

SAFETY DATA SHEET

Prepared according to Regulation 1907/2006/EC (REACH) modified by Regulation 453/2010/EU and Commission regulation 878/2020/EU and ECHA Ver.4 GD on „SDS and Exposure Scenarios”

Common cements

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

1.1. Product identifier

Trade name:

Common cements

Types of product with Unique Formula Identification numbers (UFI)

- Portlandcement EN 197-1 CEM I 52,5 N (UFI: 5S10-Y05U-900A-XNYN)
- Portlandcement EN 197-1 CEM I 42,5 N (UFI: 5S10-Y05U-900A-XNYN)
- Portlandcement EN 197-1 CEM I 32,5 N-LH (UFI: 5S10-Y05U-900A-XNYN)
- Portlandcement EN 197-1 CEM I 52,5 N-SR 0 (UFI: 5S10-Y05U-900A-XNYN)
- Additional names: Low alkali content (DIN 1164-10) sulphate-proof (EN 197-1) Portland cement CEM I 52,5 N-SR 0/NA
- Limestone – Portlandcement EN 197-1 CEMII/A-LL 42,5 N (UFI: YK00-V0H9-000D-PVSN)
- Limestone – Portlandcement EN 197-1 CEMII/B-LL 42,5 N (UFI: YK00-V0H9-000D-PVSN)
- Slag - Portlandcement EN 197-1 CEM II/A-S 42,5 N (UFI: 4V10-F0V7-K00U-M0JS)
- Slag - Portlandcement EN 197-1 CEM II/B-S 42,5 N (UFI: 4V10-F0V7-K00U-M0JS)
- Portland composite cement EN 197-1 CEM II/A-M (V-LL) 42,5 N (UFI: HR20-H0S6-N00S-7EE4)
- Portland composite cement EN 197-1 CEM II/B-M (V-LL) 32,5 R (UFI: HR20-H0S6-N00S-7EE4)
- Portland composite cement EN 197-1 CEM II/B-M (V-LL) 32,5 N (UFI: HR20-H0S6-N00S-7EE4)
- Slag cement EN 197-1 CEM III/A 32,5 N (UFI: 4V10-F0V7-K00U-M0JS)
- Additional names: Moderately sulphate-proof slag cement MSZ 4737-1 CEM III/A 32,5 N-MSR
- Slag cement EN 197-1 CEM III/B 32,5 N-LH/SR (UFI: 4V10-F0V7-K00U-M0JS)

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

The cements are used as: construction works of industrial and residential buildings, other installations, engineering pieces; as hydraulic binding agent for the manufacturing/formulation of concretes (e.g. ready-mixed concrete, precast concrete, reinforced concrete), mortars (e.g. masonry mortar, plastering mortar, adhesive mortar) and other cementitious construction materials for indoor and outdoor, professional or consumer uses.

The identified uses of cements and cement containing mixtures cover the dry products and the products in a wet suspension (paste).

Process category	Identified use - description of use	Construction materials	
		Manufacturing /formulation	Professional /industrial use
2	Use in closed, continuous process with occasional controlled exposure	X	X
3	Use in closed batch process	X	X
5	Mixing or blending in batch processes for formulation of preparations and articles	X	X
7	Industrial spraying		X
8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities		X
8b	Transfer of substance or preparation (charging/discharging) from/to vessels/ large containers at dedicated 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 tableting, compression, extrusion, pelletisation	X	X
19	Hand-mixing with intimate contact and only PPE available		X

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22	Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting		X
26	Handling of solid inorganic substances at ambient temperature	X	X

1.3. Details of the supplier of the safety data sheet

Manufacturer: Duna-Dráva Cement Kft. Plant Vác
Address: H-2600 Vác, Kőhidpart dűlő 2.
Telephone: (0036) 27 511 600
Fax: (0036) 27 511 766
E-mail, internet: molnari@duna-drava.hu; www.duna-drava.hu

Manufacturer: Duna-Dráva Cement Kft. Plant Beremend
Address: H-7827 Beremend, Pf.:20.
Telephone: (0036) 72 574 500
Fax: (0036) 72 574 660
E-mail, internet: szucsh@duna-drava.hu; www.duna-drava.hu

1.4. Emergency telephone number:

Address: Public Toxicological Health Service (ETTSZ)
1096 Budapest, Nagyvárad tér 2.
Telephone: +36-80-201199 (free of charge, 0-24h), +36-1-4766464

In case of emergency you can call the supplier 8-16h.

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Classification of the product: mixture

According to Regulation (EC) No 1272/2008 (CLP)

Hazard class	Hazard category
Skin irritation	2
Serious eye damage/eye irritation	1
Specific target organ toxicity single exposure respiratory tract irritation	3

Hazard statements

H318 Causes serious eye damage
H315 Causes skin irritation
H335 May cause respiratory irritation

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2.2. Label elements

According to Regulation (EC) No 1272/2008 (CLP)



Danger

Hazard statements

H318 Causes serious eye damage
H315 Causes skin irritation
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 POISON CENTER or doctor/physician
P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or 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 POISON CENTER or doctor/physician if you feel unwell.
P501 Dispose of contents/container: according to the waste regulations

2.3. Other hazards:

If the wet cement, fresh concrete or mortar contacts with the skin, it may cause irritation, skin inflammation or burns. It may injure the products made of aluminum or other non-precious metals. The cement does not meet the PBT or vPvB criteria (Annex XIII of Regulation 1907/2006/EC). The product contains chromate reducing agent. As a result, the content of soluble chromium (VI) is less than 2 ppm. If the storage conditions are not appropriate or the storage period is exceeded, the effectiveness of the reducing agent can diminish, and the cement can become skin sensitizing (H317 or EUH203)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures:

Denomination according to EU directives	EC / EINECS/ CAS number	REACH reg. nr.	Concentration (%)	Classification according to CLP	Hazard class and category	H statements
Portland cement, clinker	- 266-043-4 65997-15-1	exception from reg.	45-100	Dgr 	Skin corrosion/skin irritation: cat. 2 Serious eye damage/irritation: Eye dam. 1 Skin sensitization: Skin sens. 1B Specific target organ toxicity (STOT)-single exposure STOT SE 3	H315 H317 H318 H335
iron-(II)-sulphate	231-753-5 231-753-5/ 7782-63-0	01- 211951320 3-57-xxxx	< 1	Dgr 	Acute Tox. cat. 4 Skin corrosion/skin irritation: cat. 2 Serious eye damage/eye irritation: cat. 2	H302 H315 H319
flue dust	270-659-9 68475-76-3	01- 211948676 7-	0,1-5	Dgr	Skin corrosion/skin irritation: cat. 2 Serious eye damage/irritation:	H315 H317 H318


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		17-xxxx			Eye dam. 1 Skin sensitization: Skin sens. 1 Specific target organ toxicity (STOT)-single exposure STOT SE 3	H335
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SCL/M-factor/ATE: not applicable

Further components: limestone, gypsum, REA gypsum.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

- General information:** No PPE is required for first-aiders. The first-aiders should avoid contact with wet cement or preparations which contain wet cement.
- Eye contact:** Do not rub eyes because due to the mechanical pressure corneal injury may occur. Remove contact lenses. Bow head to the direction of the injured eye, keep the eyelids wide away and immediately and thoroughly flush eye with plenty of clean water for at least 20 minutes to remove all particles. Avoid flushing the particles into the non-injured eye. If possible, use isotonic water (0,9 NaCl). Obtain help from occupational health specialist or from an ophthalmologist.
- Skin contact:** In case of dry cement, remove it from the skin and flush the skin surface with plenty of water. In case of wet cement, flush the skin with plenty of water. Remove the contaminated clothes, shoes, watch, etc., and clean them thoroughly before re-use. In case of any irritation or burns obtain medical help.
- Inhalation:** Take the victim into fresh air. The dust got into throat or nasal passages will clear up by itself. In case of permanent or delayed irritation, or persistent discomfort, coughing or other symptoms, obtain medical help.
- Ingestion:** Do not induce vomiting. If the injured person is conscious, flush his mouth with water and give him plenty of water to drink. Immediately obtain medical help or contact a tox centre.

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

- Eye contact:** In case of eye contact the (dry or wet) cement may cause serious and even irreversible injuries.
- Skin contact:** In case of long term contact the cement can be irritant for the wet skin (sweating or humidity), or in case of repeated contact it may cause contact dermatitis. Long term contact with the wet cement or wet concrete may cause serious burns, because the injuries are formed without pain (e.g. by kneeling into the wet concrete, even when wearing a pair of trousers).
- Inhalation:** Long term inhalation of dust of general use cement will increase the risk of pulmonary diseases.
- Environment:** In case of normal use the general use cement is not hazardous for the environment.

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

If the injured person contacts a doctor, the safety data sheet must be shown.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media:

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The general use cement is not flammable.

5.2. Special hazards arising from the substance or mixture

The cement is non-combustible, non-explosive and will not support or feed the combustion of other materials.

5.3. Advise for fire fighters

The cement has no hazardous properties related to fire.
No special protective equipment is necessary for fire-fighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel:

Wear protective equipment according to Section 8.
See Section 7. for information on safe handling and use.

6.1.2. For emergency responders:

No emergency process is necessary, in case of high concentration of dust, respiratory protection is necessary.

6.2. Environmental precautions

Do not enter cement into drains or waters (e.g. water courses).

6.3. Methods and material for containment and cleaning up

If possible, collect the spilled product in dry form.

Dry cement:

Apply a clean-up method which will not disperse the product in the air, e.g. vacuuming or extraction [industrial, portable units equipped with high efficiency filters (EPA and HEPA filters, EN 1822-1:2009) or equivalent]. Never use compressed air.

As an alternative, mop up with a cloth, with a wet brush or apply fine water fog from a water sprayer or with a hose to avoid getting the dust into air, finally remove cement.

If the above mentioned are not possible, remove the cement by making it wet (see Wet cement).

If the wet cleaning or the vacuuming is not possible, and only the dry cleaning with brush is practicable, ensure that the employees are wearing personal protective equipment and avoid dispersion of the dust.

Avoid inhalation of and skin contact with the cement. The spilled material has to be placed in a tank. Let the material solidify before disposal (see Section 13.).

Wet cement:

Collect the wet cement and place into a tank. Let the material dry and solidify before disposal (see Section 13).

6.4. Reference to other sections

For further information see Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.1.1. Precautions:

Observe recommendations of Section 8.

For the clean-up of dry cement see information stated in subsection 6.3.

Measures to avoid aerosol and dust formation:

Do not sweep up. Apply a clean-up method which will not disperse the product in the air, e.g. vacuuming or extraction.

7.1.2. Recommendation for the general occupational hygiene:

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Do not handle the product near to food, drink or tobacco product.
In case of dusty environment, wear dust mask and protective goggles.
Wear protective gloves to avoid skin contact.

7.2. Conditions for safe storage, including any incompatibilities

Do not store the product near to food, drink or tobacco products.

The bulk cement must be stored in a silo which is water-proof, dry (minimal inner precipitation), clean and protected from contamination.

Hazard of burial: To avoid burial or suffocation, do not enter into such closed areas, e.g. silo, box, bulk truck, or other container or tank for cement storage, without performing appropriate safety measures. The cement may be deposited or stuck on the wall of closed areas. The cement can be released, slumped or fell unexpectedly.

The packaged product must be stored in unopened sacks which are kept clean from earth, within cool, dry conditions, protected from strong draft to avoid the degradation of the product quality. Stack up the sacks in stable way.

Do not use tanks made of aluminium due to the incompatibility of the substance.

7.3. Specific end use(s)

No further information is available (see subsection 1.2.).

7.4. Control of soluble Chromium (VI)

For cements treated with a Cr (VI) reducing agent according to the regulations given in Section 15, the effectiveness of the reducing agent diminishes with time. The manufacturer guarantees that - within the shelf-life indicated on the packaging (in case of product supplied in bag) or on the delivery documents (in case of bulk product) - the soluble chromium (VI) content is below 0,0002 % as prescribed in Directive 2003/53/EC

If the manufacturer - who uses the bulk cement product- , applies controlled, closed and fully automatic processes, technologies and machines during the use and handling of cement and cement-containing mixtures, there is no risk of skin contact according to Annex XVII of Regulation 1907/2006/EC. If the manufacturer who uses cement products provides a separate statement about this fact, in this case the cement does not contain iron (II) sulphate for his own request.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit value in air:

Long-term exposure limit (8-hr TWA reference period):

Portland cement

inhalable dust **10 mg/m³**

DNEL (Derived No Effect Level)

Inhalation: 3 mg/m³ (8 h)

Skin contact: Not applicable.

Ingestion: Negligible.

Derived no effect level refers to the respirable dust. On the contrary, the tool used for the risk assessment uses the inhalable fraction. That is why in the result of the assessment and the derived risk management measures an additional safety limit value is also indicated.

No DNEL is available for skin exposure of employees, no from the testing of human risks, nor for the human experiences. Since the cement is classified as eye and skin irritant, the exposure to skin must be minimised as far as it technically possible.

PNEC water: Not applicable.

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PNEC sediment: Not applicable.

PNEC soil: Not applicable.

The risk assessment of the environmental elements is based on the pH effect regarding to water. The possible pH changes in surface and ground water, and in waste water treatment plants, must not exceed value 9.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Use such measures which reduces the formation of the dust and avoid its dispersion into the environment, which will not disperse the product in the air, such as dust-control, exhaust ventilation or dry clean-up.

Exposure scenario	Process category (identified use according to subsection 1.2)	Exposure	Local control	Efficacy
Industrial manufacturing / formulation of hydraulic binding materials	2, 3	The time period is not restricted (in case of max. 480 min. long shifts and 5 shifts per week)	Not necessary.	-
	14, 26		A) not necessary or B) general local exhaust ventilation	- 78%
	5, 8b, 9		A) general ventilation or B) general local exhaust ventilation	17% 78%
Industrial use of dry hydraulic binding materials (indoor, outdoor)	2		Not necessary.	-
	14, 22, 26		A) not necessary or B) general local exhaust ventilation	- 78%
	5, 8b, 9		A) general ventilation or B) general local exhaust ventilation	17% 78%
Industrial use of wet suspension of hydraulic binding materials	7		A) not necessary or B) general local exhaust ventilation	- 78%
	2, 5, 8b, 9, 10, 13, 14		Not necessary.	-
Professional use of dry, hydraulic binding materials (indoor, outdoor)	2		Not necessary.	-
	9, 26		A) not necessary or B) general local exhaust ventilation	- 78%
	5, 8a, 8b, 14		A) not necessary or B) Integrated local exhaust ventilation	- 87%
	19		Local control is not applicable, the process can only be run in well-ventilated or outdoor areas.	50%
Professional use of wet suspension of hydraulic binding materials	11	A) not necessary or B) general local exhaust ventilation	- 78%	
	2, 5, 8a, 8b, 9, 10, 13, 14, 19	Not necessary.	-	

In case of process categories, companies can choose from option A) or B) from the above chart based on which is more suitable for the specific condition. If one of the options is chosen, then the same option has to be chosen from the chart (Description of respiratory protection equipment) from subsection 8.2.2.

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8.2.2. Individual protection measures, such as personal protective equipment:

General information: Wherever possible, avoid kneeling into the fresh mortar or concrete. If kneeling cannot be avoided, wear appropriate water-proof protective equipment. During working with the cement, do not eat, drink or smoke to avoid contact with skin or mouth. Protective cream must be used before working with the cement, which must be re-applied periodically. After working with cement or cement-containing mixtures, immediately wash or have a shower or use a moisturizing cream.

Remove the contaminated clothes, shoes, watch, etc., and clean them thoroughly before re-use.

 **Eye protection:**

Wear protective glasses conforming to standard EN 166 when handling dry or wet cement to avoid eye contact.

 **Skin protection:**

Impermeable, wear-proof, alkali-proof protective gloves with (chromium free) cotton lining, boots, closed, long-sleeved protective clothes, and skin protecting agents (including skin protection cream) must be used to protect the skin from long term contact with the wet cement. Pay special attention to avoid entering the wet cement into the boots.

In case of certain conditions, e.g. preparation of concrete or screed, wear water-proof trousers or kneecap.

 **Respiratory protection:**

If the workers are exposed to a dust concentration which is exceeding the exposure limit value, appropriate respiratory protection must be used which must be conform to the concentration of the dust and the relevant EN (e.g. EN 149, EN 140, EN 14387, EN 1827) or national standards.

Thermal hazards: Not applicable.

Exposure scenario	Process category (identified according subsection 1.2)	use to	Exposure	Description of respiratory protection equipment	Efficacy of respiratory protection equipment - assigned protection factor (APF)
Industrial manufacturing / formulation of hydraulic binding materials	2, 3		The time period is not restricted (in case of max. 480 min. long shifts and 5 shifts per week)	Not necessary.	-
	14, 26			A) Mask type FFP1 or B) Not necessary.	APF = 4
	5, 8b, 9			A) Mask type FFP2 or B) Mask type FFP1	APF = 10 APF = 4
Industrial use of dry hydraulic materials (indoor, outdoor)	2			Not necessary.	-
	14, 22, 26			A) Mask type FFP1 or B) Not necessary.	APF = 4
	5, 8b, 9			A) Mask type FFP2 or B) Mask type FFP1	APF = 10 APF = 4
Industrial use of wet suspension of hydraulic binding materials	7		A) Mask type FFP1 or B) Not necessary.	APF = 4 -	

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	2, 5, 8b, 9, 10, 13, 14		Not necessary.	-
Professional use of dry, hydraulic binding materials (indoor, outdoor)	2		Mask type FFP1 (FF, FM)	APF = 4
	9, 26		A) Mask type FFP2 or B) Mask type FFP1	APF = 10
	5, 8a, 8b, 14		A) Mask type FFP3 or B) Mask type FFP1	APF = 4 APF = 20
	19		Mask type P2 (FF, FM)	APF = 10
Professional use of wet suspension of hydraulic binding materials	11		A) Mask type FFP2 or B) Mask type FFP1	APF = 10 APF = 4
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		Not necessary.	-

In case of process categories, companies must choose from option A) or B) from the above chart based on that option, which has already been chosen from chart at subsection 8.2.1. “Local control”.

An overview of the assigned protection factors (APF) of different respiratory protection equipment (according to EN 529:2005) can be found in the glossary of MEASE (16).

Any respiratory protective equipment as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with “duration of exposure” above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker’s capability of using tools and of communicating are reduced during the wearing of RPE.

For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scars and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely.

The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers

8.2.3. 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 cements 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

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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 and industrial waste water treatment plants. For that assessment of the exposure, a stepwise approach is recommended:

1st step: 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.

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

3rd step: 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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

The below information refers to the full product.

Appearance:	The dry cement is a fine ground solid inorganic material (grey or white powder). Typical particle size: 5-30 µm
Odour:	Odourless
Odour threshold:	None, odourless.
pH value:	11-13,5 (on 20 °C, in water, in case of 1:2 water-solid matter ratio)
Melting point:	> 1250°C
Initial boiling point/boiling range:	Not applicable within normal atmosphere conditions.
Flash point:	Not applicable, since it is not a liquid.
Evaporation rate:	Not applicable, since it is not a liquid.
Flammability:	Not applicable, since it is a non-combustible solid material, which will not cause fire in case of friction.
Flammability or explosion limits:	Not applicable, since it is not a combustible gas.
Vapour pressure:	Not applicable, since its melting point is > 1250°C.
Vapour density:	Not applicable, since its melting point is > 1250°C.
Relative density:	2,75-3,20
Density:	0,9-1,5 g/cm ³
Water solubility:	Slightly soluble (0,1-1,5 g/l, 20°C).
Partition coefficient: n-octanol/water:	Not applicable, inorganic material.
Auto-ignition temperature:	Not applicable (non-pyrophoric - there are no organic metallic, organic metalloid or organic phosphine bonds or their derivatives and no pyrophoric components present).
Degradation temperature:	Not applicable, since no organic peroxides present.
Viscosity:	Not applicable, since it is not a liquid.
Explosive properties:	Not applicable, because non-explosive, non-pyrophoric, and not able to form such gases in itself via chemical reactions, whose temperature, pressure and speed would cause harm in its environment. No ability to self-sustaining exothermic chemical reactions.
Oxidizing properties:	Not applicable, since it will not create fire and will not support the combustion of other materials.

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SECTION 10: Stability and reactivity

10.1. Reactivity:

If mixed with water, the cement hardens to a stable mass which will not react within normal conditions.

10.2. Chemical stability:

The dry cement is stable as soon as it is stored appropriately (see Section 7) and it is compatible with the most building materials. It must be kept dry.

Avoid contact with incompatible materials. The wet cement is alkali and incompatible with acids, ammonium salts, aluminium or other non-precious metals.

10.3. Possibility of hazardous reactions:

The degradation of cement in hydrogen fluoride will emit corrosive silicon tetrafluoride gas. The cement reacts with water and forms silicates and calcium hydroxide. The silicates can be found in cement react with strong oxidizing agents (e.g. fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, oxygen difluoride).

10.4. Conditions to avoid

The wet conditions during the storage may cause the clumping of the product and can degrade its quality.

10.5. Incompatible materials

Acids, ammonium salts, aluminium or other non-precious metals. The uncontrolled use of aluminium powder in wet cement should be avoided since hydrogen will be formed.

10.6. Hazardous decomposition products:

The cement has no hazardous degradation products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Hazard Class	Hazard class and category code	Effect	Reference
Acute dermal toxicity	-	Limit value test, rabbit, 24 h contact period, 2000 mg/bw kg - no mortality Based on the information available, the criteria for classification is not fulfilled.	(2)
Acute inhalation toxicity	-	Acute inhalation toxicity is not experienced. Based on the information available, the criteria for classification is not fulfilled.	(9)
Acute oral toxicity	-	The studies conducted on cement kiln dust do not refer to oral toxicity. Based on the information available, the criteria for classification is not fulfilled.	Literature review
Skin corrosion/skin irritation:	Skin irrit. 2	When contacts with wet skin, the cement may cause the thickening, cracking or tearing of the skin. In case of scratches, it may cause serious burns in long term contact.	(2) Human experiences

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Serious eye damage/irritation:	Eye dam. 1	The Portland cement clinker had various effects on cornea, the calculated irritation index was 128. General use Portland cements contain varying quantities of Portland cement clinker, fly ash, blast furnace slag, gypsum, natural pozzolans, burnt shale, silica fume and limestone. 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.	(10), (11)
Skin sensitization:	Skin sens. 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 The response may appear in a variety of forms ranging from a mild rash to severe dermatitis and is a combination of the two above mentioned mechanisms. If the cement contains a soluble Cr (VI) reducing agent and as long as the mentioned period of effectiveness of the chromate reduction is not exceeded, a sensitising effect is not expected	(3), (4)
Respiratory sensitization,	-	There is no indication of sensitisation of the respiratory system Based on the information available, the criteria for classification is not fulfilled.	(1)
Germ cell mutagenicity	-	There is no indication on germ cell mutagenicity. Based on the information available, the criteria for classification is not fulfilled.	(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.). Based on the information available, the criteria for classification is not fulfilled.	(1) (14)
Reproductive toxicity:	-	Based on the information available, the criteria for classification is not fulfilled.	No evidence from human experience.
Specific target organ toxicity (STOT)-single exposure	STOT SE 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-repeated exposure:	-	There is an indication of COPD (Chronic obstructive pulmonary disease). The effects are acute and due to high exposures. No chronic effect(s) or effect(s) at low concentration has/have been observed. Based on the information available, the criteria for classification is not fulfilled.	(15)
Aspiration hazard:	-	Not applicable, since the cement is not used as aerosol.	

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Regarding skin sensitization, the toxicology and ecotoxicology properties of Portland cement clinker and general use cement are the same.

Inhaling cement dust may aggravate existing respiratory system diseases and/or medical conditions [such as emphysema (abnormal air pockets in the lung) or asthma] and/or existing skin and/or eye conditions.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

This product is not hazardous to the environment.

Ecotoxicological tests with Portland cement on *Daphnia magna* [Reference (5)] and *Selenastrum coli* [Reference (6)] have shown slight 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, causes a rise in pH and may, therefore, be toxic to aquatic life under certain circumstances.

12.2. Persistence and degradability

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

12.3. Bioaccumulation potential:

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

12.4. Mobility in soil

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

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects:

Not relevant.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Do not enter to sewers or surface waters.

Product - cement that has exceeded its shelf life

[and when demonstrated that it contains more than 0.0002% soluble Cr (VI)]:

Can only be used/sold for use in controlled, closed and fully automated processes. It has to be recycled or disposed according to the local regulations or has to be re-treated with reducing agent.

Product - unused residue or dry spillage

Pick up the unused dry residues or dry spillage. Mark the containers. If possible, it should be re-used taking into consideration the shelf-life and the requirements to avoid dust exposure. In case of disposal, harden with water and dispose according to “Product – after addition of water, hardened”.

Product – cement slurries

Allow to harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams)

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 its inert properties, concrete waste is not a dangerous waste.

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Waste code:

10 13 14 waste concrete and concrete sludge

17 01 01 concrete

Packaging

Totally empty the packaging and process according to the local regulations.

Waste code:

15 01 01 waste paper and cardboard packaging

SECTION 14: Transport information

Cement is not covered by the international regulation on the transport of dangerous goods, therefore no classification is required.

No special precautions are needed apart from those mentioned under Section 8.

SECTION 15: REGULATORY INFORMATION

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

Cement is considered as a mixture according to REACH regulation and is not subject to registration. Cement clinker is exempt from registration [Art 2.7 (b) and Annex V.10 of REACH].

The marketing and use of cement is subject to a restriction on the content of soluble Cr (VI) (REACH Annex XVII point 47 Chromium VI compounds):

1. Cement and cement-containing mixtures shall not be placed on the market, or used, if they contain, when hydrated, more than 2 mg/kg (0.0002 %) soluble chromium VI of the total dry weight of the cement. Duna-Dráva Cement Kft. performs the chromium (VI) reducing process for cements according to standard EN 196-10.
2. If reducing agents are used, then without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of cement or cement-containing mixtures is visibly, legibly and indelibly marked with information on the packing date, as well as on the storage conditions and the storage period appropriate to maintaining the activity of the reducing agent and to keeping the content of soluble chromium VI below the limit indicated in paragraph 1.
3. 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.

According to Regulation 552/2009/EC and Directive 2003/53/EC the soluble chromium(VI) content of the cements has to be indicated, and only products having less than 2 mg/kg (0,0002 weight %) soluble chromium(VI) content can be used in case of those work conditions, where skin contact cannot be avoided.

The so-called “Good practice guides” which contain advice on safe handling practices can be found at: <http://www.nepsi.eu/good-practice-guide.aspx> link.

These good practices have been adopted under the Social Dialogue “Agreement on Workers' Health Protection through the Good Handling and Use of Crystalline Silica and Products Containing it by Employee and Employer European sectoral associations, among which CEMBUREAU.

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REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures

DIRECTIVE 1999/45/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009

Control of Substances Hazardous to Health (COSHH)

EH40/2005 Workplace exposure limits

15.2. Chemical safety assessment:

No chemical safety assessment available.

16. SECTION 1 : OTHER INFORMATION

16.1. Abbreviations and acronyms:

ACGIH	American Conference of Industrial Hygienists
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) No 1272/2008)
COPD	Chronic Obstructive Pulmonary Disease
DNEL	Derived no-effect level
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EINECS	European Inventory of Existing Commercial chemical Substances
EPA	Type of high efficiency air filter
EWC	European Waste Catalogue
FF P	Filtering facepiece against particles (disposable)
FM P	Filtering mask against particles with filter cartridge

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HEPA	Type of high efficiency air filter
MEASE	Metals estimation and assessment of substance exposure, EBRC Consulting GmbH for Eurometaux,
OELV	Occupational exposure limit value
PBT	Persistent, bio-accumulative and toxic
PNEC	Predicted no-effect concentration
PROC	Process category
REACH	Registration, Evaluation and Authorisation of Chemicals
RPE	Respiratory protective equipment
SCOEL	Scientific Committee on Occupational Exposure Limit Values
STOT	Specific Target Organ Toxicity
TRGS	Technische Regeln für Gefahrstoffe
VLE-MP	Exposure limit value-weighted average in mg by cubic meter of air
vPvB	Very persistent, very bio-accumulative

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16.2. Main literature references and data sources:

- (1) *Portland Cement Dust - Hazard assessment document EH75/7*, UK Health and Safety Executive, 2006. Available from: <http://www.hse.gov.uk/pubns/web/portlandcement.pdf>.
- (2) *Observations on the effects of skin irritation caused by cement*, Kietzman et al, *Dermatosen*, 47, 5, 184-189 (1999).
- (3) *European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement* (European Commission, 2002). http://ec.europa.eu/health/archive/ph_risk/committees/sct/documents/out158_en.pdf.
- (4) *Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr (VI) in cement*, NIOH, Page 11, 2003.
- (5) *U.S. EPA, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1994a) and 4th ed. EPA-821-R-02-013, US EPA, office of water, Washington D.C. (2002).
- (6) *U.S. EPA, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1993) and 5th ed. EPA-821-R-02-012, US EPA, office of water, Washington D.C. (2002).
- (7) *Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology, Laboratory Results, and Model Development*. NCHRP report 448, National Academy Press, Washington, D.C., 2001.
- (8) *Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker* prepared for Norcem A.S. by AnalyCen Ecotox AS, 2007.
- (9) TNO report V8801/02, *An acute (4-hour) inhalation toxicity study with Portland Cement Clinker CLP/GHS 03-2010-fine in rats*, August 2010.
- (10) TNO report V8815/09, *Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test*, April 2010.
- (11) TNO report V8815/10, *Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test*, April 2010.
- (12) *Investigation of the cytotoxic and proinflammatory effects of cement dusts in rat alveolar macrophages*, Van Berlo et al, *Chem. Res. Toxicol.*, 2009 Sept; 22(9):1548-58.
- (13) *Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro*; Gminski et al, Abstract DGPT conference Mainz, 2008.
- (14) *Comments on a recommendation from the American Conference of governmental industrial Hygienists to change the threshold limit value for Portland cement*, Patrick A. Hessel and John F. Gamble, EpiLung Consulting, June 2008.
- (15) *Prospective monitoring of exposure and lung function among cement workers, Interim report of the study after the data collection of Phase I-II 2006-2010*, Hilde Notø, Helge Kjuus, Marit Skogstad and Karl-Christian Nordby, National Institute of Occupational Health, Oslo, Norway, March 2010.
- (16) MEASE, Metals estimation and assessment of substance exposure, EBRC Consulting GmbH for Eurometaux, <http://www.ebrc.de/ebrc/ebrc-mease.php>.
- (17) *Occurrence of allergic contact dermatitis caused by chromium in cement. A review of epidemiological investigations*, Kåre Lenvik, Helge Kjuus, NIOH, Oslo, December 2011.

16.3. Versions od SDS

Version	Changes	Validity
1.	Actualization according to the REACH and CLP/GHS	31.03.2015.
2.	Modification of classification and labeling (2.1. and 2.2.)	06.02.2020.
3.	Due tu the modification of the regulation of the chemical substances' effect on employees	31.01.2021.
4.	Extension with UFI numbers Removal of H317	31.05.2022.
5.	New cement type: CEMII/A-LL 42,5 N	06.11.2022.
6.	New cement type: CEMII/B-LL 42,5 N	30.11.2022.
7.	878/2020/EU and ECHA Ver.4 GD on „SDS and Exposure Scenarios	Currently valid

16.4. Advices on trainings

In addition to health, safety and environmental training programs for their workers, companies must ensure that workers read, understand, and apply the requirements of this safety data sheet.

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16.5. Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No. 1272/2008	Classification procedure
Skin Irrit. 2, H315	on basis of test data
Eye dam. 1, H318	on basis of test data
STOT SE. 3, H335	Human experience

16.5. Legal statement

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

It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his/her own activities.