PORTLAND COMPOSITE CEMENT

CEM II/B-M(P-LL) 32,5 N/R

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Information of Substance / Mixture :

Trade Name: PORTLAND COMPOSITE CEMENT

CEM II/B-M(P-LL) 32,5 N/R

1.2. Relevant Identified Uses of the Mixture and Uses Advised Against

Cement is widely used as an hydraulic binder for making concrete and mortar. Cement is distributed in paper bags or in bulk with silobusses.

1.3. Suppliers of Safety Data Sheet Information :

1.3. Manufacturer / Importer / Supplier:

1.3.1. Manufacturer:

Plant Name: LİMAK ÇİMENTO SAN. Ve TİC. A.Ş. KURTALAN ŞUBESİ

Address: Oyacık Köyü Mevkii 5. km KURTALAN/SİİRT/TÜRKİYE

Tel: (+90) 484 411 22 91

Fax: (+90) 484 411 22 90

E-mail: kurtalan@limakcement.com

Web: http://www.limakcimento.com/

1.4. Emergency Contact Information:

Emergency Desk: (+90) 484 411 22 91

Emergency First Aid Center 112

Poison Information Center: 114 **(UZEM)**

Fire: 110

2. HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture:

It has been classified in accordance with existing local regulations of EU and Turkey.

Physicochemical: Not related

Health: Skin irritation, Category 2, H315

Skin sensitization, Category 1B, H317

Serious Eye Damage / Eye Irritation, Category 1, H318

Specific Target Organ Toxicity Single Exposure Category 3, Respiratory tract irritation, H335

Environment: Not related

H-Statements mentioned in this section, see Section 16. for the full text.

2.2. Label Elements:

Labelling

Hazard Pictograms:

Signal Word

Danger

Hazard Statement

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage.
H335	May cause respiratory irritation

Precautinary Statements:

General

P102	Keep out of reach of children

Precaution

P232	Protect from moisture.
P261	Avoid breathing dust/fumes/gas/mist/vapours/spray
P264	After handling wash with soap and water.
P271	Use only outdoors or in a well ventilated area.
P272	Do not remove contaminated clothes outside the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Intervention

P302+P352	IF ON SKIN: Wash with plenty of water/…
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention.
P362	Take off contaminated clothing
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/physican or call 114 NATIONAL POISON CENTER .
P304+P340+P312	IF INHALED: Remove victim to fresh air and keep comfortable for breathing.If you feel unwell, call 114 NATIONAL POISON CENTER TELEPHONE or physican.

Storage

P402	Store in a dry place.
P405	Store under lock.
P403+P233	Store in a well-ventilated area. Keep container tightly closed.

Dispose

P501	Dispose of contents / container must be disposed of according to local regulations

Supplementary Information

Skin contact with wet cement, fresh concrete or mortar may cause irritation, dermatitis or burns.
May cause damage to products made of aluminium or other non-noble metals.

2.3. Other Hazards:

Cement does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH (Regulation (EC) No 1907/2006).

Cement dust may cause an allergic reaction in some individuals due to the water soluble Cr(VI) content.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances:

Not related.

3.2. Mixtures:

IUPAC Name	EC Number	CAS Number	Typical Conc. (%w/w)	Classification
Portland Cement Clinker	266-043-4	65997-15-1	65 - 79	Skin irritation, Category 2, H315 Skin sensitization, Category 1B, H317 Serious Eye Damage / Eye Irritation, Category 1, H318 Specific Target Organ Toxicity Single Exposure Category 3, Respiratory tract irritation, H335
Limesone	207-439-9	1317-65-3	6 - 35	Skin irritation, Category 2, H315 Serious Eye Damage / Eye Irritation, Category 1, H318 Serious Eye Damage / Eye Irritation, Category 2, H319 Specific Target Organ Toxicity Single Exposure Category 3, Respiratory tract irritation, H335
Gypsum	-	13397-24-5	3 - 6	This article is not classified as hazardous in accordance with 1272/2008 / EC and local regulations.
Calcium Oxide (Free Lime)	215-138-9	1305-78-8	0 - 5	Skin irritation, Category 1C, H314 Serious Eye Damage / Eye irritation, Category 1, H318 Specific Target Organ Toxicity Single Exposure Category 3, Respiratory tract irritation, H335
Magnesium Oxide	215-171-9	1309-48-4	0 - 5	This article is not classified as hazardous in accordance with 1272/2008 / EC and local regulations.
Naturel Pozzolan	-	71243-67-9	6 - 35	This article is not classified as hazardous in accordance with 1272/2008 / EC and local regulations.

4. FIRST AID MEASURES

4.1. Description of First Aid Measures:

General Cautions: In case of exposure to cement or reactive cement by water; protective equipment must be worn when apply first aid. Direct contact should be avoided.

Following Eye Contact: 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 thoroughly rinsing with plenty of clean water for at least 20 minutes to remove all particles. Avoid flushing particles into uninjured eye. 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 Inhalation: In case of people who exposed to inhalation of Portland cement clinker dust is immediately removed to fresh air. Satisfy cleaning by survivor of the throat and nose road. Coughing, and in similar cases is delivered to the physican or hospital.

Following Ingestion: Primarily contact Poison Information Centre or contact with the physican. In case of swallow, don't let the injured get vomitted. Drink as much as water if conscious. If vomitting happened, bend the injured forward or lean upon his/her left side to open an air passage or or avoid asphyxiation. Transfer the injured to the hospital promptly.

4.2. Acute and Chronic Effects Considered Essential :

Eyes: Eye contact to cement dust (dry or wet) may cause irreversible injuries.

Skin: Skin contact with dry or damp cement dust in long periods may cause skin irritation or contact dermatite eczama, burns.

Inhalation: Periodically inhalation or exposure to cement dust in long period may increase the risk of development of pulmonary diseases.

Environment: Cement dust is not harmfull to environment.

4.3. Indication of any Immediate Medical Attention and Special Treatment Needed

When contacting a physician, take this SDS with you.

5. FIRE-FIGHTING MEASURES

5.1. Fire Extinguishers:

Cement is not flammable.

5.2. Special Hazards Arising from the Substance or Mixture:

Cement is non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials.

5.3. Advice for Fire-Fighters:

Cement poses no fire-related hazards. In case of fire it is treated with the appropriate extinguisher. No need for special protective equipment for fire-fighters.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures:

6.1.1. 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.

6.1.2. For Emergency Responders

Emergency procedures are not required.
However, respiratory protection is needed in situations with high dust levels. Wear full-face respirator protection (SCBA) for reathing which fits comfortably in high dust levels.

6.2. Environmental Precautions:

Do not wash cement down sewage and drainage systems.

6.3. Methods and Material for Containment and Cleaning up:

Collect spilled material dry if possible.

Dry Cement

6.3.1. Avoid actions that may cause the cement dust in the air. Clean dry if possible.

6.3.2. Use dry 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. Ensure that the workers wear appropriate personal protective equipment and prevent dust from spreading.
Avoid inhalation of Portland cement clinker dust and contact with skin. Place spilled material in a container for future use.

6.3.3. Alternatively, clear the dust on the ground using a wet mop or brush. Dispose of cement dust in the air using water spray or hose. If it is not possible disposed of by mixing with water that .

Wet Cement

Clear where the wet cement poured. Let freezing by placing the appropriate material. Dispose it as described in Chapter 13.

6.4. Reference to Other Sections:

See sections 8 and 13 for more details.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling:

Occupational health, safety and environmental protection measures should be applied in comply with local legislation “Kimyasal Maddelerle Çalışmalarda Sağlık ve Güvenlik Önlemleri Hakkında Yönetmelik” (Directive on the Protection of the Health and Safety of Workers From the Risks Related to Chemical Agents at Work); while planning and operation of the work place should be taken into consideration.

7.1.1. Protective measures:

Follow the recommendations as given under Section 8. To clean up dry cement, see Subsection 6.3.

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.

7.1.2. Information on 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.

7.2. Conditions for Safe Storage, including any incompatibilities:

Cement should be stored under waterproof, dry conditions, clean and protected from contamination.
Engulfment hazard: Cement can build-up or adhere to the walls of a confined space. The clinker can 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 safety measures.
Do not use aluminium containers for the storage or transport of wet cement containing mixtures due to incompatibility of the materials.

Follow the guidelines that are used to store chemicals.

Get information from the manufacturer to the storage period.

Do not use aluminum containers for the wet cement to storage or transportation.

7.3. Specific end Uses:

Clinker is used for the production of common cements or other hydraulic binders. In general such final products have to be low in water soluble Cr(VI). Typically, the final products contain a chromate reducing agent.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:

It does not contain any substances which have exposure limits.

8.2. Exposure Controls:

8.2.1. Appropriate Engineering Controls:

To be used where personal protection equipment is necessary and appropriate protection methods was published in the Official Gazette No. 28695, dated 07.02.2013, are defined in accordance with the Regulations on the Use of Personal Protective Equipment in the workplace.
To reduce dust and prevent air distribution provide aspiration.

8.2.2. Individual Protective Measures:

General:
Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth.
Before starting to work with clinker, 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 them.

Eye/Face Protection:

Wear approved glasses or safety goggles according to CE certificate when handling dry or wet cement to prevent contact with eyes. intensive cement dust.

Skin Protection:

Use watertight, wear- and alkali-resistant protective gloves (eg nitrile soaked cotton gloves with CE mark) internally lined with cotton; boots; closed long-sleeved protective clothing as well as skin care products (eg including barrier creams) to protect the skin from prolonged contact with wet cement. For the gloves, respect the maximum wearing time to avoid skin problems.

Respiratory Protection:

When a person is potentially exposed to dust levels above exposure limits, use appropriate respiratory protection. The type of respiratory protection should be adapted to the dust level and conform to the relevant CE certificate.

Thermal Hazards:
Not applicable.

8.2.3. Environmental exposure controls:

Air:
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.

Water:
Do not wash cement into sewage systems or into bodies of water, to avoid high pH. Above pH 9 negative ecotoxicological impacts are possible.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties:

Appereance	Gray or White Granular Powder	Relative Density(g/cm^3)	2,75 -- 3,20
Odour	Odourless	Apparent Density (g/cm3)	0,9 -- 1,5
pH (Water) 20 °C	9 -- 14	Viscosity cPs 25 °C	Not applicable
Boiling Point (°C) 760 mmHg	Not applicable	Vapor Pressure hPa 20°C	Not applicable
Melting Point (°C)	>1200 ^{o}C	Explosive Properties	Not applicable. Not explosive or pyrotechn
Flash Point (°C) 760 mmHg	Not applicable	Oxidising Properties	Not applicable
Self Flash Point (°C)	Not applicable	Average Granulometry (Micron)	1 -- 30
Decomposition Temperature (°C)	Not applicable	Solubility in Water (g/l)	0,1 - 1,5
Segregation Coefficient	Not applicable	Vapor Density	Not applicable

NOTE: Specifications above are determined according to the method described in “Hazardous Substances and the Classification, Packaging and Labelling Regulation”-Annex 3(PartA) or other comparable method.

9.2. Other Informations:

Not applicable

10. STABILITY AND REACTIVITY

10.1. Reactivity:

When mixed with water, Portland cement clinker will harden into a stable non-reactive mass in normal environments.

10.2. 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, manganese trifluoride, and oxygen difluoride.

10.3. Possibility of hazardous reactions:

Cement do not cause dangerous reactions.

10.4. Conditions to Avoid:

Humid conditions during storage may cause lump formation and loss of product quality.

10.5. Incompatible Materials:

Acids, ammonium salts, aluminium or other non-noble metals. In combination with aluminum powder in wet cement should be avoided because of uncontrolled hydrogen evolution.

10.6. Hazardous Decomposition Products:

Cement will not decompose into any hazardous products.

11. TOXICOLOGICAL INFORMATION

11.1. Information about the toxic effects:

Hazard clas	Cat	Effect	Reference
Acute toxicity - dermal	-	Limit test, rabbit, 24 hours contact, 2,000 mg/kg body weight – no lethality. 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.	(9)
Acute toxicity - oral	-	No indication of oral toxicity from studies with cement kiln dust. Based on available data, the classification criteria are not met.	Literature survey
Skin corrosion/irritation	2	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.	(2) Human experience
Serious eye damage/irritation	1	Cement caused a mixed picture of corneal effects and the calculated irritation index was 128.Cements; varying amounts of cement clinker, fly ash, blast furnace slag, gypsum, natural pozzolans, burnt shale, silica and lime.Direct contact with cement may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact with larger amounts of dry cement dust 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 sensitisation	1B	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 [Reference (3)].	(3), (4), (17)
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 cement exposure and cancer.The epidemiological literature does not support the designation of cement as a suspected human carcinogen. 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 available data, the classification criteria are not met.	(1) (14)

Hazard clas	Cat	Effect	Reference
Reproductive toxicity	-	Based on available data, the classification criteria are not met.	No evidence from human experience
STOT 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 repeated exposure	-	There is an indication of COPD. 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 cement is not used as an aerosol.	

Apart from skin sensitisation, cement and Common cements have the same toxicological and eco-toxicological properties.

Medical conditions aggravated by exposure

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.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

The product is not hazardous to the environment. Ecotoxicological tests with cement - whose composition is very closely related to that of cement - on Daphnia magna [Reference (4)] and Selenastrum coli [Reference (5)] have shown little toxicological impact. Therefore LC50 and EC50 values could not be determined [Reference (6)]. There is no indication of sediment phase toxicity [Reference (7)]. The addition of large amounts of Portland cement clinker to water may, however, cause 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 hydration, cement lumps present no toxicity risks.

12.3.Bioaccumulative potential

Not relevant as cement is an inorganic material. After hydration, cement lumps present no toxicity risks.

12.4. Mobility in soil

Not relevant as cement is an inorganic material. After hydration,cement lumps present no toxicity risks.

12.5.Results of PBT and vPvB assessment

Not relevant as cement is an inorganic material. After hydration, cement lumps present no toxicity risks.

12.6.Other adverse effects

Not relevant.

SECTION 13: DISPOSAL CONSIDERATIONSD

13.1.Waste treatment methods

Cement may always be reused. Waste treatment methods do not apply.

Do not dispose of into sewage systems or surface waters.

SECTION 14: TRANSPORT 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 Section 8.

14.1. UN number

Not relevant.

14.2.UN proper shipping name

Not relevant.

14.3.Transport hazard class(es)

Not relevant.

14.4.Packing group

Not relevant.

14.5.Environmental hazards

Not relevant.

14.6. Special precautions for user

Not relevant.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant.

15. REGULATORY INFORMATION

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

Cement is determined according to the method described in "Hazardous Substances and the Classification, Packaging and Labelling Regulation and notification has been made online to authorities of Environmental and Urban Planning Ministry of Turkish Republic.

16. OTHER INFORMATION

16.1. Updated:

This SDS first prepared according to the "Hazardous Substances and the Classification, Packaging and Labelling Regulation"İ (O.G. 13.12.2014 - 29204)

16.2. Abbreviations and acronyms:

mg/m3: the amount of the Material in milligrams in 1 m3 air At 20 ^{o}C & 101, 3 Kpa

mg/kg: the amount of the Material in milligrams in 1 kg air At 20 ^{o}C & 101, 3 Kpa cinsinden değeri

mg/lt - 4 h: the amount of the Material in milligrams in 1 lt at 4 hours air At 20 ^{o}C & 101, 3 Kpa

ppm: parts per million, the amount of the Material in milliliters in 1 m3 air. (ml/m3)

ADR/RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

CAS: Chemical abstract service registry number

ECHA: European Chemicals Agency

EINECS: European inventory of chemical substances

EPA: Type of high efficiency air filter

HEPA: Type of high efficiency air filter

IARC: The International Agency for Research on Cancer

IATA: International Air Transport Association

IDLH: Dangerous To Life or Health Concentrations

IMDG: International Maritime Code for Dangerous Goods

LC 50: Median lethal konsantration

L(E)C 50: Half maximal effective concentration

LD 50: Median lethal dose

NTP: National Toxicology Program - Ulusal Toksikoloji Programı

OEL : Occupational exposure limit

OELV : Occupational exposure limit value

OSHA: Occupational Safety and Health Association

PBT: Persistent, bio-accumulative and toxic

PNEC: Predicted no-effect concentration

PROC: Process category

REACH: Registration, Evaluation and Authorisation of Chemicals

SCBA: Self Contained Breathing Apparatus

SDS/GBF: Safety Data Sheet

CLP: Hazardous Substances and the Classification, Packaging and Labelling Regulation

STOT - BHOT: Specific target organ toxicity

SCOEL: Scientific Committee on Occupational Exposure Limit Values

TLV-TWA: Threshold Limit Value-Time-Weighted Average - Eşik Sınır Değeri - Zaman - Ağırlıklı Ortalama

UVCB: Substances of Unknown or Variable composition, Complex reaction products or Biological materials

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

vPvB: Very persistent, very bio-accumulative

w/w: Weight by weight

16.3. Key literature references and sources of data:

***** This Safety Data Sheet has been prepared based on the information given by the producer.

***** Users are responsible for usage and handling of the products in safe situation compatible with available law, legislations and procedures.

***** It should be used by people who are aware of the risks and have technical knowledge and skills.

***** No warranty is made, expressed or implied for the mentioned product of merchantability or usage out from the factory plant. No responsibility is accepted from the content of this SDS. Preparing of the SDS are based on our best available experience, know how and intuitions.

***** Information on form are given for designed safe handling, use, processing, storage, transportation, destroy and dispose of product.

***** These informations, unless stated otherwise, only relevant for related substance. In case of mixture of this substance or in other processes; these informations may be irrelevant. Take informations into consideration while using.

***** This Safety Data Sheet describes the product in accordance with appropriate safety regulations, but can not guarantee the security of the product features.

***** It does not constitute any guarantee and product specifications does not legally valid contractual relationship established.

***** For related local regulations and restrictions while implementing of the statements within this SDS; , see the legislations below

***** Regulation on the Safety Data Sheets Relating to Hazardous Substances and Mixtures

***** Hazardous Substances and the Classification, Packaging and Labelling Regulation

***** Regulations on Prohibition and Restriction of Hazardous Substances and Mixtures

***** Regulation on chemicals and inventory control

* All regulations published on Occupational Health and Safety.

***** Regulation on working with carcinogenic and mutagenic substance in the Health and Safety Precautions

***** Regulation on Working with the Chemicals in the Health and Safety Precautions

***** Regulation on the Use of Personal Protective Equipment at Workplaces

***** Manual Handling Regulations

(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) 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.

(13) 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

(14) Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro; Gminski et al, Abstract DGPT conference Mainz, 2008.

(15) 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.

(16) 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.

(17) Occurrence of allergic contact dermatitis caused by chromium in cement. A review of epidemiological investigations, Kåre Lenvik, Helge Kjuus, NIOH, Oslo, December 2011.

16.4. Hazard Statement

Full text of the hazard statement Section 2.1.

H318	Causes serious eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.

16.4. Training Advice:

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 SDS.

16.5. Information about the SDS Preparatory:

Name&Surname :	FATMA UZUN KABLAN
Contact Information:	fuzun@limakcement.com
Compliance Certificate Date:	20.05.2015
Qualification Certificate No:	01.53.21