

JSPL produces Jindal Panther Cement at its modern plant facility having a capacity of 1.0 MTPA at Raigarh, Chhattisgarh and 1.5 MTPA Angul, Odisha.

The brand so far has got tremendous response across states of Odisha, Chhattisgarh, Jharkhand, Bihar, MP, UP as well as WB & North East.

Jindal Panther cement has the perfect composition blend of slag and silica which provides high strength, durability, superior cohesion, and ease of working. The high initial and the long term strength of Panther cement along with optimise setting time ability makes it ideal for strength bearing applications like beams, columns, slabs and foundations etc.

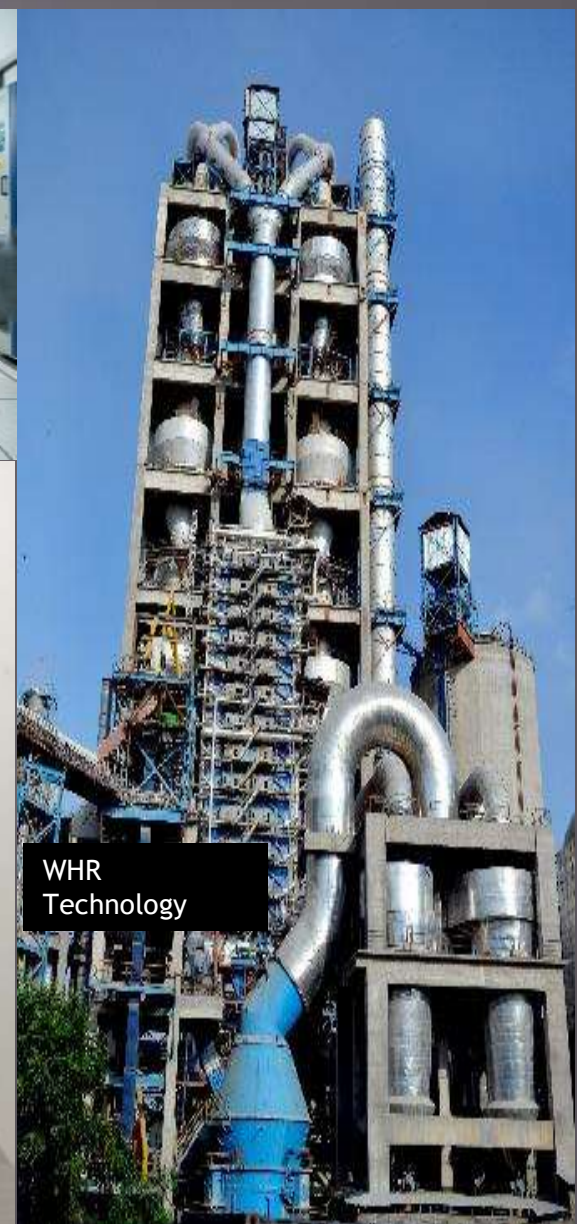
Expansion In Angul – Another 1.5 MTPA in 2025

Expansion in Raigarh – Clinkerization Unit of 2 MTPA



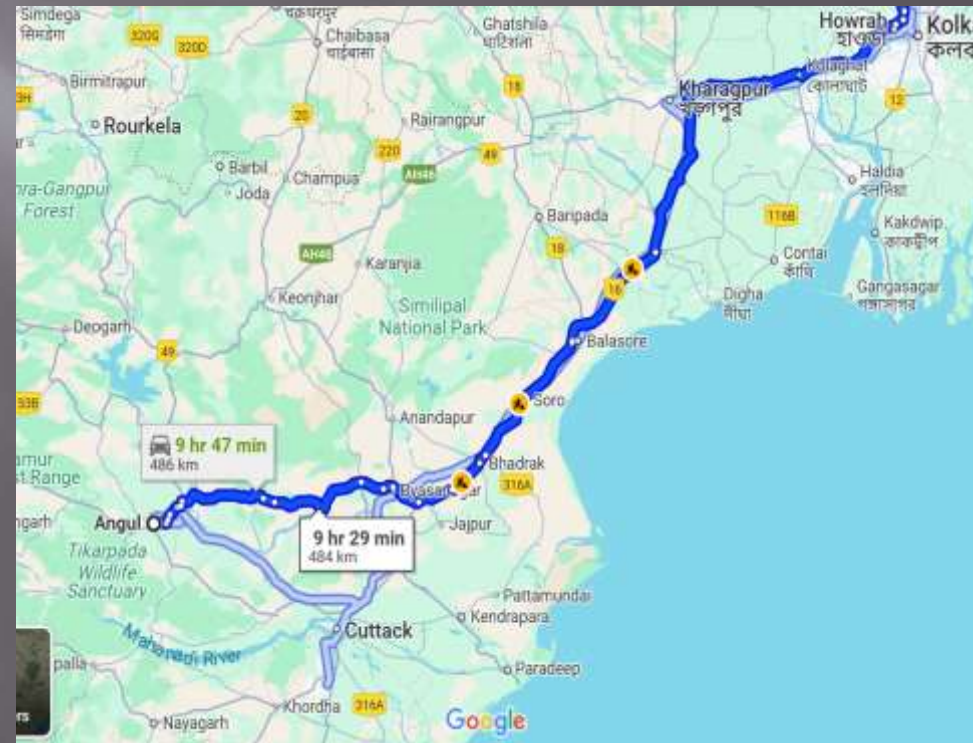
- Highly advanced, fully automated cement manufacturing facilities
- Cutting-edge Centralized Control System for overseeing product quality
- Vertical roller mills (VRM) featuring power grind technology
- Quality assessment using state-of-the-art XRF machines and Robotic Laboratories
- Creative packaging solutions utilizing Roto-Packers
- Maximum energy efficiency in systems and processes
- ZERO waste product discharge
- Effective use of industrial by-products in the form of slag





1. Ordinary Portland Cement (OPC)
2. Portland Pozzolana Cement (PPC)
3. Portland Slag Cement (PSC)
4. Portland Composite Cement (PCC)
5. Oil Well Cement
6. T – 43 Cement
7. Rapid Hardening Cement
8. Sulphate-Resisting
9. Quick-Setting Cement
10. Low-Heat Cement
11. High-Alumina Cement
12. White Cement
13. Colored Cement
14. Hydraulic Cement
15. Expansive Cement etc.

By Road





## OPC

Composition:  
Clinker: 90-95%  
Gypsum: 5-6%

OPC is made from a combination of lime (calcium carbonate), silica, alumina, and iron oxide. The raw materials are heated at high temperatures (about 1400-1500°C) to form clinker, which is then ground with gypsum.

Types of OPC:  
OPC 33 Grade  
OPC 43 Grade  
OPC 53 Grade

Properties: OPC is known for its fast setting time and high early strength. It generates more heat during hydration, which can cause shrinkage cracks if not managed properly.

## PPC

Composition:  
Clinker: 65-70%  
Fly Ash : 15-35%  
Gypsum: 3-5%

Pozzolana: These are siliceous and aluminous materials which, when mixed with water, react with calcium hydroxide released during cement hydration to form compounds that have cementitious properties.

Properties: PPC produces less heat during hydration, making it suitable for mass concreting to prevent thermal cracking. Higher long-term strength than OPC, though it develops strength more slowly. Greater resistance to chemical attack, including sulfates and chlorides. Improved durability and reduced permeability. Eco-friendlier than OPC as it utilizes waste products like fly ash.

## PSC

Composition:  
Clinker: 45-55%  
Granulated blast furnace slag (GBFS): 35-50%  
Gypsum: 3-5%

Slag: A by-product of steel manufacturing, granulated blast furnace slag is rich in silica, alumina, and lime. Properties:

PSC has low heat of hydration, making it ideal for large structures such as dams, bridges, and foundations. Offers better resistance to sulfate, chloride, and alkali reactions, making it durable in aggressive environmental conditions. Produces less carbon dioxide during manufacturing, making it more environmentally friendly than OPC. Better workability and finish due to the fine nature of the slag.

## PCC

Composition:  
Clinker: 65-80%  
Fly ash: 15-35%  
Gypsum: 3-5%  
Slag: 20%

Properties: PCC combines the benefits of pozzolanic materials and blast furnace slag, leading to improved durability, lower heat of hydration, and enhanced resistance to chemical attacks. Provides good workability and finish, making it suitable for a wide range of construction types. Reduces the carbon footprint of cement production by incorporating waste materials like fly ash and slag.

- ❑ OPC has the fastest setting and gains strength quickly, making it ideal for fast-paced construction, but it has a higher heat of hydration.
- ❑ PPC develops strength slower but is more durable and resistant to chemical attacks, which makes it ideal for long-term projects and harsh environmental conditions.
- ❑ PSC provides excellent durability in aggressive environments and has a low heat of hydration, making it ideal for massive structures like dams and foundations, Slabs Castings, Roof Castings and Any Construction.
- ❑ PCC combines the benefits of both pozzolanic and slag materials, offering durability, reduced heat of hydration, and an environmentally friendly option for general construction.



# JINDAL STEEL ODISHA LIMITED

GROUND ROOM NO-01 CSO, JINDAL NAGAR, 5TH-63, CHHENDIPADA ROAD VILL-NISHA, ANGUL, ODISHA-759111



## TEST CERTIFICATE PORTLAND SLAG CEMENT



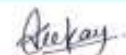
Manufactured as per IS 455 Part 1 : 2015

Stage of Sampling : Despatch Testing: 28.10.2024	Date of	Period of Sampling : From: 21.10.2024 TO 27.10.2024	Week No. : 43
PARTICULARS	BIS SPECIFICATION (IS 455 Part 1 : 2015) WITH LATEST AMENDMENTS		RESULTS
A. ADDITION OF SLAG (%)	Min. 25.0 %, Max. 70.00 %		60%
B. CHEMICAL ANALYSIS			
1. Loss On Ignition (LOI) - % by mass	Max. 5.00		1.29
2. Insoluble Residue (IR) - % by mass	Max. 4.00		1.44
3. Sulphur Tri Oxide (SO <sub>3</sub> ) - % by mass	Max. 3.50		1.36
4. Magnesium Oxide (MgO) - % by mass	Max. 10.00		5.68
5. Chloride (Cl) - % by mass	Max. 0.1 (Prestressed Structure 0.05)		0.020
6.Total Alkalies as Na <sub>2</sub> O - % by mass	Max. 0.9		0.36
C. PHYSICAL TESTS			
1. Specific Surface (m <sup>2</sup> /kg) - Permeability Method	Min. 225		382
2. Setting Time (Minutes)			
(a) Initial	Min. 30		180
(b) Final	Max. 600		255
3. Drying Shrinkage (%)	Max. 0.15		0.09
4. Soundness			
(a) Le-Chatelier (mm)	Max. 10.0		1.08
(b) Auto Clave (%)	Max. 0.80		0.020
5. Compressive Strength (MPa)			
(a) 72±1 Hours (3 Days)	Min. 16.0		22.5
(b) 168±2 Hours (7 Days)	Min. 22.0		32.4
(c) 672±4 Hours (28 Days)	Min. 33.0		51.3

Test Protocol : Chemical Testing IS 4032 : 1985 , Physical Testing : Applicable IS 4031: 1991 standards

Test Environment : Temperature 27±2°C, Humidity : > 65%

Above results complies with the requirements of IS 455 Part 1 :2015 for Portland Slag Cement



Authorised Signatory

Date of Issue : 29.10.2024

### Quality Parameters

1. Magnesia - <5.60%
2. Soluble Residue - <1.10%
3. SO<sub>3</sub> - < 2.15%
4. Loss On Ignition - < 1.2%



- **HIGH COMPRESSIVE STRENGTH.**
- **LONG TERM DURABILITY.**
- **LOW HEAT OF HYDRATION.**
- **HIGHER FINENESS.**
- **HIGHER WORKABILITY.**
- **LOW PERMEABILITY.**
- **SAFEGUARD STEEL FROM CORROSION.**
- **BETTER RESISTANCE TO CHLORIDE & SULPHATE.**
- **CONSISTENT QUALITY.**

➤ **FIRST STAGE REACTION:**



➤ **SECOND STAGE REACTION:**



## 1. REDUCED WATER DEMAND:

**BECAUSE OF SPECIFIC PARTICLE CHARACTERISTICS, WATER CEMENT RATIO IN CONCRETE IS LOWER RESULTING INTO GOOD STRENGTH OF CONCRETE. FOR EX.**

W/c RATIO	0.4	0.5	0.6	0.7	0.8
% PROBABLE C.S	100	87	70	55	44

## 2. HIGH EARLY STRENGTH:

**THIS SPEEDS UP THE CONCRETE EXECUTION TIME BRINGING DOWN THE CONSTRUCTION PERIOD.**



- RCC Work, in all types of building construction.
- Mass concrete project Dams, Spillways Canals
- Bridge, Culverts & Drainage work.
- Effluent & sewage treatment plants.
- Marine works
- Plastering, Brick Work
- Cement Based Product



## ASANSOL DURGAPUR DEVELOPMENT AUTHORITY

A Statutory Authority of the Government of West Bengal  
( Under Urban Development & Municipal Affairs Department )

1 Administrative Building,  
City Centre,  
Durgapur - 713216

Vivekananda Sarani, Senraleigh Road,  
Near Kalyanpur Housing More,  
Asansol - 713305

Memo No. ADDA/DGP/ED/67-06/23-24/255

Date: 12.09.2024

To  
Shree Cement Limited,  
Imagine Techpark, College More,  
Plot No-6, DP Block, Sector-V,  
17<sup>th</sup> Floor, Bidhannagar,  
Salt Lake City, Kolkata-700091.

Subject: Approval Letter.

Ref: - I) Your letter with subject, "Request for Brand Approval and Enlishment of Shree & Bangur Cement for ADDA Projects" bearing Ref. No: SCL/SEPTEMBER/2024/001 dated 05/09/2024

ii) Ref. Memo No.:882-ENC/2024 dated. 02/09/2024 of the E-in-C & Ex-officio Secretary public works Department.

Dear Sir,

With reference to your letter vide reference no.:SCL/SEPTEMBER/2024/001 dated 05/09/2024 this is to intimate you that your brands of cement namely "Shree & Bangur" are conforming to IS 1489:2005(Part-I) & IS 16415:2015 respectively as per your submitted test report, so, no separate approval is required for use of the same in government works.

Thanking you,

Yours faithfully,

*[Signature]*  
Executive Engineer (Civil)  
Asansol Durgapur Development Authority  
Dated: 12.09.2024

Memo No.:ADDA/DGP/ED/67-06/23-24/255  
Copy for kind information to:

- 1) The Chairman, Asansol Durgapur Development Authority
- 2) The Chief Executive Officer, Asansol Durgapur Development Authority

*[Signature]*  
Executive Engineer (Civil)  
Asansol Durgapur Development Authority

## OFFICE OF THE ENGINEER -IN-CHIEF, WATER RESOURCES, ODISHA, BHUBANESWAR

No. WG-DR-IND-16/17

*37006* / Dated the 05.12.17  
*DE*

From

Er. Bibhuti Bhusan Panda  
Engineer-in Chief, P&D

To

All Chief Engineers/Chief Engineer & Basin Managers/  
Managing Director, M/s OCC Ltd./Chief Construction Engineers  
Of Water Resources Department.

Sub:

Approval of "JINDAL PANTHER CEMENT" of M/s JINDAL STEEL & POWER Ltd..

Sir,

Enclosed pl. find herewith the test results of "JINDAL PANTHER CEMENT"- Portland Slag Cement (PSC) confirming to IS-455 conducted by the Executive Engineer, Quality Control Division, Bhubaneswar of Water Resources Department, Govt. of Odisha. It may be considered the use of above brand cement in departmental construction works subject to fulfillment of specifications as per relevant BIS codes.

Encl: As above

Yours faithfully,

*[Signature]*  
Engineer-in-Chief, P&D

Memo No.

*37007*

/ Dated

05.12.17

Copy forwarded to M/s JINDAL STEEL & POWER Limited, Forest Park, Bhubaneswar for information and necessary action.

*[Signature]*  
Engineer-in-Chief, P&D



E-mail ID: cebuildings\_orissa@yahoo.co.in  
cebbuildings@rediffmail.com  
Tel. : (0674) 2391523  
(0674) 2390081

**OFFICE OF THE ENGINEER-IN-CHIEF (CIVIL), ODISHA  
NIRMAN SOUDHA, UNIT-V, BHUBANESWAR**

No-B-III-Misc.- 07/2016 ( Pt.II)- <sup>14767</sup> /Bhubaneswar, the 11<sup>th</sup> Apr., 2022

From  
Er. G.C Sahu  
Chief Engineer (Buildings),  
Odisha, Bhubaneswar.

To  
All Chief Construction Engineers / Superintending Engineers/ Executive  
Engineers under (R&B) Wing.

Sub: Approval of Jindal Steel & Power Ltd.- Jindal Panther Cement i.e PSC-  
IS:455:2015,PPC-IS:1489:2015,OPC-53grade-IS:269:2015,PCC-  
IS:16415:2015.

Sir,  
With reference to the subject cited above, it is to state that Jindal Steel &  
Power Ltd. has submitted the test results of his Jindal Panther Cement products i.e  
PSC-IS:455:2015,PPC-IS:1489:2015,OPC-53grade-IS:269:2015,PCC-IS:16415:2015  
And conducted a webinar of his products, attended and discussed by Chief  
Construction Engineers,Superintending Engineers, Executive Engineers and Assistant  
Executive Engineers over video conference. The test results were verified by a  
technical committee with the relevant codes & found to be satisfactory. As such  
the use of Jindal Panther Cement products i.e PSC-IS:455:2015,PPC-  
IS:1489:2015,OPC-53 grade-IS:269:2015,PCC-IS:16415:2015 of GlobalTES Engineering  
Pvt. Ltd. may be considered for use in Government works.

However, prior to use, the test results of the materials must be obtained  
from Government laboratories & it should be verified/ conformed to the relevant  
codes.

Yours faithfully,

<sup>14768</sup>  
Chief Engineer (Buildings),  
Odisha, Bhubaneswar.

Memo No. <sup>14768</sup> dt. 11.04.2022  
Copy to the E.I.C-cum-Special Secretary to Government, Works Department,  
Odisha, Bhubaneswar for kind information.

Chief Engineer (Buildings)  
Odisha, Bhubaneswar.

Memo No. <sup>14769</sup> dt. 11.04.22  
Copy submitted to the Engineer-in Chief (Civil), Odisha, Nirman Soudha,  
Bhubaneswar for kind information.

Chief Engineer( Buildings),  
Odisha, Bhubaneswar

Memo No. <sup>14770</sup> dt. 11.04.22  
Copy to the Chief Engineer (DPI & Roads)/ Chief Engineer (World Bank  
Projects)/Chief Engineer (N.H)/Chief Engineer RD&QP (R&B)/ OSD-Chief Engineer  
(Buildings), Odisha, Bhubaneswar for information.

Chief Engineer(Buildings),  
Odisha, Bhubaneswar.

Memo No. <sup>14771</sup> dt. 11.04.22  
Copy forwarded to Sri Ajay Roy, Head Sales & Marketing, Jindal Steel & Power  
Ltd., First Floor, Plot No.-03, Forest Park, Bhubaneswar -751009,Odisha for  
information and necessary action.

Chief Engineer(Buildings),  
Odisha, Bhubaneswar.