

## **APPLICATION REPORT**

### **INTERNAL COATING OF FINE COAL STORAGE BINS**



**AT**

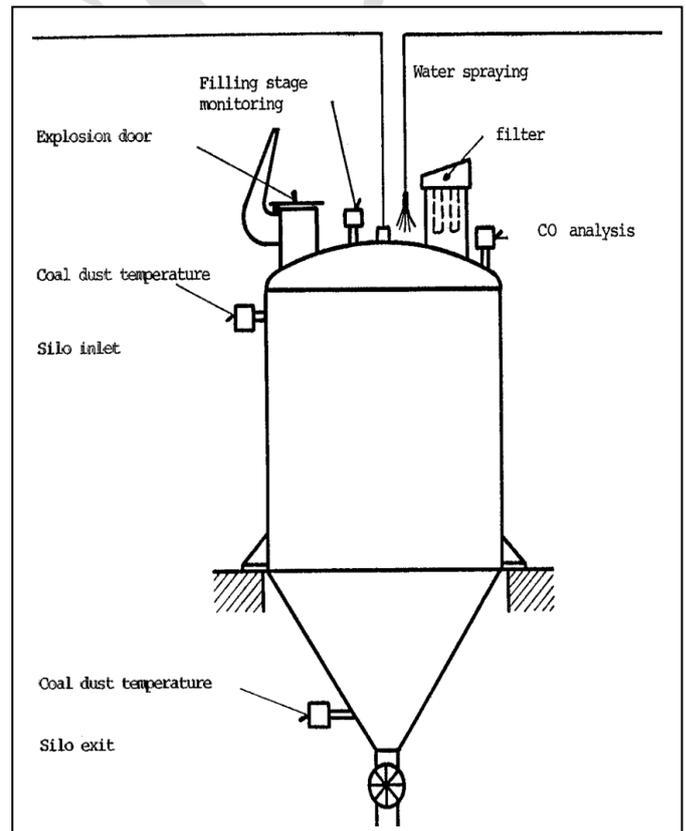
**DALMIA CEMENT (BHARAT) LIMITED  
VILLAGE- YADWAD, TALUKA- GOKAK, DIST. BEGAUM,  
(KARNATAKA)**

## INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LIMITED successfully completed job work for coating of Fine coal storage Bin. This job work was carried out for our customer Dalmia cement (Bharat) limited, Belgaum. Our customer were facing problem of high corrosion and Pitting in pulverized storage bin. Coating was done with DIFFGLASS XTREME.

## Fine Coal Handling System

The Fine Coal generated in mill System is to be handled for Storage, Extraction and Transfer to the required utility area for usage. This needs special care as environment and safety plays a major role. Most of the Coal Grinding Circuits are Air swept and hence Handling of the Pulverized Coal is through Pneumatic system. Pulverized Coal from the mill is carried by the drying medium (Hot Air) and the coal dust is collected in the Bag filters. The material from the Bag Filters is conveyed to the Fine Coal Storage Bins by either Screw conveyors or by Pneumatic Screw Pumps. The fine coal bin is provided with twin/single shaft agitator to ensure smooth extraction of material. Specially designed extraction screws are provided below bin for extraction & metering purpose. The suitable weighing mechanism (Solid flow meter/ Loss- in weight/Weigh feeder) is provided for proportioning the material. The metered quantity of Coal is fed to the burner (Of Kiln / Calciner / HAG) by a Pneumatic Screw Pump.



**Application:** Fine coal storage Bins (KC & PC Bin)

**Location:** Coal mill

**Nos. of Bins:** Two

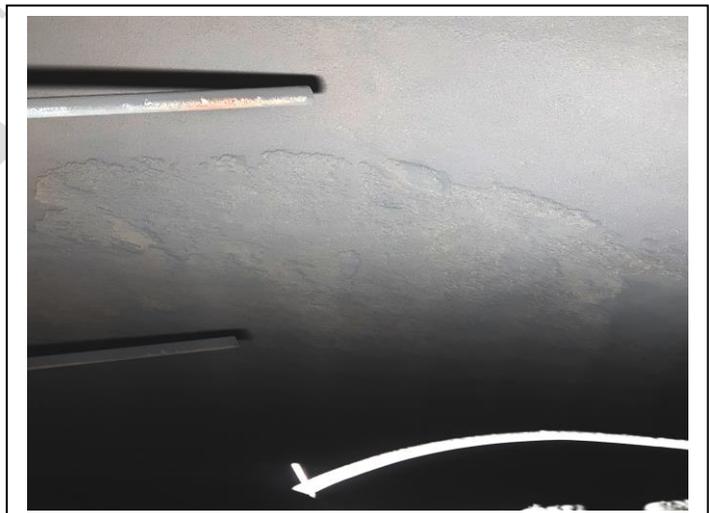
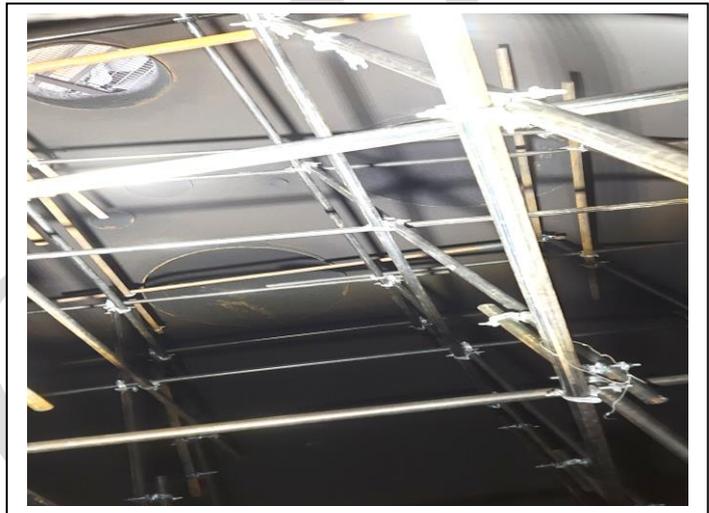
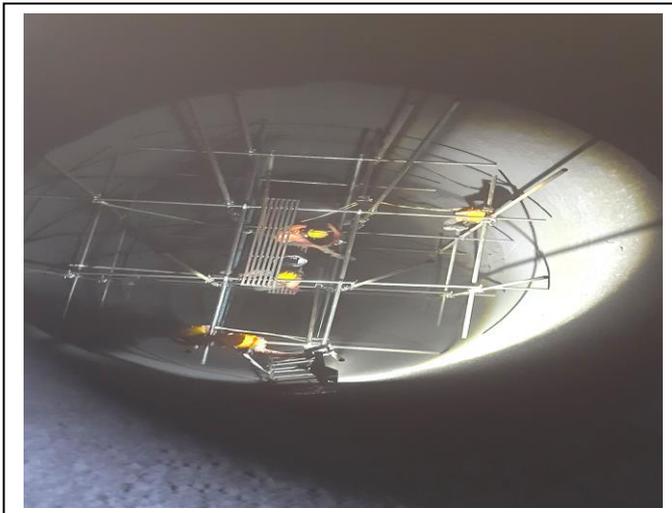
**Total Area of Bins:** 408 sq. mtr.

**Media:** Fine coal

**PROBLEMS:-**

Customer was facing severe corrosion problem inside the bins and coal jamming problems in Bins hoppers. Abrasion mainly happens when the fine coal impinges on dry areas of the system, removing the thin layer of rust and exposing the steel to corrosion. This creates an abrasion/ corrosion vicious cycle. Corrosion takes place between dissimilar areas of metal where there are differences in electrochemical potential. After a certain period, Pits start forming and pits leakage in base metal occurs.

Corrosion causes plant shutdowns, a waste of valuable resources, loss or contamination of product, reduction in efficiency, costly maintenance.



*Internal Corrosion in fine coal storage Bins*

**PRODUCT RECOMMENDED:-**

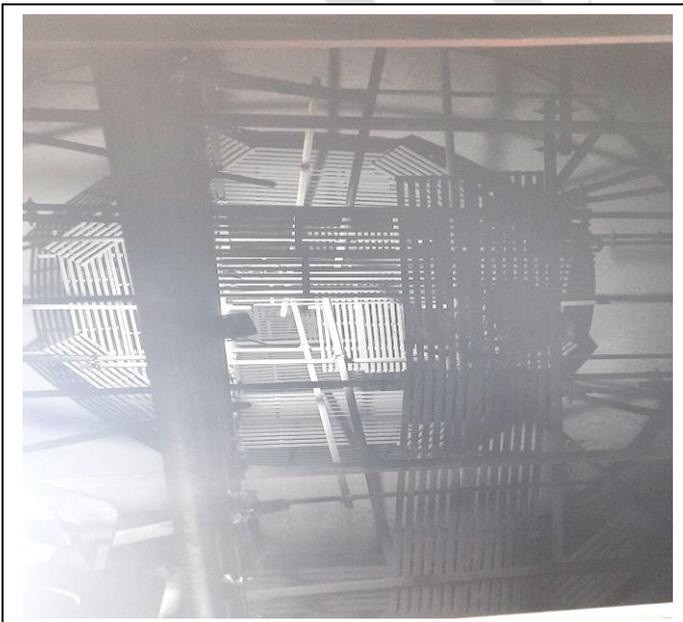
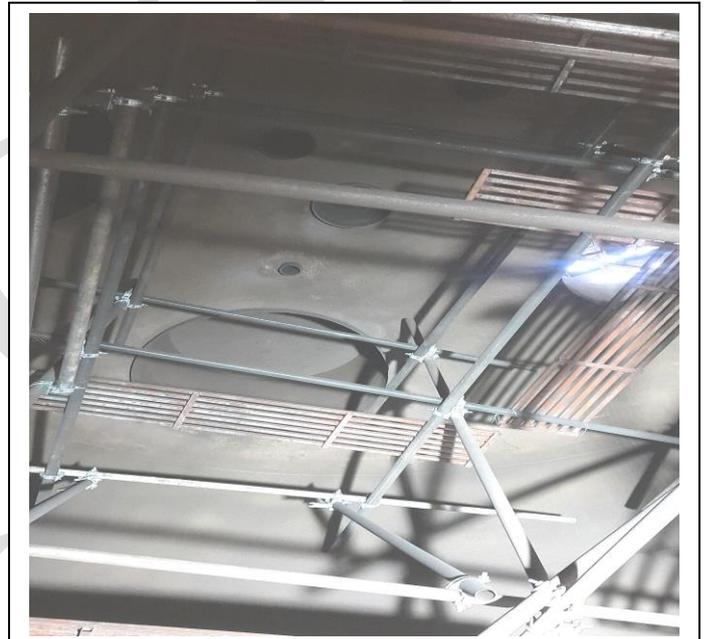
**DIFFGLASS XTREME:-**

DIFFGLASS XTREME , a heavy-duty lining system for concrete and steel substrates that offers unique combination of vinyl ester novolac resin with Glass flake reinforcement and inert mineral fillers produce a dimensionally stable coating with extremely low permeability and ideally suited for immersion service ,splash/spillage exposure of concentrated acids and aggressive solvents.

## **APPLICATION PROCEDURE:-**

### **A.SURFACE PREPARATION:-**

1. Before application of any kind of coating, surface preparation is must to activate the base metal so that coating will have better bonding.
2. Before started blasting work, Customer was cleaned fine coal from inside the Bins. Removed all the rusted scales by used chipping hammer.
3. After manual cleaning, surface was cleaned by grit blasting to remove all corrosion and loose particles of scaling.
4. As per ISO standard surface preparation of SA 2 by blasting with surface profile achieved of 60-70 microns.



*Surface Preparation done by grit Blasting*

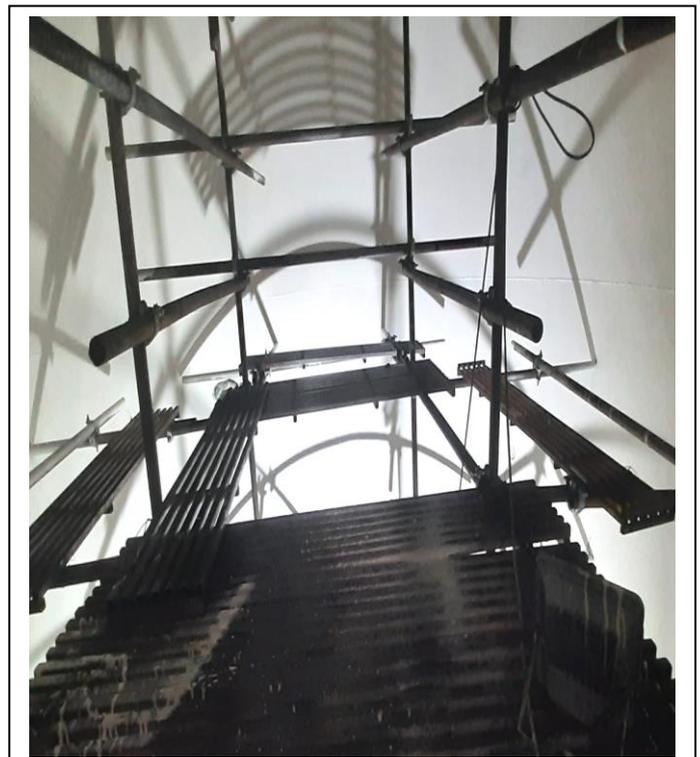
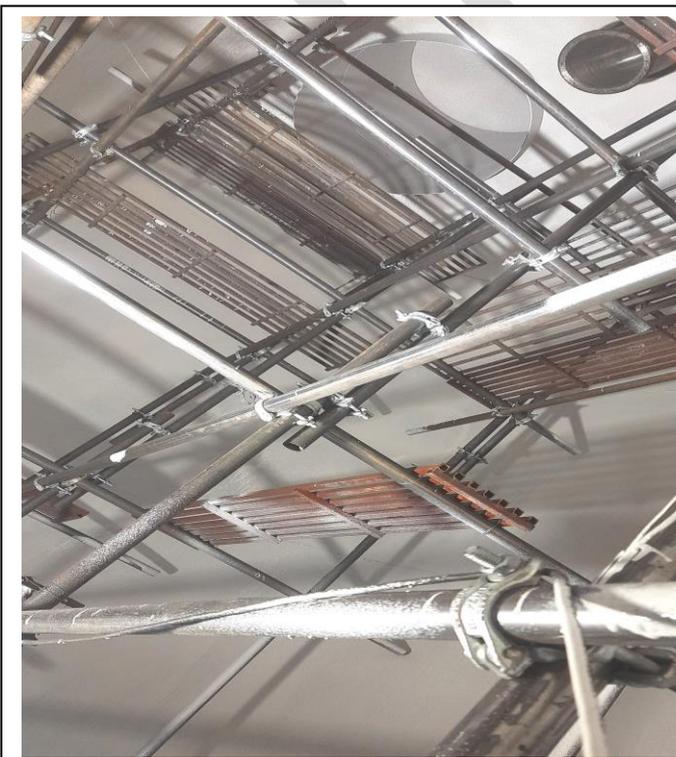
## B.PRODUCT APPLICATION:-

1) After surface preparation, priming was done by **DIFFGLASS XTREME** by used Airless spray gun.



*Application of DIFFGLASS XTREME as a Primer coat*

2) Top coat of **DIFFGLASS XTREME** was applied inside the surface of fine coal storage bins to improve the resistance against chemical corrosion.

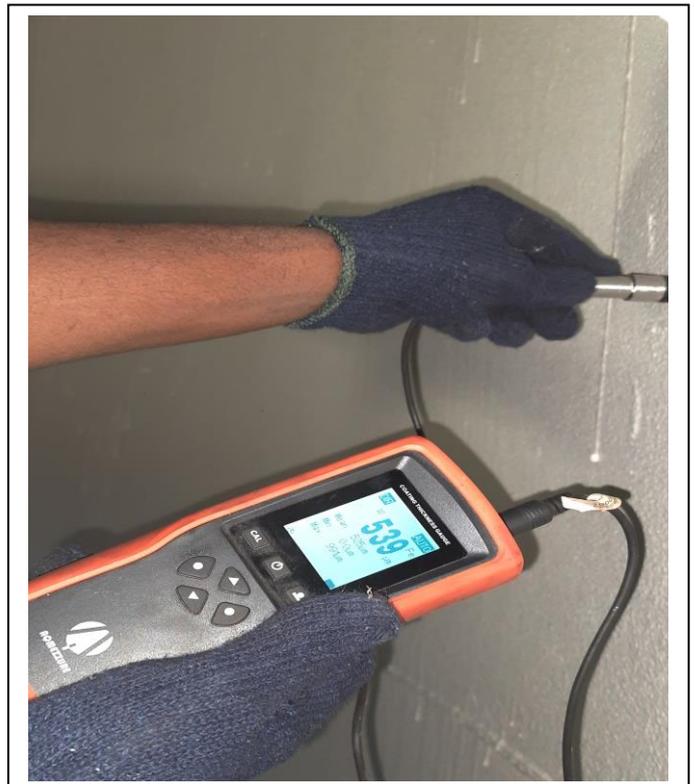


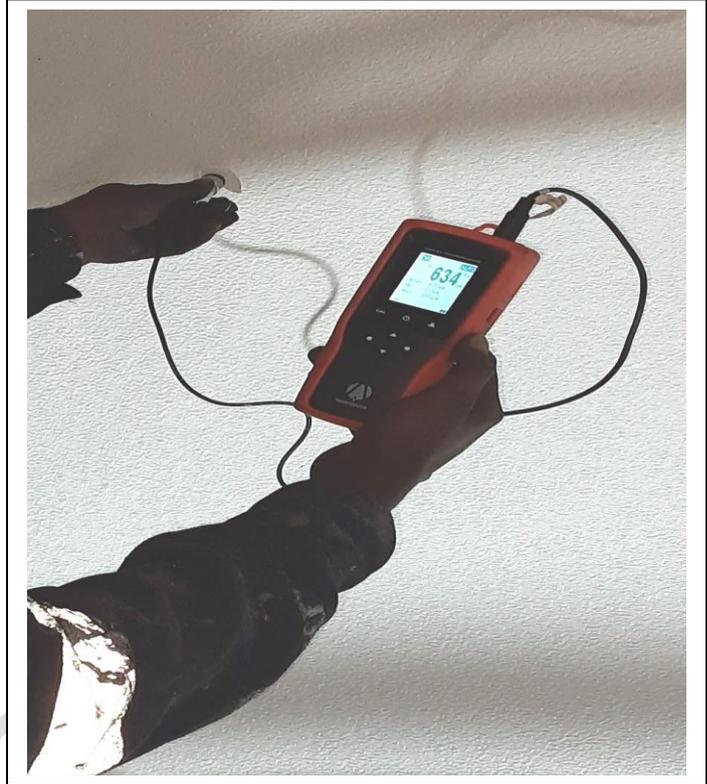
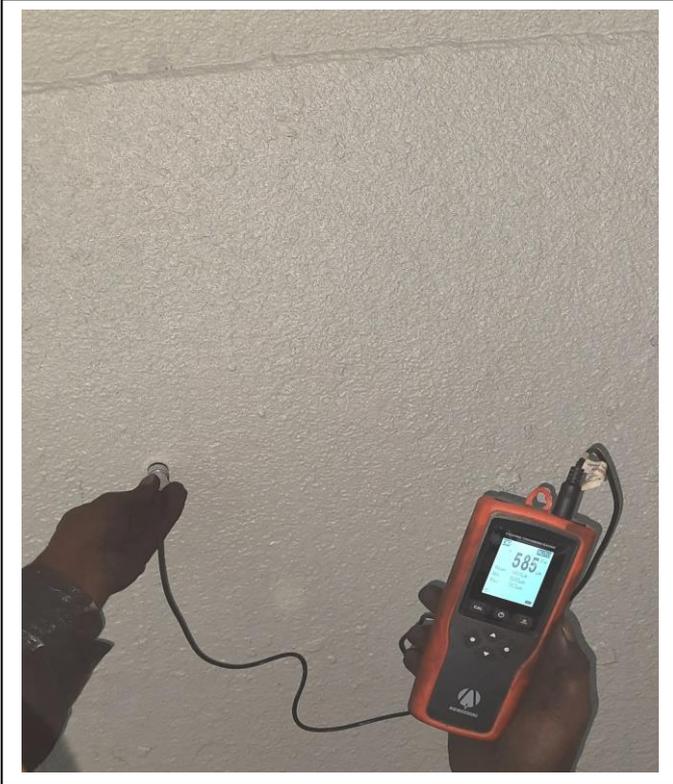


*Application of DIFFGLASS XTREME as a Top coat*

**COATING INSPECTION:-**

1) **DRY FILM THICKNESS (DFT):** - Range: 500-600 (Microns)





*Coating Thickness measurement by DFT Meter*

**ACKNOWLEDGEMENT:-**

**SITE ENGINEER: -**

Mr. Ashish Ganvir (Sr. Technical Officer)

**AREA ENGINEER:-**

Mr. Sonu Jangra (Territory Incharge)

Mr. Veerabhadrayya M P (Marketing Manager)

**AGENCIES INVOLVED:-**

Force Engineers, Kolhapur.

**APPLICATION TEAM:-**

Shiva Enterprises contractor team.



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