

AlphaCem

Portland Blast Furnace Slag Cement

CEM III / A-S 52.5 L as per BS EN 197-1 : 2011 & Blended Cement IS (<70) ASTM C-595-11

Introduction:

NCF introducing its Portland Blast Furnace Slag Cement (PSC) as AlphaCem. It is a Green building material for sustainable constructions. AlphaCem is manufactured by uniform inter-grinding of high quality clinker blended with judicious amounts of superior blast furnace slag having high glass content and with gypsum.

AlphaCem contains minimum 50% slag and its unique Chemical & Physical properties make it ideal for use in high performance concrete and suitable for mass construction due to its low heat of hydration.

The Strength development of concrete made with AlphaCem is slower at early ages (less than 7 days) than concrete made with OPC but later strength (28D) of concrete would be higher than OPC concrete due to secondary hydration, however the AlphaCem concrete will continue to gain strength up to 56 days and 90 days. Elastic modulus is slightly higher than Portland cement concrete although creep may be reduced.

NCF's AlphaCem surpasses all Chemical & Physical requirements of **BS EN 197-1 CEM III A-S 52.5 L and ASTM C 595** standards.

NCF has won many laurels for its cement production and has ISO 9001, ISO 14001 and ISO 18001 certifications. It has grown steadily from time to time through its consistent quality and customer service.

Applications:



- All types of residential, commercial and Industrial projects & High-rise buildings.
- Water retaining structures.
- Concrete roads and Flyovers.
- Most suitable for marine constructions such as Sea ports and Shore protection constructions.
- Pre-cast concrete products, Tiles, Pipes and Blocks etc.
- Foundations and piles in construction.
- Construction of Effluent and Sewage treatment plants.

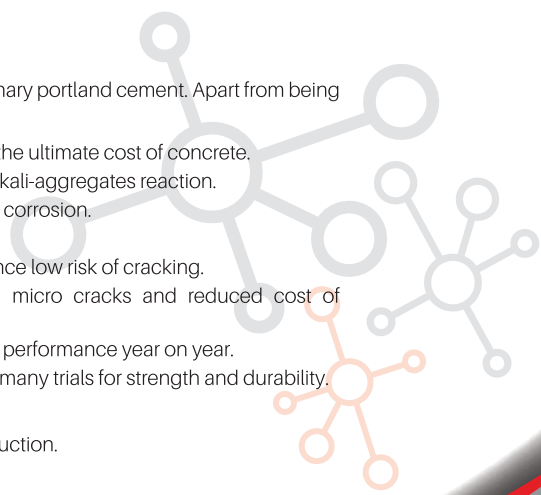
Benefits of AlphaCem:

AlphaCem's inherent chemistry gives it several advantages over ordinary portland cement. Apart from being more environment-friendly, it offers;

- Higher 28D Strength and then requires less Binder which reduces the ultimate cost of concrete.
- Excellent resistance to Chloride & Sulphate attacks and CO₂ and Alkali-aggregates reaction.
- Improved workability reduced bleeding as well as segregation and corrosion.
- Denser, less permeable concrete and mortar.
- Less heat of hydration, reduced plasticity and drying shrinkage hence low risk of cracking.
- Increased service ability with less deflection of members and micro cracks and reduced cost of construction and maintenance.
- Its optimum PSD (Particle Size Distribution) ensures unsurpassable performance year on year.
- Fix composition & consistent Quality of material hence, no need of many trials for strength and durability.
- Green product, generate less carbon foot print.

All these factors make for a strong, durable, and longer lasting construction.

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NCF AlphaCem typical test values against the International standard requirements

Parameters	Units	Standard Requirements		Typical Values of AlphaCem as per BSEN 197-1 CEM III A-S	
		CEM-III A-S 52.5L BS EN 197-1:2011	ASTM C-595 IS (<70)		
Loss On Ignition	LOI	%	Max. 5.00	Max. 3.00	1.30 - 2.0
Silicon Dioxide	SiO ₂	%	--	--	25.5 - 27.5
Aluminium Oxide	Al ₂ O ₃	%	--	--	9.0 - 10.50
Ferric Oxide	Fe ₂ O ₃	%	--	--	1.50 - 2.2
Calcium Oxide	CaO	%	--	--	50.2 - 53.0
Magnesium Oxide	MgO	%	--	--	3.50 - 6.0
Equivalent Alkali (Na ₂ O + 0.658 * K ₂ O)		%	--	--	0.35 - 0.50
Sulphur Trioxide	SO ₃	%	Max. 4.00	Max. 3.00	1.80 - 2.4
Chloride	Cl ⁻	%	Max. 0.10	--	0.015 - 0.040
Sulphide Sulphur	S ²⁻	%	--	Max. 2.00	0.30 - 0.40
Insoluble Residue	IR	%	Max. 5.00	Max. 1.00	0.30 - 0.50
Physical Test Results					
Fineness (Specific Surface)	Blaines	M ² /kg	--	--	420 - 445
Initial Setting Time	IST	Minutes	Min. 45	Min. 45	200 - 250
Final Setting Time	FST	Minutes	--	Max. 420	220 - 270
Soundness Auto Clave Expansion		%	--	Max. 0.80	0.05 - 0.10*
Soundness-Le-Chatlier Expansion		mm	Max. 10.0	--	0.50 - 1.50
Compressive Strength					
2 Days / 3 Days (ASTM)		N/mm ²	Min. 10.0	Min. 13.0	13.5 - 17.0
7 Days		N/mm ²	--	Min. 20.0	32.5 - 37.5
28 Days		N/mm ²	Min.52.5	Min. 25.0	55.0 - 61.0

*Values obtained as per ASTM Standards

Product Related Information

Admixture addition	Trial should be carried out to verify quality and find out the optimum dosage
Test Certificate	Available on request
Availability	AlphaCem is supplied in Bulk tanker, 50 kg Paper Bags & Jumbo bags
Storage	AlphaCem like all other cements should be stored dry in well-maintained silo (for bulk) or weather tight building (for bags) with no damp air or Moisture ingress
Technical Support	Further information and advice can be obtained from Commercial Department






NCF Product Portfolio

S.No	Products Type		Standards
1	Ordinary Portland Cement	NorCem	CEM I 42.5 N as per BS EN 197-1:2011 ASTM C150-12 Type I
		MSCem	ASTM C150-12 Type II
2	Portland Blastfurnace Slag Cement	AlphaCem	CEM III/A-S 52.5 L as per BSEN 197-1:2011 Blended Cement IS(<70) as per ASTM C-595-11
		SRCem	CEM III/B- SR 42.5 N as per BSEN 197-1:2011 Blended Cement IS(<70)(HS) as per ASTM C-595-11
3	GGBFS	ProCem	As per BSEN 15167-1:2006, BS 6699:1992 & ASTM C-989 - 10
4	White Composite Cement	AlbaCem-II	CEM II/B-M 52.5 N as per BS EN 197-1:2011 Blended Composite Cement TYPE GU as per ASTM C 1157-10



HEALTH & SAFETY

Available

 Bulk  50kg bag  JB

Other Available Products