper/lower flammability or explosive limits	Not applicable as is not a flammable gas
Vapour pressure	Not applicable as melting point > 1250 °C
Vapour density	Not applicable as melting point > 1250 °C
Relative density	2.75-3.20; Apparent density: 0.9 -1.5 g/cm³
Solubility(ies) in water (T = 20 °C)	slight (0.1-1.5 g/l)
Partition coefficient: n-octanol/water	Not applicable as is inorganic mixture
Auto-ignition temperature	Not applicable (no pyrophoricity – no organo-metallic, organo-metalloid or organo-phosphine bindings or of their derivatives, and no other pyrophoric constituent in the composition)
Decomposition temperature	Not applicable as no organic peroxide present
Viscosity	Not applicable as no organic peroxide present
Oxidising properties	Not applicable as does not cause or contribute to the combustion of other materials.
Explosive properties	Not applicable. Not explosive or pyrotechnic. Not in itself capable by chemical reaction of producing gas at such temperature and pressure and at such a speed as to cause damage to the surroundings. Not capable of a self-sustaining exothermic chemical reaction.

b. Other information; not applicable

10. Stability and Reactivity

a. Reactivity; When mixed with water, cements will harden into a stable mass that is not reactive in normal environments

b. Chemical stability; Dry cements are stable as long as they are properly stored (see Section 7) and compatible with most other building materials. They should be kept dry. Contact with incompatible materials should be avoided Wet cement is alkaline and incompatible with acids, with ammonium salts, with aluminium or other non-noble metals. Cement dissolves in hydrofluoric acid to produce corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates in cement react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, managanese trifluoride, and oxygen difluoride

c. Possibility of hazardous reactions; Cements do not cause hazardous reactions

d. Conditions to avoid; Humid conditions during storage may cause lump formation and loss of product quality

e. Incompatible materials; Acids, ammonium salts, aluminium or other non-noble metals. Uncontrolled use of aluminium powder in wet cement should be avoided as hydrogen is produced.

f. Hazardous decomposition products; Cements will not decompose into any hazardous products.

11. Toxicological information

a. Information on toxicological effects

Hazard Class	Cat	Effect	Reference
Acute toxicity - dermal	-	Limit test, rabbit, 2,000 mg/kg body weight – no lethality. Tests made with Portland cement containing more than 90% Portland cement clinker. Based on available data, the classification criteria are not met	(2)
Acute toxicity - inhalation	-	No acute toxicity by inhalation observed.Based on available data, the classification criteria are not met	(8)
Acute toxicity - oral	-	No indication of oral toxicity from studies with cement kiln dust. Kiln dust contains varying quantities of Portland cement clinker. Based on available data, the classification criteria are not met.	Literature survey
Skin corrosion/ irritation	2	Dry cement in contact with wet skin may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion may cause severe burns. Tests made with Portland cement containing more than 90% Portland cement clinker.	(2) Human experience
Serious eye damage/ irritation	1	Portland cement clinker caused a mixed picture of corneal effects and the calculated irritation index was 128. Direct contact with cement may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.	(9), (10)
Skin sensitisation	1	Some individuals may develop eczema upon exposure to wet cement dust, caused either by the high pH which induces irritant contact dermatitis after prolonged contact, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis.	(3), (11)
Respiratory sensitisation	-	There is no indication of sensitisation of the respiratory system. Based on available data, the classification criteria are not met.	(1)
Germ cell mutagenicity	-	No indication. Based on available data, the classification criteria are not met	(12), (13)
Carcinogenicity		No causal association has been established between Portland cement exposure and cancer. The epidemiological literature does not support the designation of Portland cement as a suspected human carcinogen. Portland cement is not classifiable as a human carcinogen (According to ACGIH A4: Agents that cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity that are sufficient to classify the agent with one of the other notations.). Portland cement contains over 90% clinker. Based on available data, the classification criteria are not met.	(1) (14)

Reproductive toxicity	-	Based on available data, the classification criteria are not met	No evidence from human experience
STOT /specific target organ toxicity/ -single exposure	3	Cement dust may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits.Overall, the pattern of evidence clearly indicates that occupational exposure to cement dust has produced deficits in respiratory function. However, evidence available at the present time is insufficient to establish with any confidence the dose-response relationship for these effects.	(1)
STOT / specific target organ toxicity/ - repeated exposure	-	There is an indication of COPD /chronic obstructive pulmonary disease/. The effects are acute and due to high exposures. No chronic effects or effects at low concentration have been observed. Based on available data, the classification criteria are not met.	(15)
Aspiration hazard	-	Not applicable as cements are not used as an aerosol.	

Portland cement clinker and common cements have the same toxicological and eco-toxicological properties**.**

Medical conditions aggravated by exposure

Inhaling cement dust may aggravate existing respiratory system disease(s) and/or medical conditions such as emphysema or asthma and/or existing skin and/or eye conditions.

12. Ecological information

a. Toxicity

The product is not hazardous to the environment. Ecotoxicological tests with Portland cement on Daphnia magna (water flea species) [Reference (4)] and Selenastrum coli (species of algae) [Reference (5)] have shown little toxicological impact. Therefore LC50 and EC50 values could not be determined [Reference (7)]. There is no indication of sediment phase toxicity [Reference (8)]. The addition of large amounts of cement to water may, however, cause a rise in pH and may, therefore, be toxic to aquatic life under certain circumstances

b. Persistence and degradability

Not relevant as cement is an inorganic material. After hardening, cement presents no toxicity risks

c. Bioaccumulative potentia

Not relevant as cement is an inorganic material. After hardening, cement presents no toxicity risks

d. Mobility in soil

Not relevant as cement is an inorganic material. After hardening, cement presents no toxicity risks

e. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No 1907/2006 – REACH cement is neither persistent, bioaccumulative toxin (PBT), nor very persistent and very bioaccumulative (vPvB).

f. Other adverse effects

Not relevant.

13. Disposal considerations

a. Waste treatment methods

Do not dispose of into sewage systems or surface waters.

Product – cement that has exceeded its shelf life ;(and when demonstrated that it contains more than 0.0002% soluble Cr (VI)): shall not be used/sold other than for use in controlled closed and totally automated processes or should be recycled or disposed of according to local legislation or treated again with a reducing agent.

Product - unused residue or dry spillage; Pick up dry unused residue or dry spillage as is. Mark the containers. Possibly reuse depending upon shelf life considerations and the requirement to avoid dust exposure. In case of disposal, harden with water and dispose according to "Product – after addition of water, hardened".

Product – slurries; Allow to harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams) and dispose of as explained below under "Product - after addition of water, hardened".

Product - after addition of water, hardened; Dispose of according to the local legislation. Avoid entry into the sewage water system. Dispose of the hardened product as concrete waste. Due to the inertisation, concrete **waste** is not a dangerous waste.

Packaging; Completely empty the packaging and process it according to local legislation.

EWC entry; 15 01 01 (waste paper and cardboard packaging).

14. Transport information

Cement is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID), therefore no classification is required. No special precautions are needed apart from those mentioned under Section 8.

a. **UN number;** Not relevant
b. UN proper shipping name; Not relevant
c. Transport hazard class(es); Not relevant
d. Packing group; Not relevant
e. Environmental hazards; Not relevant
f. Special precautions for user; Not relevant
g. **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code;** Not relevant

15. Regulatory information

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

Cement is a mixture according to REACH and is not subject to registration. Cement clinker is exempt from registration (Art 2.7 (b) and Annex V.10 of REACH). Kiln dust from manufacture of cement clinker is registered under REACH and the exposure scenario is detailed in an Annex to this SDS.

By way of derogation, paragraphs 1 and 2 shall not apply to the placing on the market for, and use in, controlled closed and totally automated processes in which cement and cement-containing mixtures are handled solely by machines and in which there is no possibility of contact with the skin.

b. Chemical Safety Assessment

No chemical safety assessment has been carried out.

16. Other Information

Classification according to Regulation 1272/2008 (CLP)

Hazard statements	H318 H315 H317 H335	Causes serious eye damage Causes skin irritation May cause an allergic skin reaction May cause respiratory irritation
Precautionary statements	P102 P280 P305+P351+P338+P310 P302+P352+P333+P313 P261+P304+P340+P312 P501	Keep out of reach of children Wear protective gloves/protective clothing/eye protection/face protection If in eyes: Rinse cautiously with water for several minutes Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a doctor/physician or a poison center. If on skin: Wash thoroughly with soap and water. If skin irritation or a rash occurs, Get medical advice/attention. Avoid breathing dust/fume/gas/mist/vapours/spray. If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/ physician or a poison center if you feel unwell Dispose of packaging according to statutory requirements.

Classification according to Directive 67/548 (DSD)

Risk phrases	Xi	Irritant
	R37/38	Irritating to respiratory system and skin
	R41	Risk of serious damage to eyes
	R43	May cause sensitisation by skin contact
Safety advice	S2	Keep out of reach of children
	S22	Do not breathe dust
	S24/25	Avoid contact with skin and eyes
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
	S46	If swallowed, seek medical advice immediately and show this container or label

Indication of changes; This Safety Data Sheet is completely in compliance with Annex I of Regulation (EO) 453/20.05.2010 r., introducing a new format and requirements to preparation of SDS (Annex II of REACH).

Key data sources for this SDS:

Regulation № 13/ 30.12.2003 on workers' protection from risks associated with exposure to chemical agents at work;

Company instructions, reports, protocols.

Legal fremework; Law of protection from the harmful impact of chemical substances and mixtures Ordinance on clasification, labelling and packaging of chemical substances and mixtures;

Regulation (EO) 1907/2006 (REACH)

Regulation (EO) №1272/2008 (CLP)

Regulation (EO) 453/20.05.2010 containing basic SDS requirementsegal

Abbreviations and acronyms;

ADR/RID - European Agreements on the transport of Dangerous goods by Road/Railway

APF - Assigned protection factor

CAS - Chemical Abstracts Service

CLP - Classification, labelling and packaging – Regulation EC 1272/2008

COPD - Chronic Obstructive Pulmonary Disease

DNEL - Derived no-effect level

EC50 - Half maximal effective concentration

ECHA - European Chemical Agency

EINECS - European INventory of Existing Commercial chemical Substances

EPA - Type of high efficiency air filter

ES - Exposure Scenario

EWC - European Waste Catalogue

FF P - Filtering facepiece against particles (disposable)

FM P - Filtering mask against particles with filter cartridge

GefStoffV – Gefahrstoffverordnung

HEPA - Type of high efficiency air filter

H&S - Health & Safety

IATA - International Air Transport Association

IMDG - International agreement on the Maritime transport of Dangerous Goods

MEASE - Metals estimation and assessment of substance exposure, EBRC Consulting GmbH for Eurometaux /European metals association/

MS - Member state

OELV - Occupational exposure limit value

PBT - Persistent, bioaccumulative and toxic

PNEC - Predicted no-effect concentration

PROC - Process category

RE – Repeated exposure

REACH - Registration, Evaluation and Authorization of Chemicals

RPE - Respiratory protective equipment

SCOEL - Scientific Committee on Occupational Exposure Limit Values

SDS - Safety Data Sheet

SE - Single exposure

STOT - Specific target organ toxicity

TLV-TWA - Threshold Limit Value-Time-Weighted Average

TRGS - Technische Regeln für Gefahrstoffe

VLE-MP - Exposure limit value-weighted average in mg by cubic meter of air

vPvB - Very persistent, very bioaccumulative

w/w - Weight by weight

WWTP - Waste water treatment plant

The information on this data sheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user.

The user is responsible for determining appropriate safety measures and for applying the legislation covering his/her own activities

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