



Technical list [ Nortland cement CEM I 42,5 R (sc)
for cement-concrete covers

January 2021



CEM I 42,5 R (sc)
Portland cement CEM I 42,5 R (sc) for
cement-concrete covers

Description:

CEM I 42,5 R Portland 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, calcium sulphate and additives. These constituents are specified technical standards EN 197-1, Article 5.

It meets the requirements defined in Article 6.1 of the specific technical documents of ČSN 73 6123-1.

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CEM I	100%

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- higher development of hydration heat in the process of setting and hardening Ā

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Quality, environment, safety

- Quality Management Certificate according to ČSN EN ISO 9001
- Environmental Management Certificate according to ČSN EN ISO 14001
- Occupational Safety Management Certificate according to ČSN ISO 45001

Technical parameters:

CEM I 42,5 R (sc)			
Parameter	Unit	EN 197-1 and ČSN 73 6123-1	Technical specification
Initial strength (2 days) (compressive strength)	MPa	≥ 20	24
Standardized strength (28 days) (compressive strength)	MPa	42,5 - 62,5	57
Setting time (initial)	minutes	≥ 90	160
Maximum water demand (water-cement ratio)	mm	≤ 10	1,0
Soundness (autoclave expansion)	%	≤ 3,0	1,16
Loss of specific surface area	%	≤ 5,0	0,2
Free SO ₃ content	%	≤ 4,0	3,05
SO ₃ content (total)	%	≤ 0,1	0,017
Iron content (C ₃ A = 2,65 Al ₂ O ₃ - 1,69 Fe ₂ O ₃)	%	≤ 8,0	7,23
Mill (Blaine)	m ² /kg	≤ 350	3400
Na ₂ O _{ekv.}	%	≤ 0,80	0,55

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

Usability of cements for the degree of environmental influence according to ČSN EN 206+A1 and ČSN P 73 2404

Cement	9bj jfcba YbHJ j bZi YbW XY fYY																	
	corrosion risk free	corrosion caused by carbonation				corrosion caused by chlorides (other than seawater)			alternating freeze-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 I	x	x	x	x	x	x	x	x	x	x	x	x	x	x ^{a)}	x ^{a)}	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 SO₄²⁻ 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 SO₄²⁻ up to 1500 mg/l it is possible to use CEM I with adequate dose of pozzolant admixture (e.g. with at least 20% fly ash content). For other cases of influence of environment XA2 and XA3, such cement type is suitable.

4-01565

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