

# SAFETY DATA SHEET

## Norcem Portland Cements; Norcem CEM I and II cements, NS-EN 197-1; Type I / II , ASTM C-150; API 10A Class G

### 1. Identification of the substance/preparation and of the company/undertaking

Date issued	27.03.2008
Revision date	18.05.2011
Product name	Norcem Portland Cements; Norcem CEM I and II cements, NS-EN 197-1; Type I / II , ASTM C-150; API 10A Class G
Article no.	31L000964, 31L000965, 31L000966, 31L000967, 31L000969, 31L000970, 31L000971, 31L000973
Use of the substance/preparation	Common cement used as hydraulic binder for the production of concrete, mortars, grouts, etc.

#### Producer

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Enterprise no.	934949145

### 2. Hazards identification

Classification according to 67/548/EEC or 1999/45/EC	Xi; R37/38, R41, R43
Description of hazard	<p>Irritating to respiratory system and skin. Risk of serious damage to eyes.</p> <p>Primary route(s) of entry: Inhalation: Yes Skin - eyes: Yes Ingestion: No, except in accidental cases.</p> <p>When cement reacts with water for instance when making concrete or mortar, or when the cement becomes damp, a strong alkaline solution is produced.</p> <p>Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries.</p> <p>Cement may have an irritating effect on moist skin (due to transpiration or humidity) after prolonged contact. Prolonged skin contact with wet cement or wet concrete may cause serious burns because they develop without pain</p>

being felt (for example when kneeling in wet concrete even when wearing trousers).

Repeated skin contact with wet cement may cause contact dermatitis. Cement is treated with chromium (VI) reducing agent , reducing the content of sensitising Cr (VI) to below 0,0002% according to regulation.

Frequent inhalation of large quantities of cement dust over a long period of time increases the risk of developing lung diseases.

Under normal use, the product is not expected to be hazardous to the environment.

### 3. Composition/information on ingredients

Component name	Identification	Classification	Contents
Portland Cement Clinker	CAS no.: 65997-15-1 EC no.: 266-043-4	Xi; R37/38, R41, R43	60 - 98 %
Fly ash	CAS no.: 68131-74-8 EC no.: 268-627-4	Xn; R48/20 Xi; R36/37/38	0 - 20 %
Column headings	CAS no. = Chemical Abstracts Service; EU (EINECS or ELINCS number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/vol, mg/m <sup>3</sup> , ppb, ppm, weight%, vol%		
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremely flammable, F = Very flammable, N = Environmental hazard		
Component comments	The principal constituents of clinker are calcium silicates, aluminates, ferro-aluminates and sulfates. Small amounts of alkalis, lime, magnesia and chlorides are also present together with trace amounts of chromium compounds. CEM II cements contain up to 20% fly ash (<2% respirable silica). For more information, see 16.		

### 4. First-aid measures

General	When contacting a physician, take this SDS with you.
Inhalation	Move 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 subside.
Skin contact	Wash skin abundantly with water. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.
Eye contact	Do not rub eye as additional cornea damage is possible by mechanical stress. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 45 minutes to remove all particles. If possible, use isotonic water (0,9% NaCl). Contact a specialist of occupational medicine or an eye specialist.
Ingestion	Do not induce vomiting. If person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact anti poison centre.

## 5. Fire-fighting measures

Suitable extinguishing media	All types of extinguishing media are suitable
Fire and explosion hazards	Cements are non-combustible and non-explosive and will not facilitate nor support combustion of other materials.
Personal protective equipment	Cement poses no fire-related hazards. No need for specialist protective equipment for fire fighters.

## 6. Accidental release measures

Personal precautions	Wear protective equipment as described under Heading 8 and follow the advice for safe handling and use given under Heading 7. Emergency procedures are not required.
Environmental precautions	Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).
Methods for cleaning	<p>Recover the spillage in a dry state if possible.</p> <p><b>Dry cement</b>                      Use dry cleanup methods that do not cause airborne dispersion, e.g.:                      • Vacuum cleaner (Industrial portable units, equipped with high efficiency particulate filters (HEPA filter) or equivalent technique)                      • Wipe-up the dust by mopping, wet brushing or water sprays or hoses (fine mist to avoid that the dust becomes airborne) and remove slurry.                      If not possible, remove by slurring 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 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 Heading 13.</p> <p><b>Wet cement</b>                      Clean up wet cement and place in a container. Allow material to dry and solidify before disposal as described under Heading 13</p>

## 7. Handling and storage

Handling	<p>Do not handle or store near food and beverages or smoking materials. Avoid dust development.</p> <p>For (bagged) cement used in open-ended mixers; first add the water and then carefully add the cement. Keep the height of the fall low. Start the mixing smoothly. Do not compress empty bags, except when contained in another clean bag.</p> <p>Carrying cement bags may cause sprains and strains to the back, arms, shoulders and legs. Handle with care and use appropriate control measures.</p>
Storage	<p>Bulk cement should be stored in silos that are waterproof, dry (internal condensation minimised), clean and protected from contamination.</p> <p>Engulfment hazard: To prevent burial 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. Cement can build-up or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.</p> <p>Packed products should be stored in unopened bags clear of the ground in</p>

	cool, dry conditions and protected from excessive draught in order to avoid degradation of quality. Bags should be stacked in a stable manner.
Other Information	For cements treated with Cr (VI) reducing agent , the effectiveness of the reducing agent diminishes with time. Therefore cement bags and/or delivery documents will contain information on the period of time ('shelf life') for which the manufacturer has established that the reducing agent will continue to maintain the level of Cr (VI) below the imposed limit of 0,0002% soluble Cr (VI), according to EN 197-10. They will also indicate the appropriate storage conditions for maintaining the effectiveness of the reducing agent.

## 8. Exposure controls/personal protection

### Exposure limit values

Component name	Identification	Value	Year
Portland Cement Clinker	CAS no.: 65997-15-1 EC no.: 266-043-4	8 h.: 5resp/10tot mg/m3	

### Exposure controls

Other Information about threshold limit values	<p>Avvoid contact with skin.</p> <p>In some circumstances such as when laying concrete or screed, waterproof trousers or kneepads are necessary. 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.</p> <p>Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth.</p> <p>Immediately after working with cement or cement-containing materials, workers should wash/shower and use skin moisturisers. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them.</p>
Occupational exposure controls	<p>OEL 8hr Time Weighted Average (TWA)</p> <p>10mg/m3 total inhalable dust</p> <p>5mg/m3 respirable dust.</p>
Respiratory protection	When a person is exposed to dust above exposure limits, use appropriate respiratory protection. It should be adapted to the dust level and conform to the relevant EN standard.
Hand protection	Use impervious, abrasion and alkali resistant gloves (made of low Cr (VI) containing material), internally lined with cotton.
Eye protection	Wear approved glasses or safety goggles according to EN 166 when handling dry or wet cement to prevent contact with eyes.
Skin protection (other than of the hands)	<p>Use boots, closed long-sleeved protective clothing and additionally 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.</p> <p>In some circumstances such as when laying concrete or screed, waterproof trousers or kneepads are necessary.</p>
Environmental exposure controls	According to available technology.

## 9. Physical and chemical properties

Physical state	Dry cement is a finely ground inorganic material.
Odour	Odourless
Colour	Dark grey or white powder.

Solubility in water	Solubility in water (T = 20 °C): slight (0,1-1,5 g/l)
Melting point/melting range	<b>Value:</b> > 1250 °C
Boiling point	<b>Comments:</b> N/A
pH (aqueous solution)	<b>Value:</b> > 11-13,5 <b>Method of testing:</b> pH (T = 20°C in water)
Flash point	<b>Comments:</b> N/A
Explosive properties	<b>Properties :</b> Not explosive
Explosion limit	<b>Comments:</b> N/A
Spontaneous combustability	<b>Comments:</b> N/A
Viscosity	<b>Comments:</b> N/A
Water reactivity	Alkaline
Air reactive	N/A
Particle size	<b>Comments:</b> Main particle size: 5-30 µm
Odour limit	N/A

## 10. Stability and reactivity

Conditions to avoid	Humidity during storage may cause lump formation and loss of product quality
Materials to avoid	Uncontrolled use of aluminium powder in wet cement should be avoided as hydrogen can be produced.
Hazardous decomposition products	Cements will not decompose into other hazardous by-products and do not polymerise.
Stability	Dry cements are stable as long as they are stored properly (see Heading 7) and compatible with most other building materials. When mixed with water, cements will harden into a stable mass that is not reactive to normal environments.

## 11. Toxicological information

### Other information regarding health hazards

Inhalation	Cement may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits.
Skin contact	Dry cement in contact with wet skin or exposure to moist or wet cement may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion can cause severe burns.
Eye contact	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.
Ingestion	Swallowing large quantities may cause irritation to the gastrointestinal tract.
Chronic effects	Inhalation: Chronic exposure to respirable dust in excess of occupational exposure limits may cause coughing, shortness of breath and may cause chronic obstructive lung disease (COPD).  Carcinogenicity: a causal association between cement exposure and cancer has not been established.
Sensitisation	Some individuals may exhibit eczema upon exposure to wet cement, caused either by the high pH which induces irritant contact dermatitis, or by an immunological reaction to 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 those two mechanisms. An exact diagnosis is often difficult to assess.

Norcem Portland Cement contains 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.

## 12. Ecological information

### Other ecological information

Ecotoxicity	The product is not expected to be hazardous to the environment (LC50 aquatic toxicity not determined). 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.
Mobility	Dry cement is not volatile but might become airborne during handling operations.
Persistence and degradability	N/A
Bioaccumulative potential	N/A

## 13. Disposal considerations

EWC waste code	101304/101306
Product classified as hazardous waste	No
Packaging classified as hazardous waste	No
Specify the appropriate methods of disposal	<p>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.</p> <p>Unused residue or dry spillage shall be picked up dry. 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 as described below.</p> <p>Slurries of cement shall allow to harden. Avoid entry in sewage and drainage systems or into bodies of water (e.g. streams). Dispose as hardened as described below</p> <p>Hardened product shall be disposed as concrete waste according to the local legislation. Avoid entry into the sewage water system. Due to the inertisation, concrete waste is not a dangerous waste.</p>

## 14. Transport information

Dangerous goods ADR	<b>Status:</b> No
Dangerous goods RID	<b>Status:</b> No
Dangerous goods IMDG	<b>Status:</b> No
Dangerous goods ICAO/IATA	<b>Status:</b> No
Other applicable information.	Cement is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID. No classification is required. No special precautions are needed apart from those mentioned under Heading 8.

## 15. Regulatory information

### Hazard symbol



Irritant

R phrases	R37/38 Irritating to respiratory system and skin R41 Risk of serious damage to eyes R43 May cause sensitization by skin contact IN CONTACT WITH WATER, THE PRODUCT IS CORROSIVE TO SKIN AND EYES
S phrases	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
References (laws/regulations)	Forskrift om klassifisering, merking m.v. av farlige kjemikalier (2002). Forskrift om utarbeidelse og distribusjon m.v. av helse-, miljø-og sikkerhetsdatablader (2004). Norsk stoffliste av 2002. Administrative normer, best.nr. 361 (2003). Avfallsforskriften (2004). Landtransportforskriften (ADR, RID, 2006), IATA (2004).
Declaration no.	26229, 26272, 26273, 26274, 26227, 26275, 26276, 26278

## 16. Other information

List of relevant R phrases (under headings 2 and 3).	R36/37/38 Irritating to eyes, respiratory system and skin. R37/38 Irritating to respiratory system and skin. R41 Risk of serious damage to eyes. R43 May cause sensitization by skin contact. R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Further information	<p>Abbreviations</p> <ul style="list-style-type: none"> <li>-IMDG: International Maritime Dangerous Goods</li> <li>-IATA: International Air Transport Association</li> <li>-ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail</li> <li>-LC50 Lethal Concentration where 50% of the test animals dies.</li> <li>-OEL : occupational exposure limit</li> <li>-TWA: Time Weighted Averages</li> </ul> <p>References</p> <p>(1)Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. Available from: <a href="http://www.hse.gov.uk/pubns/web/portlandcement.pdf">http://www.hse.gov.uk/pubns/web/portlandcement.pdf</a></p> <p>(2)Observations on the effects of skin irritation caused by cement, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).</p> <p>(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).</p> <p>(4)Epidemiological assessment of the occurrence of allergic dermatitis in</p>

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	workers in the construction industry related to the content of Cr (VI) in cement, NIOH, Page 11, 2003.
Sources of key data used to compile the safety data sheet	Guidelines for the safety datasheet for cement, Cembureau 2009
Information which has been added, deleted or revised	This edition of the datasheet of 18.05.2011, is only changed with regard to the fly ash content, that was omitted in the edition of 2008.
Supplier's notes	<p>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.</p> <p>It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his own activities.</p>
Responsible for safety data sheet	NORCEM A.S