



**ÇİMSA**

*CEM I SR5 42.5 R*  
**RESISTANT SR**



# RESISTANT SR



CEM I SR5 42.5 R



STRONG RESISTANCE TO SULFATE ATTACK,  
MAXIMUM EFFICIENCY



Çimsa Resistant SR 42.5 is a Portland cement developed to maintain long-term performance of concrete exposed to sulfate-rich environments. Classified as CEM I SR5 42.5 R, the product provides superior protection in marine structures, foundation systems, underground constructions, and infrastructure projects subjected to sulfate attack. High early strength shortens formwork removal time in metro tunnels and precast element production, enhancing manufacturing efficiency. The fast reaction characteristic generates additional hydration heat, offering advantages in cold weather conditions. Reliable performance is achieved in a wide range of applications such as shotcrete, repair mortars, tunnel segments, ready-mixed concrete, and precast elements. An ideal solution for projects that demand durability, speed, and quality under challenging environmental conditions.

**ÇİMSA RESISTANT SR (CEM I SR5 42.5 R) PORTLAND CEMENT IS PRODUCED IN ACCORDANCE WITH THE TS EN 197-1:2012 STANDARD AND HAS THE FOLLOWING PROPERTIES:**



Chemical Properties	Çimsa Values (%)	Standard Limits (EN 197-1)	
		min	max
Insoluble Residue	0,30	-	-
SiO <sub>2</sub>	19,8	-	-
Al <sub>2</sub> O <sub>3</sub>	4,00	-	-
Fe <sub>2</sub> O <sub>3</sub>	3,95	-	-
CaO	64,4	-	-
MgO	1,20	-	-
SO <sub>3</sub>	2,90	-	4,0
Loss on Ignition	3,75	-	5,0
Na <sub>2</sub> O	0,31	-	-
K <sub>2</sub> O	0,45	-	-
Chloride (Cl)	0,04	-	0,1
C <sub>3</sub> A	4,00	-	5,0

Physical Properties	Çimsa Values	Standard Limits (EN 197-1)	
		min	max
Specific Gravity	3.13 g/cm <sup>3</sup>	-	-
Specific Surface Area (Blaine)	4000 cm <sup>2</sup> /g	-	-
Initial Setting Time	160 Minutes	60	-
Final Setting Time	220 Minutes	-	-
Water Demand	26,00%	-	-
Soundness	1 mm	-	10
Residue on 45 Micron Sieve	4,30%	-	-
2-Day Compressive Strength	MPa 27.0	20	-
7-Day Compressive Strength	MPa 40.0	-	-
28-Day Compressive Strength	MPa 53.0	42,5	62,5



# ADVANTAGES



## **RESISTANT TO SULFATE ATTACK**

Low  $C_3A$  content (below 5%) minimizes the risk of expansion and cracking in concrete caused by sulfate ions. This property ensures reliable performance in aggressive environments such as foundation systems, tunnel structures, and marine constructions.



## **HIGH DURABILITY**

Provides long-term protection against chemical effects in sulfate-bearing groundwater, seawater, and industrial environments. Extends the service life of structures, reduces maintenance frequency, and contributes to sustainable structural performance.



## **FAST PRODUCTION CAPABILITY**

High early strength development shortens formwork removal time and increases overall production speed. In precast element manufacturing, faster strength gain provides significant time savings and improves operational efficiency. An ideal choice for projects requiring rapid production cycles and consistent performance.



## **HIGH EARLY STRENGTH**

Delivers high compressive strength at early ages, allowing structural elements to gain load-bearing capacity rapidly. Accelerated strength development within the first two days shortens formwork cycles and provides advantages for time-critical projects.



## **HIGH FINAL STRENGTH**

Provides high ultimate compressive strength at 28 days, ensuring a strong foundation for long-lasting structures. Suitable for all concrete classes, offering stable strength performance within the Portland cement (CEM I 42.5 R) category.



## **OPTIMIZED SETTING TIME**

Features an optimized setting time for ease of application and controlled strength development. Offers an ideal balance between workability, finishing, and formwork removal. Enables reliable control of the setting process even under cold weather conditions.



Eskişehir Plant

İstanbul Karayolu üzeri 22.km.

Çukurhisar/Eskişehir

T: (222) 411 32 00

F: (222) 411 31 31

**ÇİMSA**