

SUPER WHITE precast



White cement with
high performance!

ÇİMSA

Çimsa Super White Cement **Precast Applications**





White Portland Cement is a product, that has been used for more than 100 years around the world, preferred for obtaining aesthetical appearances and high strength levels.

White Cement, which was started to be produced in 1990 in the Mersin Factory, has been supplied for more than 20 years to the domestic and international markets by Çimsa under the brands of Super White and Eco-White. With the Hacı Ömer Sabancı White Cement Facility, that started production in 2000, total white cement production capacity of the Mersin Factory was increased to 1.1 Mta and Çimsa became one of the three leading actors in the world's white cement market. In addition, Mersin Factory achieved to be the cement facility having the flexibility to produce both gray and white cement from the same line for the first time in the world. Today, Çimsa is one of the biggest white cement manufacturers in the world that sells directly to more than 50 countries in the world both through its terminals and Mersin Port.



**WHITE PORTLAND CEMENT TS 21 BPC
52,5 R / 85 EUROPEAN STANDARD
EN 197-1 CEM I 52,5**

Chemical Properties		Çimsa Values	EN 197-1 Limits	
			Min.	Max.
Insoluble Residue	%	0,18	-	5,0
SiO ₂	%	21,6	-	-
Al ₂ O ₃	%	4,05	-	-
Fe ₂ O ₃	%	0,26	-	-
CaO	%	65,7	-	-
MgO	%	1,30	-	-
SO ₃	%	3,30	-	4,0
Loss on Ignition	%	3,20	-	5,0
Na ₂ O	%	0,30	-	-
K ₂ O	%	0,35	-	-
Chloride (Cl ⁻)	%	0,01	-	0,1
Free CaO	%	1,60	-	-

Physical and Mechanical Properties				
Specific Weight	gr/cm ³	3,06	-	-
Specific Surface Area (Blaine)	cm ² /gr	4600	-	-
Whiteness (Y value as per CIE system)	%	85,5	85,0	-
Initial Setting	minute	100	45,0	-
Final Setting	minute	130	-	-
Water	%	30,0	-	-
Volume Consistency (Le Chatelier)	mm	1,0	-	10,0
Residue in 0,045 mm Sieve	%	1,0	-	-
Residue in 0,090 mm Sieve	%	0,1	-	-
Compressive Strength (2 days)	MPa	37,0	30,0	-
Compressive Strength (7 days)	MPa	50,0	-	-
Compressive Strength (28 days)	MPa	60	52,5	-

WHITE PORTLAND CEMENT ASTM STANDARD C-150 TYPE 1

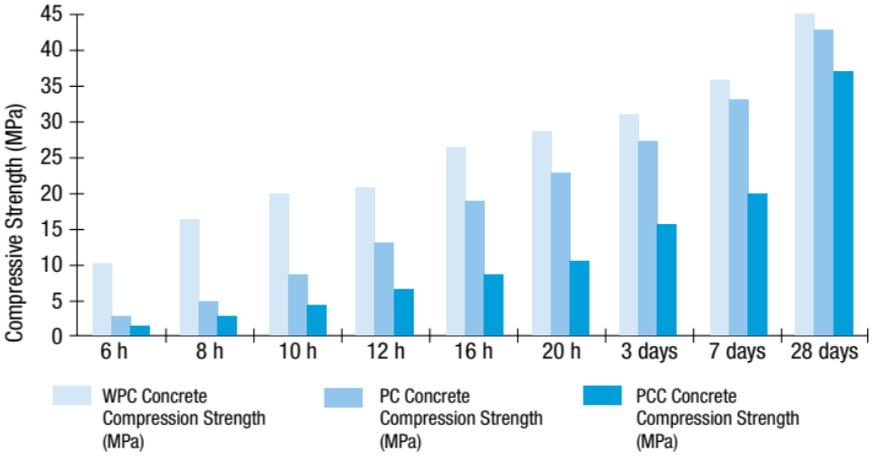
Chemical Properties		Çimsa Values	ASTM C-150 Type 1 Limits	
			Min.	Max.
Insoluble Residue	%	0,18	-	0,75
MgO	%	1,30	-	6,0
SO ₃	%	3,30	-	3,50
Loss on Ignition	%	2,60	-	3,0

Physical and Mechanical Properties				
Whiteness (Hunter Lab System)	L,a,b	92,25	-	-
		-1,63		
		3,12		
Specific Surface Area (Blaine)	m ² /kg	460	-	-
Initial Setting	minute	100	45,0	-
Final Setting	minute	130	-	375
Autoclave Expansion	mm	0,09	-	0,8
Compressive Strength (2 days)	PSI	4360	1740	-
Compressive Strength (7 days)	PSI	5220	2760	-
Compressive Strength (28 days)	PSI	6430	4060	-

Strong Super White

- Since it contains high amounts of C₃A and C₃S compounds in its structure, it is very reactive hydraulic binder.
- Owing to its high reactivity, it allows the concrete casting in the cold weather and has higher performance compared to gray cements.
- Especially, it is the cement with the highest early age strength.
- By means of stable resistance values, it allows the stable product manufacturing.
- It does not require steam cure.
- There is no need for a hardening accelerating additive.

The precast products produced using Çimsa Super White Cement gain 60% of the final strength in the first 16 hours.



Economic Super White

- With its high early and ultimate strengths, it provides advantage in cement dosing up to 40% especially in the early ages compared to gray cement.
- It gains a rapid strength without necessitating steam cure and thus decreases the investment costs.
- By increasing the manufacturing speed, it provides a capacity increase, decreases the mould cost and allows rapid shipment.
- It reduces the mould removal process time up to 6 hours.

Aesthetical Super White

- It has minimum 85% whiteness.
- It has been produced from the raw material with high purity
- It allows the preparation of perfect mixtures with the color pigments.
- With its high fineness, perfect surfaces are obtained when appropriate moulds are used.

Durable Super White

- It is in the low alkali cement class with its low alkali content. It minimizes the Alkali-Aggregate reaction risk and provides long term durability.
- Since it is finely ground, it provides the tile with the properties like low permeability and low water absorption.
- With the impermeability feature it provides to the precast products, it protects the tile against freezing-thawing in the outdoor applications and provides outdoor applications.

Products with which Çimsa Eco-white is used in Precast Production

Precast products in which Çimsa Super White is utilized are the precast concrete applications with fibre reinforcement, sleeper production, pre-stressed building materials, town-garden furniture, exterior panels, decorative wall coatings (culture stone), window posts, and artistic applications.

Things to be Paid Attention in Application

- In the exposed concrete applications, since it is expected that the surface is gapless and smooth, preparation and laying of concrete should be conducted in an accurate manner. The time-based slump loss should be controlled and the concrete should be laid by means of a striped mixer or crane and bucket (if possible) instead of pump.
- The vibration of the fresh concrete should be carried out very well.
- More attention should be paid for curing the white concrete and it should be wrapped with a wet sack or cloths if possible.
- Attention should be paid that the concrete and mortar admixtures to be used in the white concrete mixtures have transparent colour.
- In the concrete mixtures, the white aggregates having the property and granulometry that comply with TS 706 should be used. What determine the colour of the concrete are basically the cement and the fine aggregate used. In the WPC concretes that will be prepared by paying attention to the whiteness of the aggregates, specifically the fine aggregates, it is possible to reach the desired level of whiteness.
- All the materials that will enter the concrete should be kept in a clean manner.
- Attention should be paid to the fact that the accessories to be used in the reinforced concrete are not corroded and dirty. If possible, galvanized accessories should be used.
- The moulds to be used should be selected from a material similar to plywood with low water absorption. Attention should be paid to the fact that the moulds are clean and the cement paste does not leak out from the mould during vibration.

Our Quality and Compliance Documents



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