

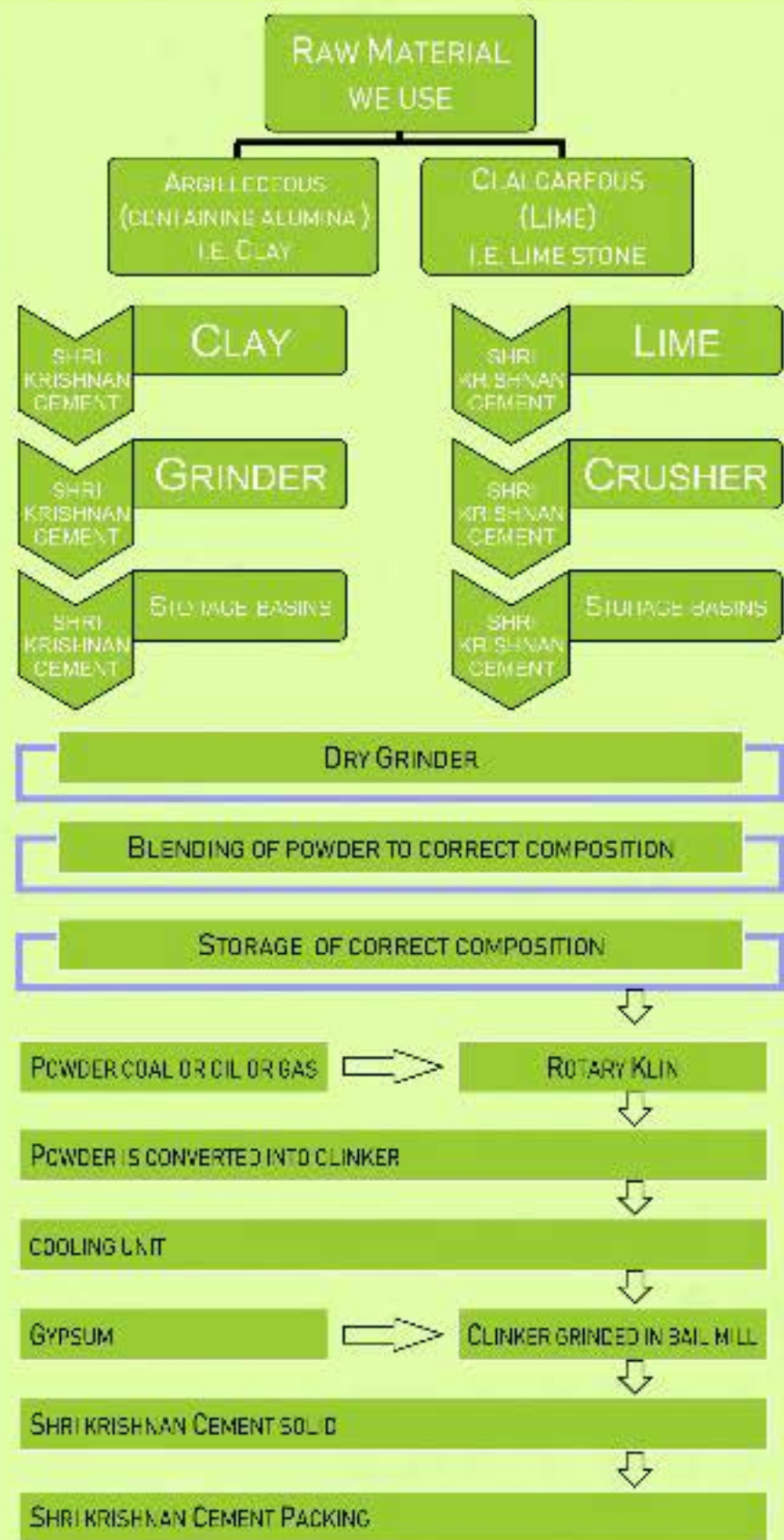


मजबूत निर्माण, हमारी पहचान!



CEMENT | TMT BAR Fe 500D | ISPAT STRUCTURAL

CEMENT MANUFACTURING PROCESS



Shri Krishnan PPC (Portland Pozzolana Cement)

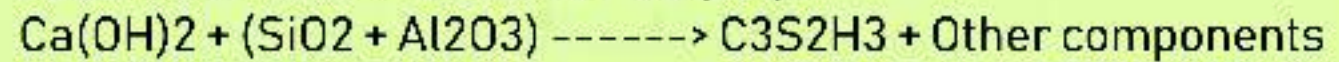
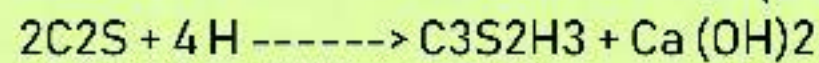
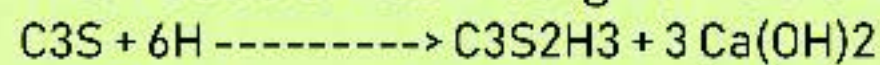
Under the brand name of Shri Krishnan Portland Pozzolana cement is a variation of Ordinary Portland Cement. Pozzolana materials namely fly ash, volcanic ash, are added to the OPC so that it becomes PPC. Pozzolana materials are added to the cement in the ratio of 15% to 35% by weight.

How Shri Krishnan PPC cement perform?

Portland Pozzolana is a siliceous and aluminous material which in itself possesses little, or no cementitious properties but will in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperature to form compounds possessing cementitious properties. It is essential that pozzolana be in a finely divided state as it is only then that silica can combine with calcium hydroxide (liberated by the hydrating Portland Cement) in the presence of water to form stable calcium silicates which have cementitious properties

The pozzolanic material reacts with calcium hydroxide liberated by the hydrating Portland Cement and forms cementitious compounds generally known as C-S-H gel.

The reaction can be given as under:



Shri Krishnan Physical characteristic of PPC (Bureau of Indian standard Requirements)									
Indian standard Code	Fineness (sq m/kg) min	Soundness by		Setting time		Compressive strength			
		Autoclave test	Autoclave test (%)	Initial setting	Final setting	1 day Min Mpa	3 day Min Mpa	7 day Min Mpa	28 day Min Mpa
IS 269-1987	225	10	13	30	40 (Equal)	16	22	33	53

Shri Krishnan Chemical Characteristics of PPC (Bureau of Indian standard Requirements)						
Indian standard Code	Lime Saturation Factor	Alumina ratio Min	Insoluble Residue (%) Max	MgO (%) Max	Max. Sulphuric anhydride	Loss on Ignition (%) Max
IS 1489-1961 (Port-4)	100.5	4.46	5-4 (100-2)5	2.42	3% Max	2.81

Shri Krishnan OPC (Ordinary Portland Cement)

In the segment of Ordinary Portland cement is the most common type of cement in general use around the world, used as a basic ingredient of concrete, mortar, stucco, and most non-specialty grout. It was developed from other types of hydraulic lime in England in the mid 19th century and usually originates from limestone. To retard the faster setting time of cement resulted from (C3A) compound a percentage of raw gypsum is added during the grinding of the clinker.

Setting and Hardening:

When ordinary Portland cement is mixed with water its chemical compound constituents undergo a series of chemical reactions that cause it to set. These chemical reactions all involve the addition of water to the basic chemical compounds. This chemical reaction with water is called "hydration". Each one of these reactions occurs at a different time and with different rates. Addition of all these reactions gives the knowledge about how Ordinary Portland cement hardens and gains strength. Those compounds and their role in hardening of cement are as under:

1. Tricalcium silicate (C3S):

Hydrates and hardens rapidly and is largely responsible for initial set and early strength. Ordinary Portland cement with higher percentages of C3S will exhibit higher early strength.

2. Dicalcium silicate (C2S):

Hydrates and hardens slowly and is largely responsible for strength increases beyond one week.

3. Tricalcium aluminate (C3A):

Hydrates and hardens the quickest. It liberates a large amount of heat almost immediately and contributes somewhat to early strength, gypsum is added to Ordinary Portland cement to retard C3A hydration. Without gypsum, C3A hydration would cause ordinary Portland cement to set almost immediately after adding water.

4. Tetracalcium aluminoferrite (C4AF):

Hydrate rapidly but contribution very little to strength. Most ordinary Portland cement colour effects are due to C4AF.

As per Indian standard requirement for compressive strength of cement

Compressive strength in N/sq mm at the age of	IS: 269-1989	IS: 8112-1989	IS: 12269-1987
	33 Grade (minimum)	43 Grade (minimum)	53 Grade (minimum)
A) 3 days	16	23	27
B) 7 days	22	33	37
C) 28 days	33	43	53

The OPC can be used for following applications:

- ☒ General Civil Engineering construction work
- ☒ RCC works (preferably where grade of concrete is up to M-30)
- ☒ Pre-cast items such as blocks, tiles, pipes etc
- ☒ Asbestos products such as sheets and pipes
- ☒ Non-structural works such as plastering, flooring etc

Cement Strength Check (Calculation)

Compressive Strength of concrete = Maximum compressive load / Cross Sectional Area

Cross sectional Area = 150mm X 150mm = 22500 mm² or 225 cm²

Assume the compression load is 450 KN.

Compressive Strength = (450000 N / 225) / 9.81 = 204 kg/cm²

Note - 1 kg is equal to 9.81 N

Shri Krishnan Observation Result

Details	Samples		
	Specimen 1	Specimen 2	Specimen 3
Compressive Load (KN)	375 KN	425 KN	435 KN
Compressive Strength (Kg/Cm ²)	(375000/225) / 9.81 = 170 kg/cm ²	(425000/225) / 9.81 = 192.5 kg/cm ²	(435000/225) / 9.81 = 197.0 kg/cm ²
Average Compressive Strength	= (170+192.5+197)/3 = 186.5 Kg/cm ²		

Compressive Strength of Concrete Grade at 7 & 28 Days

Grade of Concrete	Minimum compressive strength N/mm ² at 7 days	Specified characteristic compressive strength (N/mm ²) at 28 days
M15	10	15
M20	13.5	20
M25	17	25
M30	20	30
M35	23.5	35
M40	27	40
M45	30	45

Transportation Routes Shri Krishnan Provide

Sea Routes

Today 70 per cent of the cement movement worldwide is by sea.

Railways

Apart from the sea route, railways is another mode of transport that the companies opt for.

Roadways

Roads are preferred for shorter distances. The present scenario road carries about 65 per cent of cement freight. Even in case of rail freight, last mile connectivity is ensured by using road transport only. Thus it is paramount to ensure that issues hampering road transport are looked into and addressed as road shall continue to be the backbone of cement distribution.

WORK with SHRI KRISHNAN

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Shri Krishnan inviting application for Dealer, Distributor and Sales Promoter to grow our product selling. if you have a sufficient space to store our product then visit our website www.shrikrishnan.com and register yourself for authorized Dealer/Distributor

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SHRI KRISHNAN TMT, ISPAT & CEMENT (P) LIMITED

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Phone No. : 0755 - 492 28 82, 492 44 88



CALL FOR DEALERSHIP - 1800 313 3050

About SHRI KRISHNAN

Shri Krishnan group is the manufacturer of gray cement . Shri Krishnan as a brand embodies 'strength' and 'reliability'. We hope to be the leading cement producers globally. Company are from market since 2008 and mainly dealing with finance, manufacturing and mining sector.

Shri Krishnan Company have a big networking all India and have great hand in Madhya Pradesh, Chhattisgarh , Gujrat , Maharashtra , Uttar Pradesh and Rajasthan, Nepal ,Bangladesh, Bhutan, Andaman nicobar , Shri lanka, Netherland.

Company also export our product at International level and deal with biggest company of India.

Company lead to win market place marked by frenetic change not to survive . our main aim to provide our costumer a strong binding cement . Not surprisingly, the company is very much a future poised to become the most preferred cement manufacturer in the country.

Shri Krishnan Cement provides a range of products:

- => Portland pozzolana cement
- => Ordinary Portland cement

Short summary of our product (As per Bureau of Indian standard)

Cement are commonly known as binding material Its an dry powders and should not be confused with concretes or mortars, but they are an important constituent of both of these materials, in which they act as the 'glue' that gives strength to structures. cement is an extremely important construction material. It is used in the production of the many structures that make up the modern world including buildings, bridges, runways and roads. It is also used for facades and other decorative features on building.



COMPARSION OF DRY AND WET PROCESS OF CEMENT

Criteria	Dry process	Wet process
Hardness of raw material	Quite hard	Any type of raw material
Fuel consumption	Low	High
Time of process	Lesser	Higher
Quality	Inferior quality	Superior quality
Cost of production	High	Low
Overall cost	Costly	Cheaper
Physical state	Raw mix (solid)	Slurry (liquid)

Content Specification

Oxide	Range (wt%)	Cement 135 (wt%)
Lime CaO	60.2 -66.3	63.81
Silica SiO2	18.6 -23.4	21.45
Alumina Al2O3	2.4-6.3	4.45
Iron oxide Fe2O3	1.3-6.1	3.07
Megnesia MgO	0.6-4.8	2.42
P2O3	----	0.11
TiO2	----	0.22
Na2O		0.2
K2O	0.05 – 1.20 (NaO equiv)	0.83
SO3	1.7 – 4.6	2.46
Loss on Ignition	--	0.81
Insoluble residue	--	0.16
Free CaO	--	0.64



**READY MIX & BULKER
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