Safety Data Sheet
For CEM II/A-M (S-L) 42.5R

This Safety Data Sheet is in compliance with the Rulebook on the Contents of the Safety Data Sheet ("Official Gazette of the Republic of Serbia" no. 100/2011)

Section 1. IDENTIFICATION OF THE PRODUCT AND OF THE ENTITY THAT PLACES THE PRODUCT ON THE MARKET

Sub-section 1.1. Product identifier **Trade name**	CEM II/A-M (S-L) 42.5R
Other names(1)	Cement PC 20M (S-L) 42.5R as per the Rulebook on Cement Quality ("Official Gazette of the Republic of Serbia" no. 34/2013 and 44/2014)
Sub-section 1.2. Relevant identified uses of the product and uses advised against **Method of use of the chemical**	Cement is used as hydraulic binder for concrete, mortar, building fillings, grouts, concrete casts, etc.
Uses advised against	Not available.
Sub-section 1.3. Details of the supplier	Name: Lafarge BFC Manufacturer: Lafarge BFC Address and phone number: Trg BFC 1, 21300 Beočin, +38121874100 E-mail address: ivana.vidic@lafarge.com Working hours 07-15h
Sub-section 1.4. Emergency telephone number	Nacionalni centar za kontrolu trovanja na VMA (National Poison Control Centre within the Military-Medical Academy), Phone +38111 360 8440; working hours 0-24h

(1) – Explanation in Section 16

Section 2. HAZARDS IDENTIFICATION

Sub-section 2.1. Classification of the product

The product was classified in accordance with the Rulebook on Classification, Packaging, Labelling and Advertising of Chemicals and Certain Products in compliance with globally harmonized UN system of classification and labelling ("Official Gazette of the Republic of Serbia" no. 105/2013 and 52/2017).

Causes skin irritation – cat. 2, H315
May cause an allergic skin reaction– cat. 1, H317
Causes serious eye damage- cat. 1, H318
May cause respiratory irritation - cat.3, H335

Sub-section 2.2. Label elements

Labelling according to Rulebook on Classification, Packaging, Labelling and Advertising of Chemicals and Certain Products (in compliance with globally harmonized UN system of classification and labelling) ("Official Gazette of the Republic of Serbia" no. 105/2013 and 52/2017).

DANGER

Hazard statements:
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H318: Causes serious eye damage
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 if it is possible to do so. Continue rinsing.
P310	Contact the Poison Control Centre immediately or get medical advice.
P302+P352	IF ON SKIN: Wash with plenty of water.
P332+P313	If skin irritation or rash occurs get medical advice/opinion
P261	Avoid breathing dust
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P309+P311	IF exposed or if you feel unwell: call a Poison Control Centre or doctor.
P501	Dispose the packaging in accordance with the national legislation.

Sub-section 2.3. Other hazards
The product does not meet the criteria for identification as PBT or vPvT chemical.
The product delivered in bulk may contain water soluble Cr^{6+} which, if contact with skin, may cause allergic reaction.

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Sub-section 3.1. Information on substance ingredients/components
Not relevant

Sub-section 3.2. Information on mixture ingredients/components

Component	Percentage (of weight)	Classification	CAS number	EC number
Portland cement clinker	80 - 88	Skin irritation – cat. 2, H315 Skin sensitisation – cat. 1, H317 Serious eye damage - cat 1, H318 Specific target organ toxicity single exposure - cat.3, H335	65997-15-1	266-043-4
Gypsum, calcium di-hydrate	0-5	None	10101-41-4	
Slags, ferrous metal, blast furnace	5-10	None	65996-69-2	266-002-0
Limestone	5-10	None	1317-65-3	215-279-6

Section 4. FIRST AID MEASURES

Sub-section 4.1. Description of first aid measures
Contact with the eyes:
Flush eyes immediately with water, without any delay. The eyes should be rinsed with plenty of water for at least 15 minutes in order to remove all particles and pay special attention to eyelashes. Seek for medical assistance without any delay.
Skin contact:
Wash the skin thoroughly with pH-neutral soap and cold water. If irritation, pain or other changes on the skin occur, seek for medical assistance. Remove contaminated clothing immediately. In case of rash, irritation, dermatitis, burns, seek medical assistance urgently.
Dust inhalation:
If product dust is inhaled move the person to fresh air. In case of inflammation of the airways, suffocation and coughing, seek for medical assistance.
In case of ingestion:
Do not induce vomiting. If a person is conscious let him/her drinks plenty of water. If larger quantities of product are ingested, seek medical assistance urgently.

Sub-section 4.2. Most important symptoms and effects, both acute and delayed
Eyes:
In case that product (dry or wet) gets in contact with the eye it may cause serious and potentially irreversible injuries. It causes immediate or delayed irritation and eye mucous inflammation. First aid measures should be applied as soon as possible and physician should be contacted.

Skin:
In case of longer exposure the product may have an irritating effect on wet skin (due to sweating or humid air). Prolonged exposure to wet cement, or exposure of wet parts of body to dry cement, may cause serious, potentially irreversible damages to skin, eyes, respiratory system and digestive tract. Contact with skin may be dangerous even if there is no pain or discomfort. Cement may cause dermatitis due to irritation and skin allergies. The symptoms on the skin affected by dermatitis include redness, itching, rash, roughness, cracking.

Imitative dermatitis is caused by physical properties of cement, including acidity and abrasiveness.
Inhalation:
Nose, throat, and lung irritation may occur when respiratory system gets in contact with cement dust with the symptoms of coughing and potential suffocation, depending on the length of exposure. Inhalation of larger quantities causes burns on the nose, throat and lung mucous. Frequent inhalation of larger quantities of product dust during a longer time period increases the probability of lung diseases development.
Ingestion:
Do not swallow the product. Swallowing of a small quantity of cement does not have to be harmful, while ingestion of larger quantities may cause burns in the mouth, throat and other digestive organs.

Sub-section 4.3. Indication of any immediate medical attention and special treatment needed
When contacting a physician, take this safety data sheet with you.
Clinical trials and medical monitoring of postponed effects that the product may cause, antidote and contraindications: Not available.

Section 5. FIREFIGHTING MEASURES

Sub-section 5.1. Extinguishing media
In case of fire in the vicinity of the product undertake measures and extinguishing media appropriate for the environment where the fire occurred. Alcoholic foam, powder, CO_2 and water spray may be used.
Unsuitable extinguishing media: Not available.

Sub-section 5.2. Special hazards arising from the substance or mixture
There are no dangerous burning products.

Sub-section 5.3. Advice for firefighters
The use of personal protective equipment (shoes, clothing, gloves, eye and face protection, breathing apparatus) is mandatory.

Section 6. ACCIDENTAL RELEASE MEASURES

Sub-section 6.1. Personal precautions, protective equipment and emergency procedures
Avoid inhaling the cement dust and contact of the product with skin. Wear appropriate protective equipment.

Sub-section 6.2. Environmental precautions
Do not wash cement down to sewage and drainage systems, and do not allow to reach surface or ground water.

Sub-section 6.3. Methods and material for containment and cleaning up
If the product is spilled, it is necessary to collect the spilled material and place it in a suitable container. Use dry cleaning methods that do not cause dust to disperse into the air, e.g. use industrial vacuum cleaners with sensitive filters. Prevent cement paste from flowing into sewers, drainage systems and watercourses. Dispose of waste material in an appropriate container. The use of personal protective equipment is mandatory. When collecting spilled material, avoid procedures that cause dispersion of product dust into the air. The product can be used further if it is not contaminated with other materials.

Sub-section 6.4. Reference to other sections
Appropriate personal protective equipment is listed in Section 8.
Collected cement is stored in accordance with local, provincial and national regulations, as specified in Section 13.

Section 7. HANDLING AND STORAGE

Sub-section 7.1. Precautions for safe handling

Handle with care and use appropriate control measures. Cement can stick to the walls of an enclosed space and unexpectedly collapse and fall. Static discharge can damage equipment or can cause injuries. Apply appropriate measures to control and prevent the formation of dust and use the personal protective equipment, as described in Section 8.

Sub-section 7.2. Conditions for safe storage, including any incompatibilities

No special requirements are set for storage temperature and pressure. Proper grounding of all pneumatic conveyor systems should be done due to the possibility of static electricity occurrence and discharge during the movement of cement powder through plastic, non-conductive or unearthed pneumatic conveyors. The product is stored and kept in silos, protected from moisture and contamination.

Sub-section 7.3. Specific use methods

To reduce the formation of dust when preparing concrete in open mixers, first pour water, and then carefully add the product. Pour the product from a height as low as possible and mix slowly.

Section 8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Sub-section 8.1. Exposure control parameters

Use appropriate ventilation systems to keep dust levels below the maximum allowable concentrations. For cement dust, the following maximum permissible exposure concentrations (MACs) are defined:
MAC: 5 mg/m3 – for respirable dust
15 mg/m3 – for total dust

Sub-section 8.2. Exposure control and personal protection

Technical control: Use appropriate ventilation systems to keep dust levels below the maximum permitted concentrations.
Personal precaution measures: Eye protection: Use safety goggles with side protection, which will prevent dust from coming into contact with the eyes. The use of contact lenses when working with cement is not recommended, due to possible dusting.
Skin protection: Use appropriate protective gloves, protective footwear and clothing that is water-resistant and that will prevent the product from coming into contact with the skin. Do not use protective creams instead of waterproof gloves. Use a protective clothing and boots to protect other parts of the body. Remove clothing and protective equipment saturated with wet product dust and wash exposed skin surface immediately.
Respiratory protection: Appropriate respirators are required to ensure that staff exposure to cement dust is lower than the maximum permitted. Otherwise, use a protective mask.
Environmental controls: Do not dispose of the product in the environment.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Sub-section 9.1. Information on basic physical and chemical properties

Appearance: Greyish-white powder
Odour: Odourless
pH (in water): 11-13,5 (at the temperature of 20 °C, five-percent solution)
Melting point/Freezing point: Not available
Initial boiling point and boiling range: Not available
Flash point: Not available
Evaporation rate: Not available
Flammability: Not available
Upper/lower flammability or explosive limits: Not available

Vapour pressure: Not available
Vapour density: Not available
Relative density: 2.8-3.2 g/cm^3 (at the temperature of 20 °C, Lafarge method)
Solubility in water: Not available
Partition coefficient in the n-octanol/water system: Not available
Auto-ignition temperature: Not available
Decomposition temperature: Not available
Viscosity: Not available
Explosive properties: Not available
Oxidising properties: Not available

Sub-section 9.2. Other information
Mixability, conductivity, solubility in oil, oxido-reduction potential: Not available.

Informations on testing, that are not available, have not been found in reference bibliography.

Section 10. STABILITY AND REACTIVITY

Sub-section 10.1. Reactivity
It dissolves in hydrofluoric acid, and as a product, gaseous silicon tetrafluoride is formed, which is corrosive. The product reacts in water and forms silicates and calcium hydroxide. Silicates react with strong oxidants such as fluoride, boron trifluoride, chlorine trifluoride and manganese trifluoride

Sub-section 10.2. Chemical stability
The product is a stable material under ambient temperature and pressure conditions during storage and keeping. Store in a dry place until use.

Sub-section 10.3. Possibility of hazardous reactions
It is not subject to polymerization reactions, nor is it subject to other reactions in which hazardous products are formed. The product is a base in contact with water, and as such is incompatible with acids, ammonium salts and aluminium and releases excess heat in contact with those materials.

Sub-section 10.4. Conditions to avoid
Keep away from moisture sources.

Sub-section 10.5. Incompatible materials
The product is a base in contact with water, and as such is incompatible with acids, ammonium salts and aluminium and releases excess heat in contact with those materials.

Sub-section 10.6. Hazardous decomposition products
The product is not decomposed into any hazardous by-products.

Section 11. TOXICOLOGICAL INFORMATION

Sub-section 11.1. Information on toxicological effects
Acute toxicity*:
The risk of a single exposure to dry powder is small or non-existent. Prolonged exposure to the product or exposure of wet parts of the body to dry cement can cause severe, potentially irreversible tissue damage (skin, eyes, and respiratory system). Due to the content of chemicals (caustic) agents, burns can occur, including third-degree burns.
Potential adverse effects on human health may vary depending on the duration and degree of exposure. In order to reduce or eliminate the hazards to human health associated with this product, exposure controls or individual protection measures, as described in Section 8, should be applied.

Skin corrosion/irritation*:
In case of prolonged exposure, the product may have an irritating effect in contact with moist skin (from sweating or humid air). Cement can cause dermatitis by skin irritation and skin allergies. Symptoms on the skin affected by dermatitis include redness, itching, rash, roughness, cracking. Irritant dermatitis is caused by physical properties of cement, including acidity and abrasiveness.
Serious eye damage/irritation:
In case that product (dry or wet) gets in contact with the eye it may cause serious and potentially irreversible injuries. First aid measures should be applied as soon as possible and physician should be contacted
Respiratory system or skin sensitisation*:
Nose, throat, and lung irritation may occur when respiratory system gets in contact with cement or hydraulic binder dust with the symptoms of coughing and potential suffocation, depending on the length of exposure. Inhalation of larger quantities causes burns on the nose, throat and lung mucous. Frequent inhalation of larger quantities of product dust during a longer time period increases the probability of lung diseases development. Sensitisation is caused by water soluble chromium (VI).
Germ cell mutagenicity*:
Not available.
Carcinogenicity*:
Cement is not included in the lists of carcinogenic substances of the International Agency for Research on Cancer - IARC or the American National Toxicology Program - NTP; however, it contains traces of crystalline silica and hexavalent chromium, which IARC and NTP classify as known causes of cancer in humans.
Reproductive toxicity*:
Not available.
Specific target organ toxicity – single exposure*:
Dust may cause irritation of the throat and respiratory tract. Sneezing, coughing and difficulties with breathing may occur due to the exceeded maximum allowable exposure concentration. However, there is currently insufficient evidence to define a dose-response relationship for these effects.
Specific target organ toxicity – repeated exposure*:
There are no chronic effects.
Based on the available data the criteria for classification have not been met.

Aspiration hazard*:
Not applicable since cement is not used as aerosol.

Probable exposure paths*:
Peroral, inhalation, dermal, eye exposure.
Symptoms in connection with physical, chemical and toxicological properties*:
Causes immediate or delayed irritation and inflammation of the mucous membrane of the eye. Cement can cause dermatitis by skin irritation and skin allergies. Symptoms of the skin cause redness, itching, rash, roughness, cracking. Skin contact can be dangerous even when there is no pain or discomfort. Reactions range from a mild rash to a severe illness with the appearance of ulcers on the skin. Upon contact of the respiratory organs with cement dust, irritation of the nose, throat, and lungs may occur, with symptoms of coughing and possible suffocation, depending on the length of exposure. Inhalation of large amounts of dust causes burns to the mucous membranes of the nose, throat and lungs. Swallowing a small amount of cement does not have to be harmful, while ingesting large amounts can cause burns in the mouth, throat and other digestive organs.
Delayed and immediate effects and chronic effects caused by short-term and prolonged exposure*:
In case of prolonged exposure, cement may have an irritating effect in contact with wet skin (from sweating or humid air). Prolonged exposure to wet cement, or exposure of wet parts of the body to dry cement, can cause severe, potentially irreversible damage to the skin, eyes, respiratory organs, and digestive tract due to burns caused by chemical (caustic) agents, including third-degree burns. Frequent inhalation of large amounts of cement dust over a long period of time increases the likelihood of developing lung disease.
Effects of interaction*:
Not available.
Absence of certain information*:
Not available.
Information on the mixture in relation to information on the substance in it*:
Not available.
Other information*:
Not available.

*The information taken over from documentation of Holcim Group

Section 12. ECO-TOXICOLOGICAL INFORMATION

Sub-section 12.1. Toxicity
Not available.

Sub-section 12.2. Persistence and degradability
Not available.

Sub-section 12.3. Bioaccumulative potential
Partition coefficient n-octanol/water, K_{ow}: Not available.
Bio-concentration factor, BCF: Not available.

Sub-section 12.4. Mobility in soil
Not available.

Sub-section 12.5. Results of PBT and vPvB assessment
Not available.

Sub-section 12.6. Other adverse effects
Not available.

Section 13. DISPOSAL CONSIDERATIONS

Sub-section 13.1. Waste treatment methods
Dispose of the generated waste in accordance with the applicable legislation in the field of waste management (Law on Waste Management ("Official Gazette of the Republic of Serbia", No. 36/2009, 88/2010 and 14/2016)) Cement is treated as waste material in case it is contaminated with other materials, and if, as such, it cannot be used further. Waste should not be disposed of in the sewage system.

Section 14. TRANSPORT INFORMATION

Sub-section 14.1. UN number
Not available.

Sub-section 14.2. UN proper shipping name
Not available.

Sub-section 14.3. Transport hazard class
The product is not included in international regulations on transport of hazardous materials (IMDG, IATA, ADR/RID).

Sub-section 14.4. Packing group
Not applicable.

Sub-section 14.5. Environmental hazard
The product is not hazardous in accordance with the criteria referred to in the UN Recommendations for Transport of Freight and Model Regulations (IMDG Code, ADR, RID and ADN).

Sub-section 14.6. Special precautions for users
Not available.

Sub-section 14.7. Transport in bulk
Not available.

Section 15. REGULATORY INFORMATION

Sub-section 15.1. Safety, health and environmental regulations
The following has been used in elaboration of this Safety Data Sheet:
Rulebook on the Content of the Safety Data Sheet ("Official Gazette of the Republic of Serbia" no. 100/2011)
Law on Chemicals ("Official Gazette of the Republic of Serbia" no. 36/2009, 88/2010, 92/2011, 93/2012, and 25/2015)
Law on Waste Management ("Official Gazette of the Republic of Serbia" no. 36/2009, 88/2010, and 14/2016),
Classification of the cement was carried out in compliance with the Rulebook on Classification, Packaging, Labelling and Advertising of Chemicals and Certain Products in compliance with globally harmonized UN system of classification and labelling ("Official Gazette of the Republic of Serbia" no. 105/2013 and 52/2017).
In accordance with the Rulebook on the Restrictions and Ban of Production, Placing on the Market and Use of Chemicals ("Official Gazette of the Republic of Serbia" no. 90/2013, 25/2015, 2/16, 44/17, and 36/18) the content of water soluble Cr6+ is restricted as follows:
1. It is prohibited to use or place on the market cement and mixtures containing it if after hydration (wetting) they contain more than 2 mg/kg (0.0002%) of soluble chromium (VI) calculated on the total mass of dry cement
2. If reduction agents are added to the cement, the supplier shall ensure that the packaging of such cement or the packaging of mixtures containing it, in addition to labelling in accordance with the regulations on classification, packaging and labelling of substances and mixtures, contains clearly and indelibly the information on the date of packaging, storage conditions, as well as information on the time period in which the reduction agent is active in maintaining the concentration of chromium (VI) below the limit value specified in point 1.
3. The prohibitions referred to in points 1 and 2 shall not apply to the placing on the market and use of cement in controlled, closed systems which are fully automated, without the possibility of contact of cement or mixtures containing cement with the skin.

Rulebook on Cement Quality ("Official Gazette of the Republic of Serbia" no. br. 34/2013, and 44/2014)
SRPS EN 197-1 Cement - Part 1: Composition, specifications and compliance criteria for common cements

Sub-section 15.2. Chemical safety assessment
No safety assessment has been carried out for the product.

Section 16. OTHER INFORMATION

Pictogram symbols:
GHS05 and GHS07

Abbreviations:
CAS-Chemical Abstracts Service
EC- European Commission number
PBT-Persistent, bioaccumulative and toxic
SRPS- the symbol for standards and similar documents passed by the Standardization Institute of Serbia
ADR/RID- European Agreements on the transport of Dangerous Goods by Road/Railway
IATA-International Air Transport Association
IMDG-International Agreement on the Maritime transport of Dangerous
vPvB-very persistent, very bioaccumulative
MAC- minimum allowed concentration
UN-United nations
VMA-Military-Medical Academy

Changes and amendments:

In the Sub-section 2.2. **Precautionary statements:** The given information are stated on the label.
The text given below explains that some of the precautionary measures refer to prevention, reacting and disposal:

Precautionary statements – prevention:	P264 Wash hands thoroughly after handling. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statements – reaction:	P302+P352 IF ON SKIN: Wash with plenty of water. P332+P313 IF SKIN irritation occurs: Get medical advice/attention. P321 Specific treatment. P362+P364 Take off contaminated clothes and wash it before the next use. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and if it is possible to do so. Continue rinsing. P310 Contact the Poison Control Centre immediately or get medical advice.
Precautionary statements – disposal:	P501 Dispose the packaging in accordance the national legislation.

Footnotes:
(1) Other names: As per the Rulebook on Cement Quality ("Official Gazette of the Republic of Serbia" no. 34/2013 and 44/2014) - Cement PC 20M (S-L) 42.5R

Note: The content of this Safety Data Sheet is in compliance with the information available to Holcim Group.

The end of the Safety Data Sheet.