

# Çimsa Resistant SR

## TECHNICAL DATA SHEET

### 1 GENERAL INFORMATION

According to the TS EN 197-1:2012 standard, Çimsa Resistant SR (CEM I 42.5 R SR 5) sulfate-resistant Portland cement consists only of Portland cement clinker and gypsum, following the guidelines of the TS EN 197-1:2012 standard.

#### Advantages in applications;

- If the concrete is exposed to sulfate from groundwater, seawater, or other sources, the product enhances the performance of the final product by having the C<sub>3</sub>A content of the clinker below 5%. This enhances the resistance to sulfate attacks.
- The product provides high early strength, making it ideal for applications such as metro tunnels and precast projects to reduce formwork time.
- The product generates more heat of hydration, which is advantageous in cold weather, and helps mitigate the effects of low ambient temperatures, facilitating the manufacturing process.
- All typical concrete additives (e.g., plasticizing, air entraining, setting retarding additives) can be used with our Çimsa Resistant SR cement product.

### 2 AREAS OF APPLICATION

Çimsa Resistant SR Portland cement, suitable for general use, finds application in various areas:

- The product increases resistance to sulfate in structures such as bridges, dams, sea, and port structures that may be exposed to sulfate sources from sulfated ground, seawater, and groundwater.
- The product can be used in various applications such as ready mixed concrete, construction of tunnel sections, shotcrete, repair mortars, ready-to-use dry mix products and prefabricated structural elements such as beams, panels.

### 3 PRODUCTION

Stability is the core focus of Çimsa production facilities, with variability in product parameters minimized through controls conducted at every stage of the process, from raw materials to delivery. The production processes hold certifications according to EN ISO 9001, EN ISO 14001, EN ISO 50001, ISO 10002, and ISO 45001 standards.

### 4 CHEMICAL PROPERTIES

Properties	Çimsa Values (%)	Standard Limit (EN 197-1)	
		Min.	Max.
Insoluble Residue	0,4 – 0,6	-	5,0
SiO <sub>2</sub>	19,0 – 20,0	-	-
Al <sub>2</sub> O <sub>3</sub>	3,5 – 4,5	-	-
Fe <sub>2</sub> O <sub>3</sub>	3,5 – 4,5	-	-
CaO	62,0 – 64,0	-	-
MgO	1,0 – 2,0	-	-
SO <sub>3</sub>	2,20 – 2,80	-	4,0
Loss on Ignition	3,0 – 4,5	-	5,0
Na <sub>2</sub> O	0,2 – 0,4	-	-
K <sub>2</sub> O	0,4 – 0,6	-	-
Chloride (Cl)	0,02 – 0,05	-	0,10
C <sub>3</sub> A	3,5-4,5		5,0

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### 5 PHYSICAL AND MECHANICAL PROPERTIES

Properties	Çimsa Values	Standard Limit (EN 197-1)	
		Min.	Max.
Specific Weight	3,13 gr/cm <sup>3</sup>	-	-
Specific Surface (Blaine)	4200-4500 cm <sup>2</sup> /gr	-	-
Initial Setting	180 -190 Mins	60	-
Final Setting	210-240 Mins		
Water	%26-27	-	-
Soundness (Le Chatelier)	1,0 mm	-	10
0,045mm Residue on Sieve	% 3-5	-	-
2-day Compressive Strength	24-26 MPa	20	-
28-day Compressive Strength	49-51 MPa	42,5	62,5

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### 6 QUALITY CONTROL

Çimsa Resistant SR cement undergoes rigorous quality control in accordance with EN 197-1 standards. The product is made available in both domestic and foreign markets with a CE certificate.

### 7 SAFETY INSTRUCTIONS

Standard safety requirements for general cements are strictly adhered to. For more detailed information, please refer to the safety data sheet for Çimsa Resistant SR cement.

### 8 STORAGE CONDITIONS AND SHELF LIFE

Çimsa Resistant SR should be stored in dry and sheltered environments to maintain its properties for at least 6 months. Based on previous studies, the product has demonstrated the retention of its properties for over a year. Bagged products should not be stored for more than 3 months. Additionally, stacking no more than 10 bags or 2 pallets on top of each other is recommended. It is essential to store the product in its original packaging and tightly close the package when not in use.

