



ÇİMSA

REFRO50

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LOW IRON + HIGH THERMAL RESISTANCE

25
KG



Refro50 is a high-performance calcium aluminate cement developed by Çimsa's R&D Center to meet the specific needs of refractory manufacturers. With an alumina content above 50%, Refro50 delivers thermal resistance up to 1450 °C, low iron content (below 2%), and an optimized phase structure for long-lasting stability in demanding applications.

Its exceptional early and final strength development, combined with resistance to thermal shock and abrasion, makes Refro50 a reliable binder for monolithic refractory systems. Ideal for furnace linings exposed to chemical attack and high-temperature industrial processes, Refro50 ensures durability and performance under the toughest conditions.

REFRO50 IS PRODUCED ACCORDING TO EN 14647 STANDARDS AND HAS THE FOLLOWING FEATURES.



Physical and Mechanical

Physical and Mechanical	Çimsa Values (%)
Initial Set (hr)	≥ 90
Final Set	up to 120 minutes after initial set
Compressive Strength (MPa)	6 hr ≥ 18,0 - 24 hr ≥ 60,0
Specific Gravity (g/cm ³)	≤ 3,1
Residue at 45 microns (%)	≤ 7,0
Residue at 90 microns (%)	≤ 1,0
Blaine (cm ² /g)	≥ 3800

Chemical Composition

Al ₂ O ₃ (%)	CaO(%)	SiO ₂ (%)	Fe ₂ O ₃ (%)	TiO ₂ (%)	MgO (%)	SO ₃ (%)	Na ₂ Eq Alkali (%)	Cl-as ions (%)	S-as ions (%)
≥ 51,0	≤ 38,8	≤ 6,0	≤ 2,5	≤ 4,0	≤ 1,0	≤ 0,2	≤ 0,3	≤ 0,01	≤ 0,1

Phase Composition

Ana Mineral Fazı	: CA
Yardımcı Mineral Fazları	: C ₁₂ A ₇ , C ₄ AF

%2,5

Refro50 ensures high thermal stability with Fe₂O₃ content below 2,5%.

pH 3

Maintains integrity down to pH 3, providing excellent resistance to acidic environments.

MAX

Optimized phase structure delivers superior abrasion resistance; further enhanced with Rego.

1450 °C

Thermal resistance up to 1450 °C - ideal for refractory applications.



ADVANTAGES



THERMAL RESISTANCE

Thanks to its optimized phase structure, Refro50 provides high thermal resistance up to 1450 °C. While Portland cement loses its integrity around 400 °C, Refro50 remains stable, making it a reliable binder for high-temperature mortars and castable refractory systems.



HIGH ABRASION RESISTANCE

With its optimized phase structure, Refro50 delivers exceptional abrasion resistance in refractory applications. When combined with Rego, the system's mechanical strength and service life are significantly enhanced.



HIGH FINAL STRENGTH

Refro50 achieves 95% of its ultimate strength within the first 24 hours, exceeding the 28-day strength of Portland cement. This feature provides a major advantage for applications requiring rapid commissioning.



LIMITED IRON CONTENT

With Fe_2O_3 content below 2%, Refro50 offers a more stable structure at high temperatures. Its low iron content minimizes unwanted reactions, enhancing thermal stability and chemical resistance—making it a reliable binder for high-temperature processes.



LOW CHROMIUM (VI) CONTENT

High chromium (VI) levels can cause skin sensitivity and irritation upon contact with cement. According to EU regulations, all cement products must contain less than 2 ppm of chromium (VI). Refro50 naturally meets this requirement, providing safer handling and compliance with health standards.



RESISTANCE TO ACID

Thanks to the inherent advantages of CAC technology, Refro50 provides excellent resistance to acidic environments. While Portland cement matrices begin to deteriorate below pH 7, Refro50 maintains its integrity down to pH 3. This makes it an ideal solution for applications exposed to aggressive chemical conditions.



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