J.K. Cement Limited

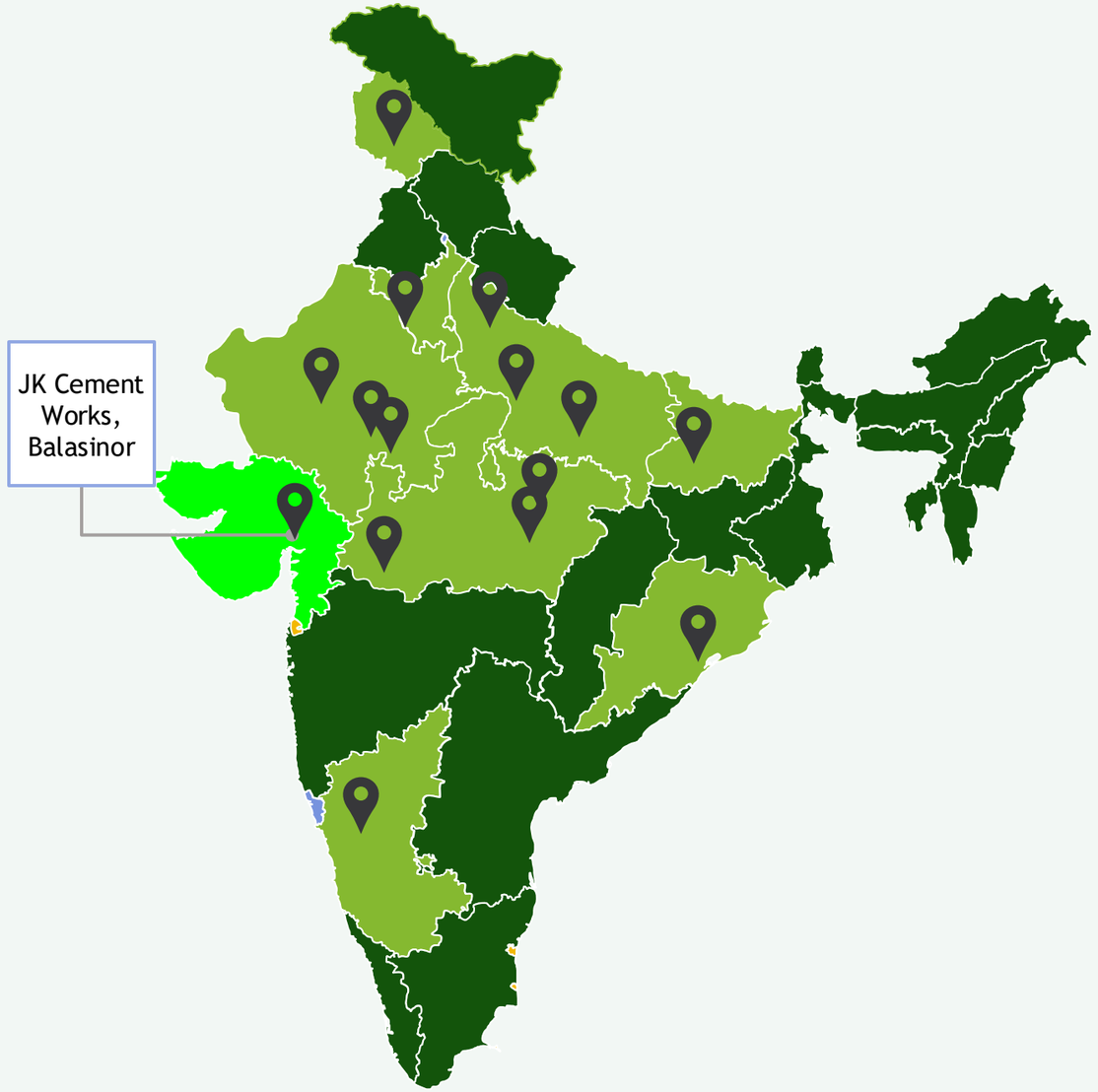
Balasinor, Gujarat, India

Presented by:

Mr. Vijay Bahadur Mourya (Head – E&I)
Mr. Mahaveer Prasad Malav (Head - P&QC)
Mr. Deepak Singh (Head- EHS)



Company profile



JK Cement Limited -manufacturing units in India



JK organization



JK cement



Balasinor unit

Group Established

- JK Cement's operations commenced with commercial production at its flagship grey cement unit at Nimbahera, Rajasthan in May 1975.

Group Cement capacity

- Grey Cement :**32.3 MTPA**

  (Includes 0.42 MTPA in Subsidiary)
- White Cement & Wall Putty :**3.1 MTPA**

  (Includes 0.60 MTPA in Subsidiary)

JK Cement Works, Balasinor

- Capacity :**0.70 MTPA**
- Commencement :**Oct-2020**
- Contribution of PPC :**100 %**

Project Name-Sustainable Utilization of Pond Ash in PPC Manufacturing

Project Objective:

- To increase the consumption of Pond-Ash in PPC cement.
- Maintaining product quality while reducing overall production costs.

Project Benefit:

- Waste utilisation.
- Reduction in production cost.
- Reduction in CO2 emission
- Reduction in water consumption in process.

Challenges to implement the project

PROBLEM 01 — HIGH MOISTURE

Pondash contains a high moisture level of 12–18%, causing high vibration issues in the cement mill.

→

SOLUTION — AGRO WASTE HAG

An additional Agrowaste Hot Air Generator (HAG) was installed to maintain the mill outlet temperature and stabilize mill operation.



PROBLEM 02 — HOPPER JAMMING

High moisture in pond ash caused material bridging and jamming in the intermediate hopper.

→

SOLUTION — AUTOMATIC AIR BLASTER

Automatic air-blaster system with logic-based operation prevents bridging and improves material flow.



Project Name-Sustainable Utilization of Pond Ash in PPC Manufacturing

Challenges to implement the project

PROBLEM 03 — ELEVATOR COATING

Heavy coating on recirculation elevator buckets caused load fluctuation, damage risk and frequent stoppage for cleaning.

→

SOLUTION — RUBBER LINER

Rubber liner installed in elevator buckets.
Scrap rubber was utilized as liner material.



Uniqueness of the Project

01
Engineering solution

Engineering solution: Small in house modification resolved the elevator bucket coating issue.

02
landfilled waste reduction

Landfilled pond ash has been utilised in PPC production.

03
Cost benefit

Utilisation of pond-ash in PPC cement production reduces the production cost.

04
water consumption reduction

By increasing the pond ash in grinding process reduces the use of water in process.

Project Name-Sustainable Utilization of Pond Ash in PPC Manufacturing

Project Journey

2024

Fly Ash crisis (trigger point)

The fly-ash availability become major challenge after the competitive market

Agro waste HAG installed

To enhance pondash consumption the agro-waste HAG introduced

2025

Re circulator elevator modification

Rubber liner installed in the recirculation elevator bucket .
It resolved the coating formation in bucket and load fluctuation issue.

2026

Trial run of additional oil burner

Increase mill heat input
Monitor the maximum pond ash consumption pattern

2027

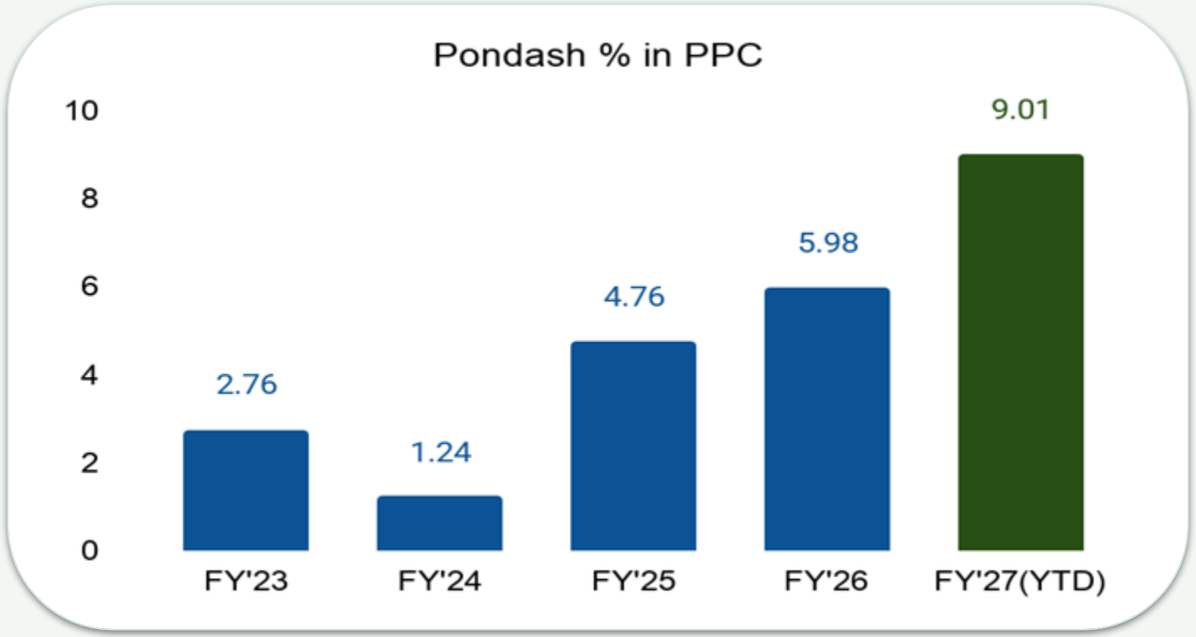
Agro waste HAG upgradation (1.5 M kcal/h to 7 M kcal/h)

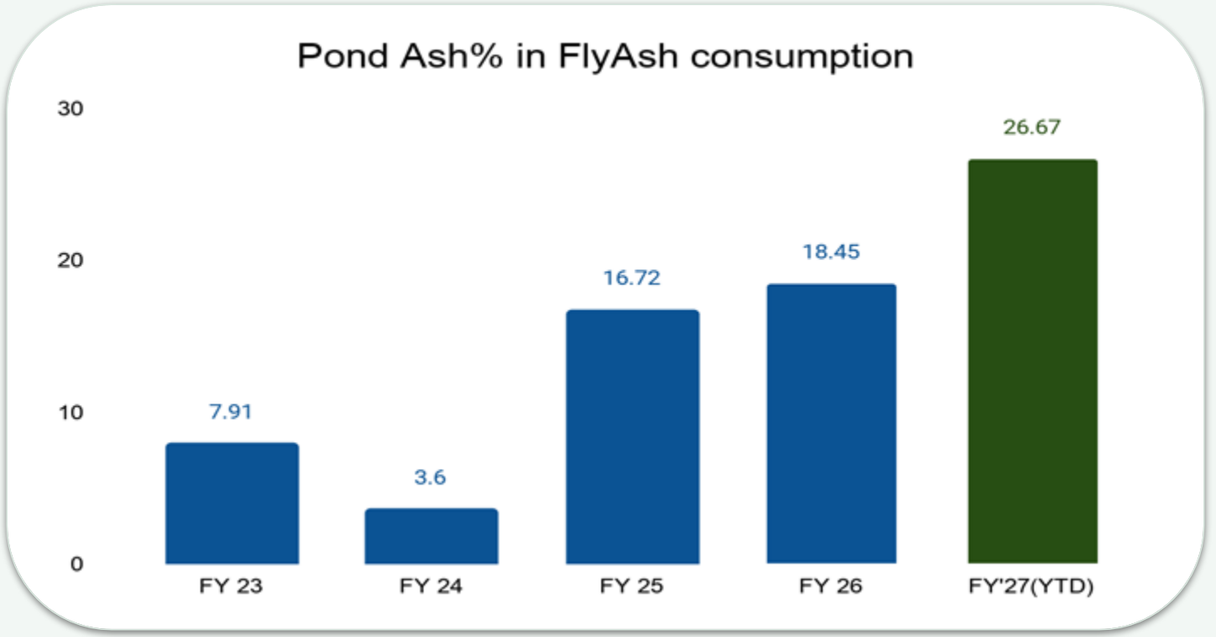
100% replacement of fly-ash with pond-ash in PPC production



Tangible Benefits - Project Impact

FY'24–FY'26 | Key outcomes





478.85 Lacs INR

FY'24-FY'26

Total 478.85 Lacs INR saved by utilisation of Pond Ash.

18.45%

FY'26

Pond ash contribution in fly ash consumption

5.98%

FY'26

Pond ash % in PPC | FY'26

Intangible Benefits - Project Impact

FY'24–FY'26 | Key outcomes

Decarbonization & ESG

0.86 Million Ton CO_2 emission avoided while using the pond-ash between **FY'24–FY'26.**

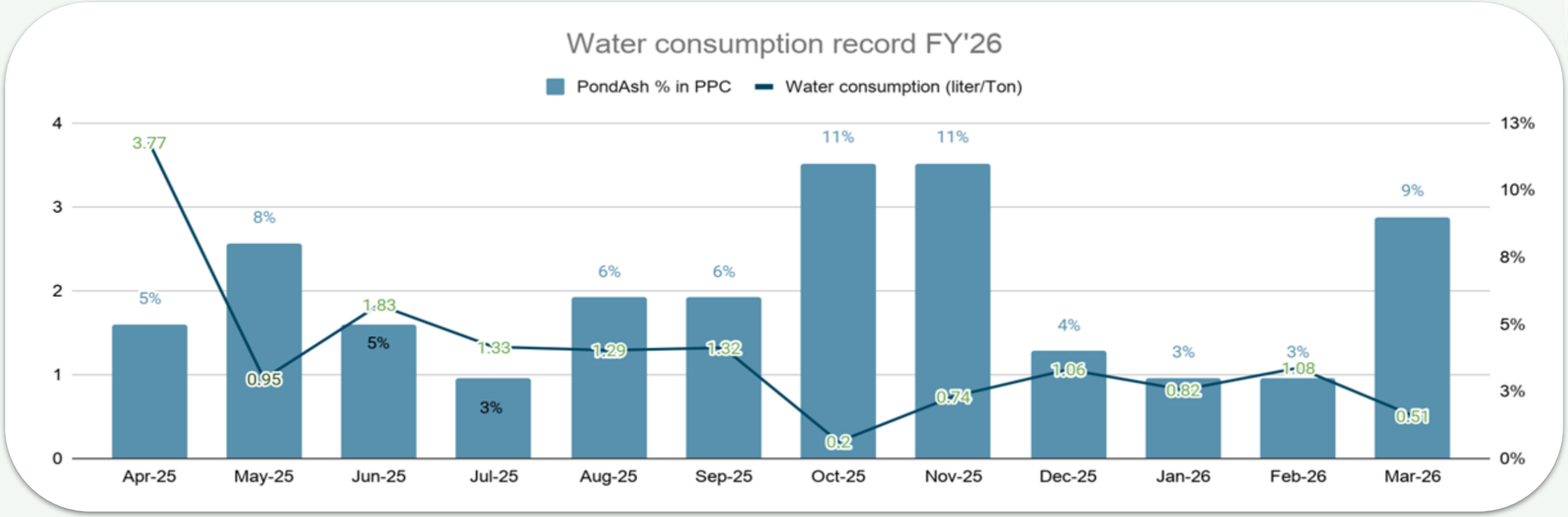
Water consumption reduces

Water consumption in cement mill grinding is reducing.

Landfilled waste utilisation

landfilled pondash has been utilised in PPC cement production.







Project Name-Utilisation of the chemical gypsum in co-processing

Project Objective:

- To reduce dependence on natural mineral gypsum.
- Maintaining product quality while reducing overall production costs.

Project Benefit:

- Industrial Waste/ bi-product utilisation.
- Reduction in production cost.
- Save natural gypsum reserves.

Challenges to implement the project

PROBLEM 01 — HIGH MOISTURE

Chemical gypsum contains a high moisture level of 28–35%, causing high vibration issues in the cement mill.

→

SOLUTION — AGRO WASTE HAG

An additional Agrowaste Hot Air Generator (HAG) was installed to maintain the mill outlet temperature and stabilize mill operation.



PROBLEM 02 — HOPPER JAMMING

High moisture in pond ash caused material bridging and jamming in the intermediate hopper.

→

SOLUTION — AUTOMATIC AIR BLASTER

An automatic air-blaster system with logic-based operation prevents bridging and improves material flow.



Project Name-Utilisation of the chemical gypsum in co-processing

Challenges to implement the project

PROBLEM 03 — CHLORIDE UP TO 0.5% & POTENTIAL COLOUR VARIATION

- Material contain up to 0.5 % chloride whereas BIS limit is 0.1% only.
- The chemical gypsum create colour complaints in product.

→

SOLUTION — GYPSUM OPTIMISATION

Optimise Chemical gypsum usage with Low purity gypsum to reduce moisture and dilute chloride % in gypsum by various gypsum trials

Uniqueness of the Project

01

Circular Economy

Industrial waste or byproduct (chemical gypsum) is utilized in the cement production process, adding value to the circular economy

02

Cost benefit

Utilisation of chemical gypsum in PPC cement production reduces the production cost.



Project Name-Utilisation of the chemical gypsum in co-processing

Project Journey

2024

Agro waste HAG installed

To enhance chemical gypsum consumption the agro-waste HAG introduced

2025

Source optimisation of gypsum

- Explored several vendors and different types of gypsum.
- optimise the gypsum mix and laboratory trial to enhance the chemical gypsum utilisation

2026

Continual laboratory trial

Regular trial of the gypsum mix in laboratory.

2027

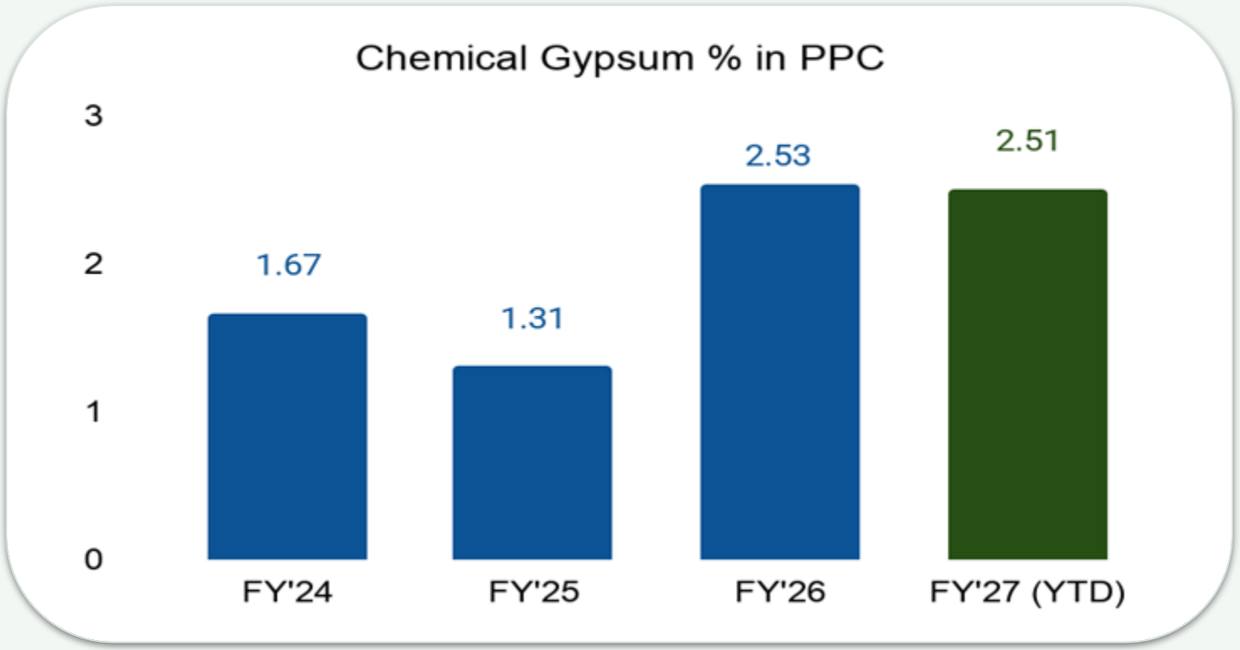
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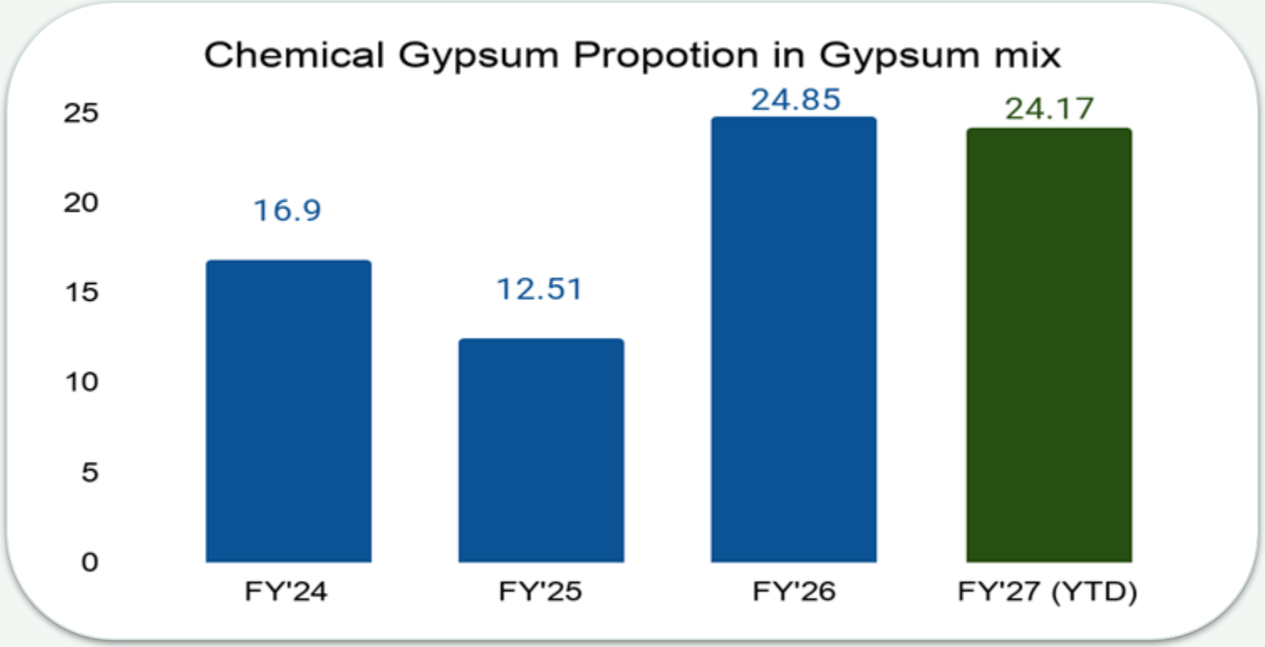
High moisture issue will be resolved by adding the new HAG.



Tangible Benefits - Project Impact

FY'24–FY'26 | Key outcomes





306.38 L INR

FY'24-FY'26

Total 306.38 Lacs INR saved by utilisation.

24.85%

FY'26

Chemical gypsum proportion in gypsum mix

2.53%

FY'26

Chemical gypsum % in PPC | FY'26

Intangible Benefits - Project Impact

FY'24–FY'26 | Key outcomes

Mineral resource conserved

0.13 Million Ton Gypsum reserved saved between **FY'24–FY'26.**

Circular economy

The waste of other industry chemical gypsum used in cement production.





Glimpse of greenery at Plant















Thank You!

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