

REPORT NO: DCQ/NGP/2020-21/07

APPLICATION REPORT

INTERNAL COATING OF REVERSE AIR BAG HOUSE (RABH)



AT

**ACC LIMITED, CHANDA CEMENT WORKS, CEMENTNAGAR
CHANDRAPUR (MAHARASHTRA)**

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD successfully completed job work for coating of RABH. This job work was carried out for our customer ACC LIMITED, CHANDRAPUR. Our customer were facing problem of high corrosion and pitting in RABH. Coating was done with DIFFGLASS XTREME.

Cement plants use coal and pet coke as the main fuel for the kiln to reduce their energy cost. Normally coke and coal contain sulfur and moisture in varying quantities. These fuels go through a mill to obtain the right particle size and then need to get dried, with the hot gases from the kiln. These gases are filtered in a baghouse before discharging to the atmosphere. During the operation, the gases entering the bag house with high velocity, loaded with fine dust is forced to hit the internal surface of the doors, structures in all directions abrading the metal substrate leading to erosion of metal.

Corrosion in cement plants occurs when process gases containing moisture, SO_x, HOI, and NO_x, operate at dew point temperatures. Along with this, chemical attack is taking place on the bag house doors due to the reaction from released oxides of sulphur in the presence of moisture forming mild Sulphuric Acid, which is getting settled over the mild steel substrates. This is giving rise to an electrochemical reaction leading to high degree of corrosion, causing loss of metal thickness, which can be seen as thick rust flakes and also causing pin holes due to localized attack. The formed corrosion deposit is getting removed due to the abrasion of dust particles, thereby exposing fresh metal to further chemical attack. The air from the atmosphere entering the system through these pin holes, is giving rise to increase in energy consumption for operation of the bag house.

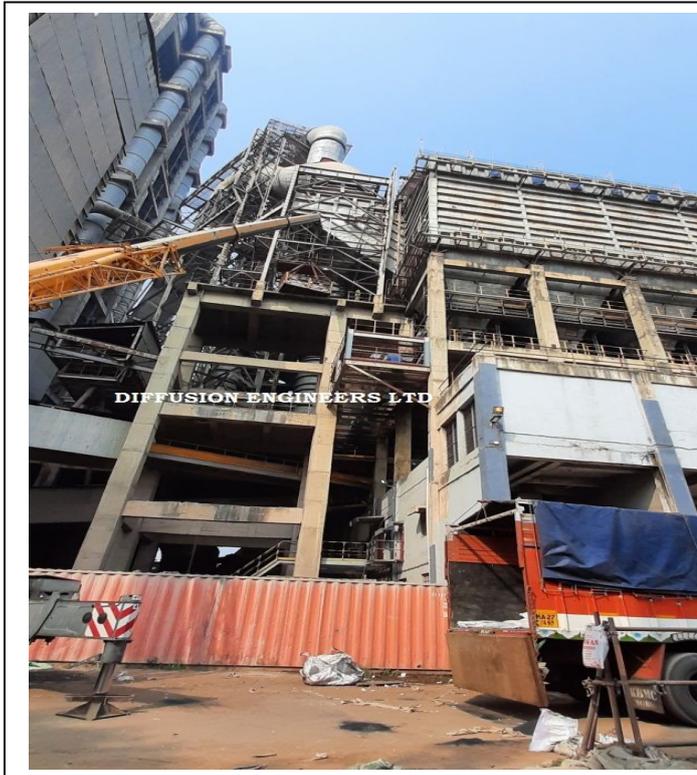
Flue gas corrosion can have a major impact on overall plant maintenance costs. Direct costs relate to the repairs of damaged walls, structures and tubesheets. These costs are relatively easy to quantify. Indirect costs are more difficult to assess. Items such as shorter fabric filter bag life, corroded cages and reduced production, with effects that are often combined, result in chronic maintenance headaches.

The economic impact of corrosion damage has become a significant problem in cement plants. **The best time to stop corrosion is before it begins** and DIFFUSION ENGINEERS LTD has developed several barrier coatings that eliminated baghouse corrosion occur due to condensing flue gases.

Total Area: - 4250 Square meters

No. of Module: - 14 Nos.

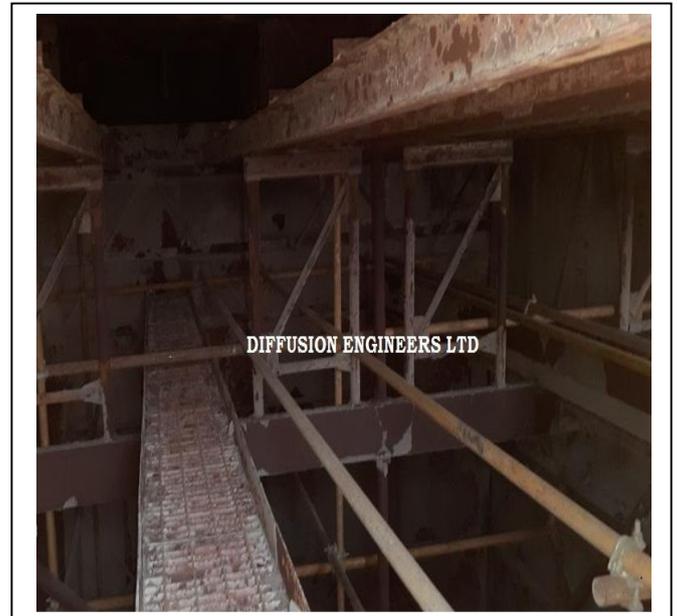
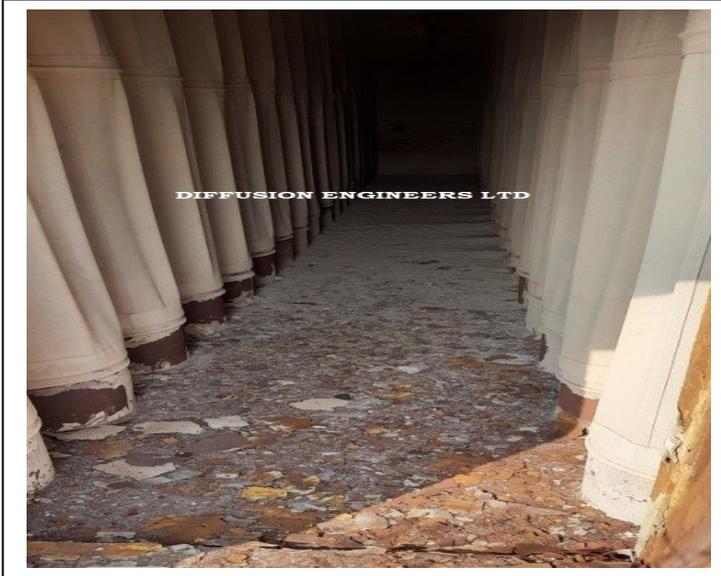
No.of days required for completing job work: - 10 days



Actual Site Images

PROBLEM:-

Customer was facing severe corrosion problem in bag house. i.e. corrosion on the wall of bag house, corrosion on the roof of the bag house corrosion on the floor of bag house. After a certain period, Pits start forming and due to pits leakage in base metal occurs. Sulphur ions- along with other Ions form concentric cells for Pits. Pit initiation already seen in ACC Chanda Bag House Corrosion rate of PITS is“UNPREDICTABLE” Ultimate result of PIT Leakage from the metal surface.



Internal Corrosion in RABH

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 Glassflake 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.

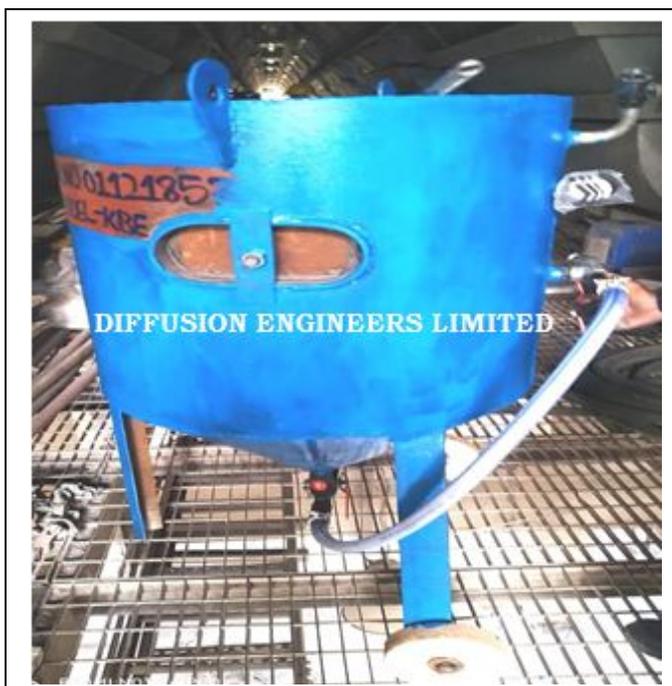
APPLICATION PROCEDURE:

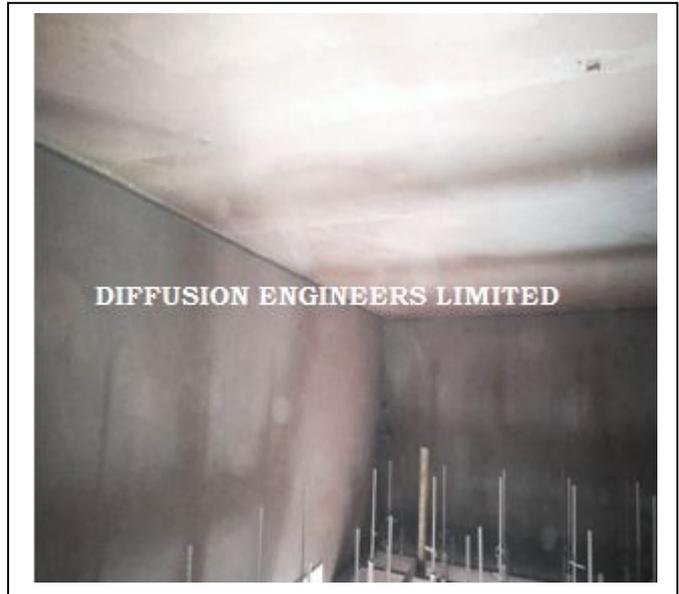
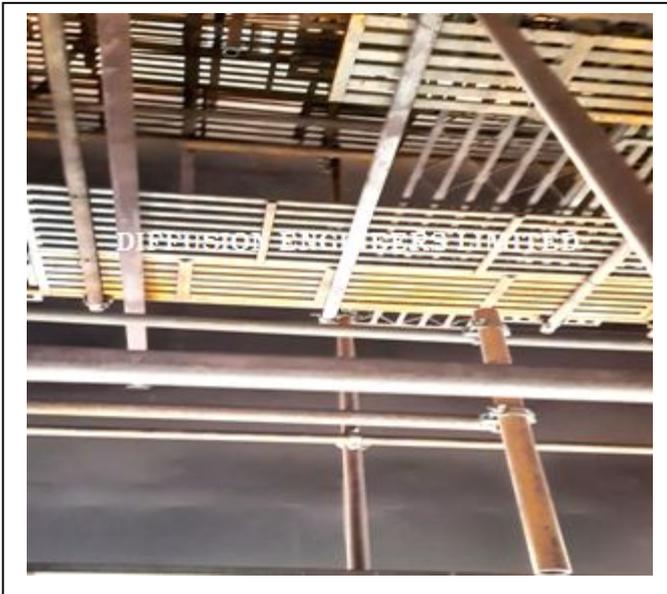
A.SURFACE PREPARATION:-

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 removed Bags fillter from inside bag house and dummy plate were installed on thimbals.
3. After manual cleaning, surface was cleaned by grit blasting to remove all loose particles. As per ISO standard surface prepration of SA 2 1/2 by blasting with surface profile achives of 70-90 microns.



Removing of Bag Filters, Manual cleaning & installation of dummy plates on thimbals





Surface Preparation done by Abrasive Grit Blasting

B. PRODUCT APPLICATION:-

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

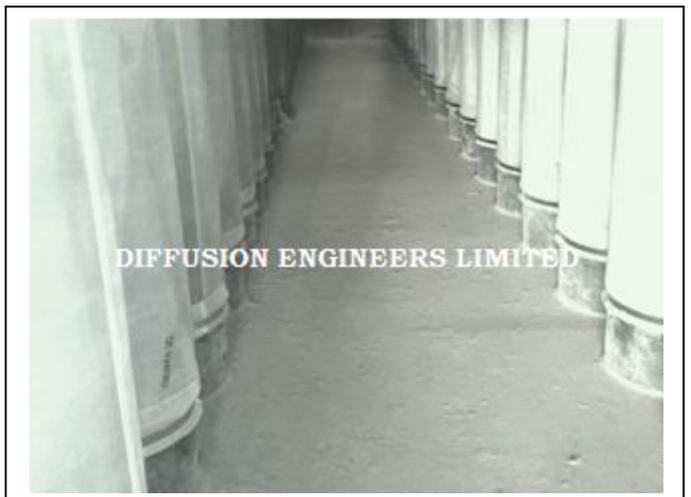
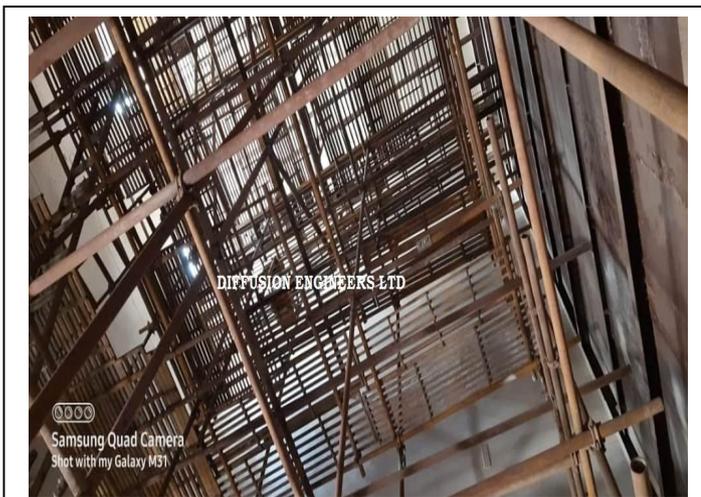
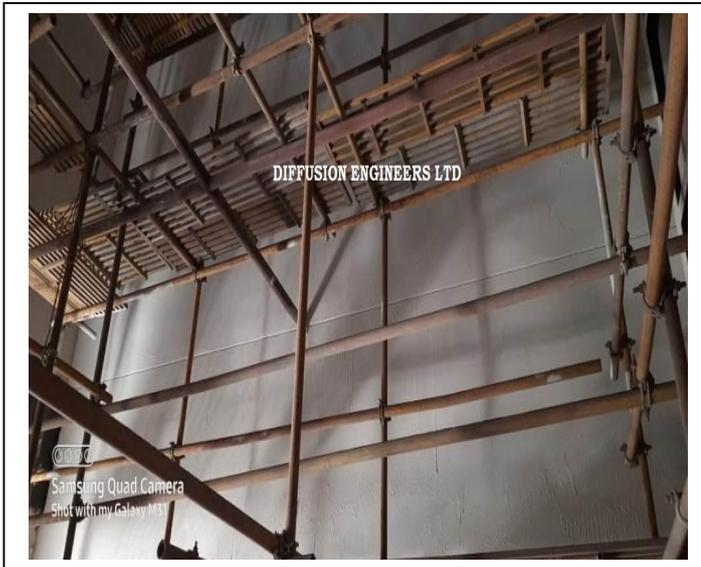


2) To give corrosion resistance against top coat of **DIFFGLASS XTREME** was applied.



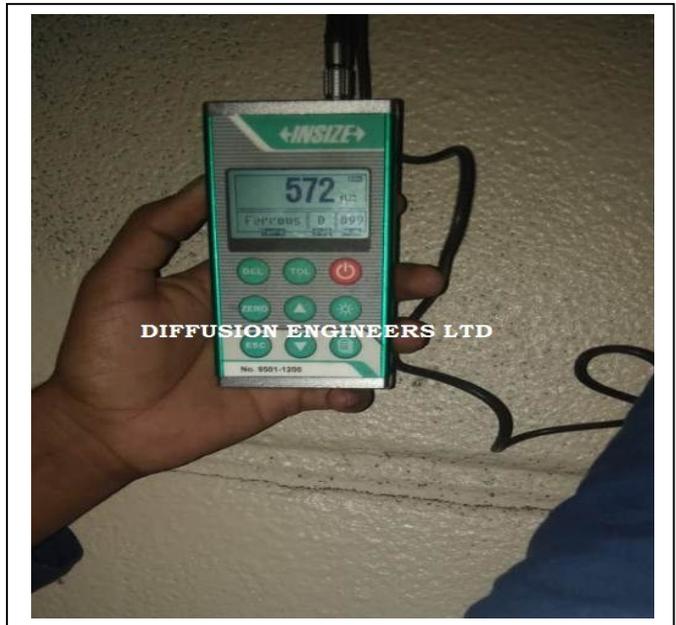
Fig. Application of DIFFGLASS XTREME as Top coat

Final View of Coating:-



COATING INSPECTION:-

DRY FILM THICKNESS: - Range: 500- 600 (Micron)



DFT MESUREMENT by DFT

ACKNOWLEDGEMENT:-

SITE ENGINEER:-

Mr. Nikunj Vidhate (Manager- R&D and Production)
Mr. Pushkar Shendre (Asst. Marketing Manager)
Mr. Ashish Ganvir (Product Specialist)
Mr. Jeetendra Suke (Product Specialist)

AREA ENGINEER:-

Mr. Gautam Bhagat (Sr. Sales Representative)
Mr. Vivek Tiwade (Business Manager)

AGENCY INVOLVED:-

Ganpati sales corporation, Chandrapur

APPLICATION TEAM:-

Sanjeev Khuswaha, Abhijit Tandulkar, Jagendra Kawale, Mayur Sonkusare,
Pawan Lokhande, Ajay Kukudkar, Aman Yadav, Ashish Deshmukh, Baliram
Bisen, Naresh Tumsare & contractor team.