



## 1 GENERAL INFORMATION

Refro50 is a calcium aluminate cement product which is specifically designed for refractory producers by Çimsa Research and Application Center.

Refro50 offers various advantages to refractory applications such as;

- High abrasion resistance,
- Thermal resistance up to 1450 °C,
- Easy application in winter conditions even under the freezing point (up to -5°C),
- Helps to develop medium cement refractory mortar applications,

## 2 APPLICATION AREAS

**Refro50's some application areas are;**

- Iron and steel industry products,
- Glass industry products,
- Ceramic industry products,
- Petrochemical industry products,
- Aluminum industry products.

## 3 PRODUCTION

Çimsa Aluminates products are produced in L-shaped kilns by fused method with the special cooling system.

After cooling, clinker is ground in ball mills and packaging is done.

## 4 PHASE COMPOSITION

**Major Mineral Phase** : CA

**Minor Mineral Phases** : C<sub>12</sub>A<sub>7</sub>, C<sub>4</sub>AF

## 5 CHEMICAL COMPOSITION

Al <sub>2</sub> O <sub>3</sub> (%)	CaO(%)	SiO <sub>2</sub> (%)
≥51,0	≤38,8	≤6,0

Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	MgO (%)
≤2,5	≤4,0	≤1,0

## MINOR COMPOSITION

SO <sub>3</sub> (%)	Na 2Eq Alkali (%)	Cl-as ions (%)	S-as ions (%)
≤0,2	≤0,3	≤0,01	≤0,1

## 6 PHYSICAL AND MECHANICAL PROPERTIES

Initial Setting Time (min)	≥90
Final Setting Time (min)	up to 120 minutes after initial set
Compressive Strength (MPa)	6 hr ≥ 18,0 24 hr ≥ 60,0

For mortar testing in accordance with EN 14647, a mix prepared with CEN standard sand and a water-to-cement ratio of 0.40 is used.

Specific Gravity (g/cm <sup>3</sup> )	≤3,1
Residue at 45 microns (%)	≤7,0
Residue at 90 microns (%)	≤1,0
Blaine (cm <sup>2</sup> /g)	≥3800

## 7 QUALITY CONTROL

Çimsa Aluminates products are produced according to TS EN 14647 standard. Production processes are certified according to EN ISO 9001, EN ISO 45001 and EN ISO 14001.

## 8 SAFETY INSTRUCTIONS

Standard safety requirements for regular cements have to be followed. For more detailed information, please refer to the Safety Data Sheet of Refro50.

## 9 STORAGE CONDITIONS AND SHELF LIFE

Refro50 must be stored in dry and sheltered conditions, in its original, tightly sealed packaging. When stored under these conditions, the product retains its properties for up to 12 months. No more than 10 bags or 2 pallets should be stacked on top of each other. The product should always remain in its original packaging, and when not in use, the package must be tightly sealed.

