



GLASS FIBER REINFORCED CONCRETE

JK WHITE CEMENT **CEM I** - APPLICATION

Our product complies to :



CEM I - 1922 - CPR - 0353
CEM II - 1922 - CPR - 0417



Introduction

'If you want something new, you have to stop doing something old'

We at JK White Cement push hard to provide the construction industry of today with most sought after products which can fit in to any requirement. JK White Cement opens thanks to its versatility: new dimensions in design and construction, excellent quality, high strength and aesthetic appearance.



About GFRC

Glass Fiber Reinforced Concrete is a composite of cement, glass fibers, aggregates and polymers. It is concrete that use glass fibers for reinforcement instead of steel. With the thins, hollow construction of GFRC products, they can weigh a fraction of the weight of traditional precast concrete.



Application of GFRC

GFRC can be used wherever a light, strong, weather resistant, attractive and fire retardant material is required. It can be used in manufacturing architectural products such as wall panels, window surrounds, column covers, soffits, cornices, brackets, quoins, railings, pilasters, copings, domes, site furnishings, planters, bollards, urns and tables.



Glass Fiber Reinforced Concrete Strength

As an engineered material, the properties of GFRC can vary depending upon mix design, glass content and production methods. Glass fiber used in quality GFRC has a higher tensile strength than steel. As a general rule, the higher the fiber content, the higher the strength. A typical mix with 5% glass fiber has a compressive strength of 6,000 to 8,000 psi.



GFRC Durability

Glass Fiber Reinforced Concrete has been tested both by accelerated aging tests in the laboratory and in real life installations. GFRC can be expected to last as long as Precast concrete. In many environments, as when exposed to salt spray or high moisture, the GFRC can be expected to perform better, as there is no steel reinforcement to corrode. Since the surface of GFRC is a Portland concrete, it weathers much as a quality architectural Precast concrete would.



Advantages of GFRC

- Relatively light in weight compared to traditional stone or terra cotta ornaments. Its installation is quick and relatively easy.
- Will have cost advantage if large number of similar items are made.
- Can be cast to virtually any shape.
- Suitable with a cast in integral color and texture: limestone, precast, acid wash, etc. or as paint grade that is easily finished with virtually any paint.
- Made of inert minerals and will not burn. In addition, the nature of concrete acts like a thermal regulator when exposed to flame. GFRC not only will not burn, but it also protects the materials behind it from the heat of the flame.
- Installation is very fast as compared to traditional stone.

Lightweight

GFRC, thin yet strong, weighs 80% to 95% less than solid concrete. This makes it easier and faster to install and reduces the load on the buildings structure. The lighter weight and stronger material also saves transport costs, allows more design freedom and, by using less material, reduces environmental impact.

Superior Strength

GFRC made with JK White Cement is strong. For GFRC panels, this means it has the proven ability to withstand seismic loads and hurricane winds. For architectural elements, stronger means less chance for damage, easier to install and longer lasting.

Durable

GFRC made with JK White Cement lasts. It is less susceptible to weather erosion and more freeze thaw resistant than conventional concrete. The use of glass fibers for reinforcement rather than steel means it cannot rust and can even be used near marine environments.

Beautiful

GFRC made with JK White Cement provides the look and feel of natural stone, architectural precast concrete, terra cotta, wood or smooth panels. It allows the designer more freedom in shape, color and texture than any other architectural material.

Naturally Friendly to the Environment

GFRC made with JK White Cement has a much lower environmental impact than conventional concrete, stone or other materials. Made with minerals: cement, aggregates, glass fibers and, in some cases mineral pigments and special polymers, GFRC is designed to be long lasting and earth friendly.

Disaster Resistant

Hurricanes, floods, fires and earthquakes are no match for JK White Cement built GFRC. Over the years it has proven itself both in the lab and in the real world.

Design Freedom with JK White Cement built GFRC

Name your color.

Color is one of the most basic elements of architectural design. GFRC built with JK White Cement provides endless possibilities of colour, so go ahead with building your design and colour your way.

Name your texture

With JK White Cement you can expect GFRC in almost any texture you can imagine.

- Smooth
- Sandblasted
- Honed
- Exposed Aggregate
- Travertine
- Coral Stone
- Wood Grain
- Brick
- Terra Cotta
- Carved details



Technical Specifications for CEM I 52.5 N

I,R	%	Max. 0.75	0.17 - 0.20	0.18
MgO	%	Max. 6.0	0.80 - 0.95	0.93
SO ₃	%	Max. 3.5	3.30 - 3.40	3.33
NAa ₂ O	%	Max. 0.6	0.35 - 0.45	0.37
Chloride	%	Max. 0.1	0.010 - 0.014	0.012
L.O.I	%	Max. 3.0	1.7 - 2.0	1.72
LSF	%		92.0 - 93.0	92.41
C3S Tricalcium Silicate	%		53.0 - 55.0	54.36
C3A Tricalcium Aluminate	%		11.0 - 11.5	11.04
Physical Test Results				
Fineness (Air permeability)	M ² / Kg	Min. 280	370 - 390	382
Soundness (Autoclave)	%	Max. 0.8	0.02 - 0.03	0.03
Setting time (Vicat)	Min.			
Initial		Min. 45	115 - 135	120
Final		Max. 375	160 - 180	165
Compressive Strengths				
3 days str.		Min. 1740	>3800	4046
7 days str.		Min. 2760	>4500	4849
28 days str.		Min. 4060	>5500	5927
Color				
Whiteness	%	Color Meter ZE 6000	> 91.0	91.10

I,R	%	Max. 5.0	0.17 - 0.20	0.18
MgO	%	Max. 5.0	0.80 - 0.95	0.93
SO ₃	%	Max. 4.0	3.30 - 3.40	3.33
NAa ₂ O	%		0.35 - 0.45	0.37
Chloride	%	Max. 0.1	0.010 - 0.014	0.012
L.O.I	%	Max. 5.0	1.7 - 2.0	1.72
LSF	%		92.0 - 93.0	92.41
C3S Tricalcium Silicate	%		53.0 - 55.0	54.36
C2S Dicalcium Silicate	%		22.0 - 24.0	23.56
C3A Tricalcium Aluminate	%		11.0 - 11.5	11.04
C4AF Tetracalcium Aluminoferrite	%		0.76 - 0.85	0.82
Physical Test Results				
Fineness (Air permeability)	M ² / Kg		370 - 390	382
Soundness (Autoclave)	%	Max 10	0.5 - 1.0	0.50
Setting time (Vicat)	Min.			
Initial		Min. 45	120 - 150	130
Final		Max. 375	165 - 185	175
Compressive Strengths N/mm ²				
2days str.		Min. 20	> 30	34.8
7 days str.			> 45	48.0
28 days str.		Min. 52.5	> 58	58.5
Color				
Whiteness	%	Color Meter ZE 6000	> 91.0	91.10



Why you must use JK White Cement CEM I 52.5 N for these applications

- High early strength for faster demoulding
- Higher fineness will give smoother surfaces
- Higher whiteness will give exact desired colours
- Highest quality raw materials used in JK White Cement CEM I
- It is economical and more durable
- Easily and conveniently available

Technical Support

Further information and advice on this product and the full range of JK White Cement products can be obtained through putting your comments over sales.fuj@jkcement.com

Note

The aforesaid information is based on our present state of knowledge and shall inform about our products and their application possibilities. Value and characteristics provided are typical and approximate size. It should not therefore be construed as guaranteeing specific properties of the product described or their suitability for a particular application. Subject to change without prior notice.

Safety Precaution

Warning - Keep out of reach of children, avoid contact with eyes, skin and respiratory. Wear appropriate personal protection equipment like safety gloves, goggles, protection clothing and respiratory protection mask.

First aid -

Eyes contact: Rinse eyes thoroughly with water for atleast 15 minutes, including under lids to remove all particles. Seek medical attention for abrasions and burns.

Skin contact : Wash with cool water and apH neutral soap or a mild skin detergent. Seek medical attention for rash, burns, irritation, dermatitis and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement.

Inhalation : Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Ingestion : Do not induce vomiting. If conscious, have person drink plenty of water, medical attention, seek or contact poison control centers immediately.



JK Cement Works (Fujairah) FZC

Marketing office:

The Citadel Tower
Office No. 2007-2008, Business Bay,
Dubai (UAE) P.O. Box 123630
Tel: +971 4 2797303, Fax: +971 4 4203906
sales.fuj@jkcement.com

Factory Address:

Plot No. 7, Block - K, Habhab - Tawian,
Fujairah (UAE) P.O. Box 5325