



Technical list of blast-furnace slag cement CEM III/A 42,5 N

February 2024

# Cement Hranice



## **CEM III/A 42,5 N** **Blast-furnace cement CEM III/A 42,5 N**

### **Description:**

CEM III/A 42,5 N blast-furnace slag cement is manufactured in accordance with ČSN EN 197-1 ed. 2. It is a hydraulic binder in powder form manufactured by grinding together Portland clinker, blast-furnace slag, calcium sulphate, additional constituents and additives. These constituents are specified the technical norm EN 197-1, article 5.

### **Characteristic features:**

- middle rapid increase in strength
- lower initial strength
- high standardized strength
- lower development of hydration heat in the process of setting and hardening

### **Used:**

Used for concrete, reinforced concrete building structures, which do not require high initial strength and rapid increase in strength. CEM III/A 42,5 N is suitable for concrete of higher and conventional strength classes. This cement is suitable for concreting of massive building facilities and for concreting in summer (warm) season due to the lower hydration heat development. Concrete with blast-furnace cement has an increased resistance to aggressive environments and is less susceptible to efflorescence. The concrete with this cement is associated with continuation of the increase in

strength even after the specified standard of 28 days compared to the constant strength values of Portland cement. This cement is not suitable for concreting in winter (in the negative outdoor temperatures).

### **Method of delivery:**

- bulk loaded in tank trucks or Uacs rail wagons

### **Additional information:**

- this cement is subject to the notice of the Department of Environmental Hazards and Environmental Damages of the Ministry of Environment regarding the definition of terms included in point 47, paragraph 3 of Annex XVII to Regulation (EC) No. 1907/2006.
- the content of water-soluble hexavalent chromium (Cr VI+) shall not exceed 0,0002 % for a shelf life of 4 months provided that protection against exposure to water and high relative humidity (max. 75 %) is provided during storage – see national annexes NA.1 ČSN EN 197-1 ed. 2.
- shelf life is 4 months from the date of dispatch, which is stated on the delivery, or. consignment note. At the same time, the condition must be observed that protection against the effects of water and high relative humidity (max. 75%) is ensured during storage - see national annexes NA.1 ČSN EN 197-1 ed.2.

### **Quality, environment, safety and energy management:**

- Quality Management Certificate according to ČSN EN ISO 9001
- Environment Management Certificate according to ČSN EN ISO 14001
- Occupation Safety Management Certificate according to ČSN ISO 45001
- Energy Management Certificate according to ČSN EN ISO 50001

### *Composition of the blast-furnace slag cement*

Type of cement	Main constituent		Additional constit.
	Portland clinker	Slag	
CEM III/A	35-64%	36-65%	0-5%

To said ratio of the components is not included calcium sulfate, which is added as a setting regulator, and additives facilitating cement production.

Date of update 18. 2. 2024

Technical parameters:

CEM I=5 ( & ) B			
Parameter	Unit	EN 197-1 requirement	Average achieved values
Initial strength (2 days) (compressive strength)	MPa	≥ 10	14,5
Initial strength (28 days) (compressive strength)	MPa	42,5 - 62,5	56
Setting initiation	minutes	≥ 60	190
Volume stability (expansion)	mm	≤ 10	0,9
Loss on ignition	%	≤ 5,0	2,7
Insoluble residue	%	≤ 5,0	0,38
Sulphate content (as SO <sub>3</sub> )	%	≤ 4,0	2,7
Chloride content	%	≤ 0,1	0,08

The given values are for information only and may differ from the values of the specific samples.

W a a c A A { ^ } o A / A @ A ^ ! ^ ^ A A } c a [ ] { ^ } c a / - ^ } & A a & i a a \* A A C S N E N 206 +A2 and C S N P 73 2404

9 b j f c b a Y b H J ' j b Z i Y b W X Y [ f Y Y																		
Cement	corrosion risk free	corrosion caused by carbonation				corrosion caused by chlorides (other than seawater)			alternating free-thaw action				chemically aggressive environment			abrasion		
	X0	XC1	XC2	XC3	XC4	XD1	XD2	XD3	XF1	XF2	XF3	XF4	XA1	XA2	XA3	XM1	XM2	XM3
CEM III/A	x	x	x	x	x	x	x	x	x	x	x	x	x	x <sup>a)</sup>	x <sup>a)</sup>	x	x	x

x ... usable for the given degree of environmental

a) under chemical sulfate aggression with the degree of environmental influence exceeding XA1 (concentration of sulfate ions SO<sub>4</sub><sup>2-</sup> greater than 600 mg/l in the groundwater or 3000 mg/kg, optionally 2000 mg/kg in the natural ground) it is necessary to use the sulfate resistant cement SR. With the content of SO<sub>4</sub><sup>2-</sup> up to 1500 mg/l it is possible to use CEM III/A with at least 10% ash content. For other cases of influence of environment XA2 and XA3, such cement type is suitable.

4-01565

Date of update 18. 2. 2024