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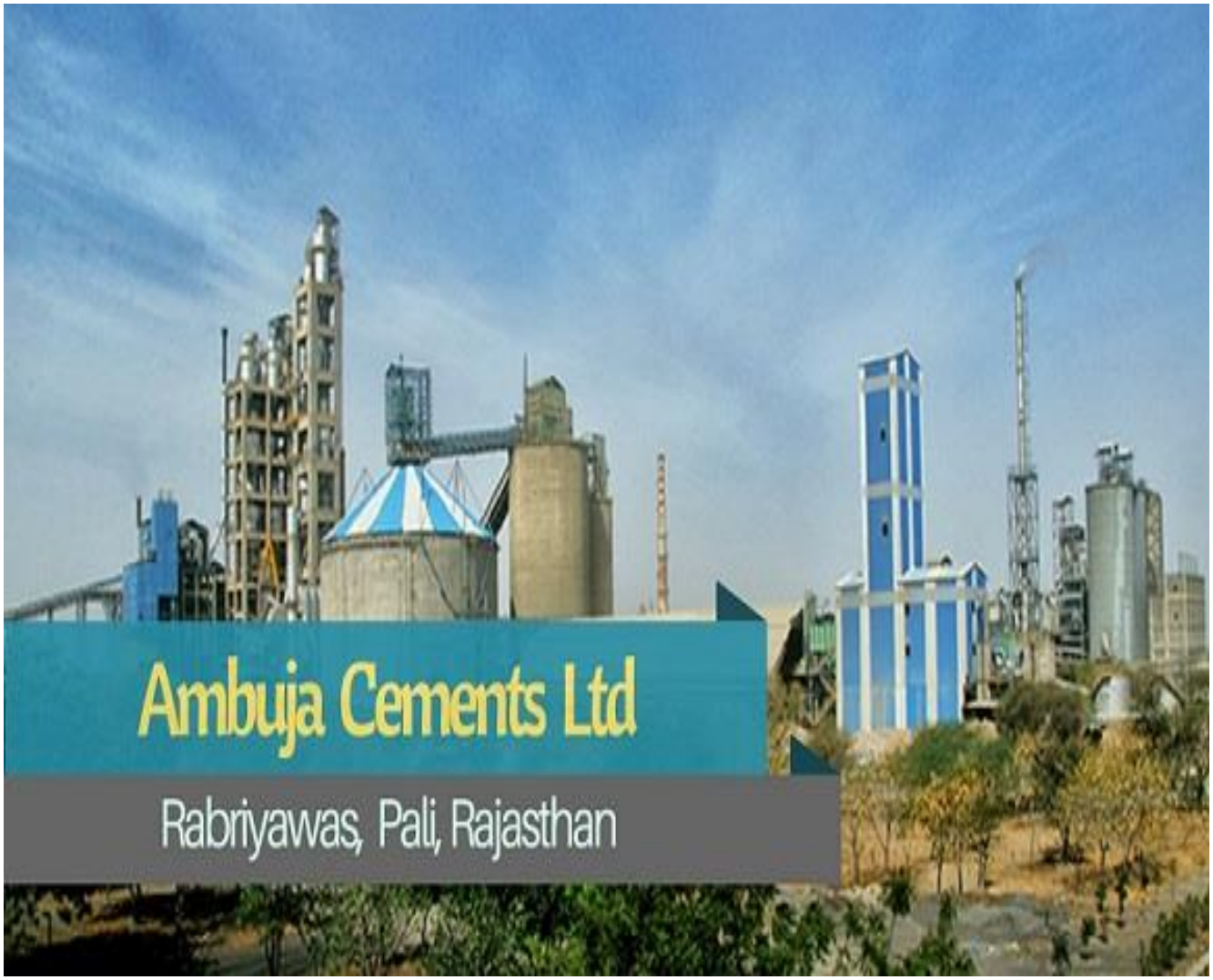
New Generation Surface Engineering

DIFFUSION
Innovative superconditioning solutions

REPORT NO: DCQ/ NGP/2022-23/01

APPLICATION REPORT

INTERNAL COATING OF FLY ASH BAG HOUSE DUCT



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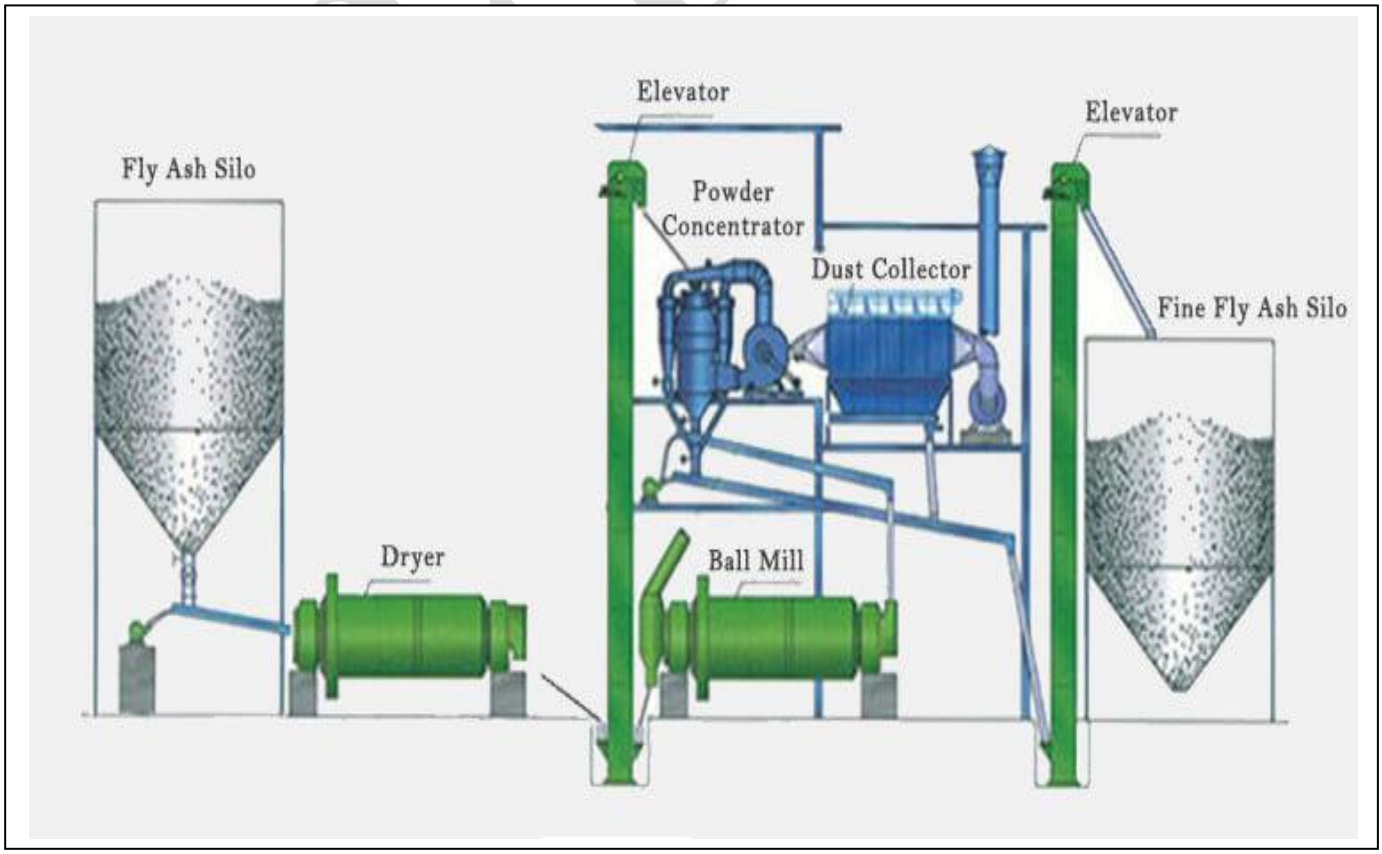
AMBUJA CEMENTS LIMITED (Unit: RABRIYAWAS)
TEHSIL- JAITARAN, PO. RABRIYAWAS, DIST. PALI, (RAJASTHAN)

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD has successfully completed job work of FAD BAG HOUSE INTERNAL DUCT COATING. This job work was carried out for our customer AMBUJA CEMENTS LIMITED, RABRIYAWAS. Our customer will be facing problem of high Abrasion/corrosion due to impact on surface. Coating was done with DIFF PRIME, DIFF CERASCREED AND CERAMETAL 2.

The fly ash can be used as a partial substitute for concrete raw materials. Different incorporation of fly ash will affect the hardening level, strength, dry shrinkage and other characteristics of concrete, with an ideal content of 40%. Using fly ash as raw material to make cement has been quite common in cement plants, and the technology is relatively mature.

The fly ash processing system is taking ash from the silo and sending it into the elevator in front of the grinding mill after feeding by the feeder and electronic weighing. Then the fly ash will be fed into powder concentrator for the first classifying. During the classifying, qualified fine ash enters the fine ash silo through conveying chute, while the coarse ash is sent to the cement ball mill for fine grinding. After grinding, the pulverized fly ash needs to be classified again in the powder concentrator. The fine ash that meets the requirements is sent to the fine ash silo through the conveying equipment, and the coarse ash is sent back to the ball mill for secondary grinding. The whole system is equipped with a dust collector.



PROBLEMS:-

Abrasion mainly happens when the fly ash 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.

Abrasion/ corrosion cause plant shutdown, a waste of valuable resources, loss or contamination of product, reduction in efficiency, costly maintenance. Abrasion/ corrosion are the internal surface of bag house duct. After a certain period, Pits start forming due to pits leakage in base metal occurs. Sulphur ions- along with other Ions form concentric cells for Pits. Corrosion rate of PITS is "UNPREDICTABLE" Ultimate result of PIT Leakage from the metal surface.

Considering the overall investment for a new material, protection of existing duct by coating is very cost effective to stop the abrasion and corrosion and add more years to its useful life.

PRODUCT RECOMMENDED:-

DIFF PRIME:-

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.

DIFF CERASCREED:-

DIFF CERASCREED is high solid heavy duty ceramic screed which has been specially developed for providing high abrasion and impact resistance. DIFF CERASCREED is two component systems, providing smooth, low friction finish for equipment exposed to wear and erosion.

CERAMETAL 2:-

CERAMETAL 2 is a solvent free, fluid grade poly ceramic coating and surfacing compound for fluid flow environments. Easily applied by brush, it is the finest material available for repairing and preventing erosion/corrosion damage caused by fluid flow and entrained solids, impingement and bimetallic action. Specially formulated to resist abrasive erosion, it is virtually non-machinable even with carbide tipped tools.

APPLICATION PROCEDURE:-

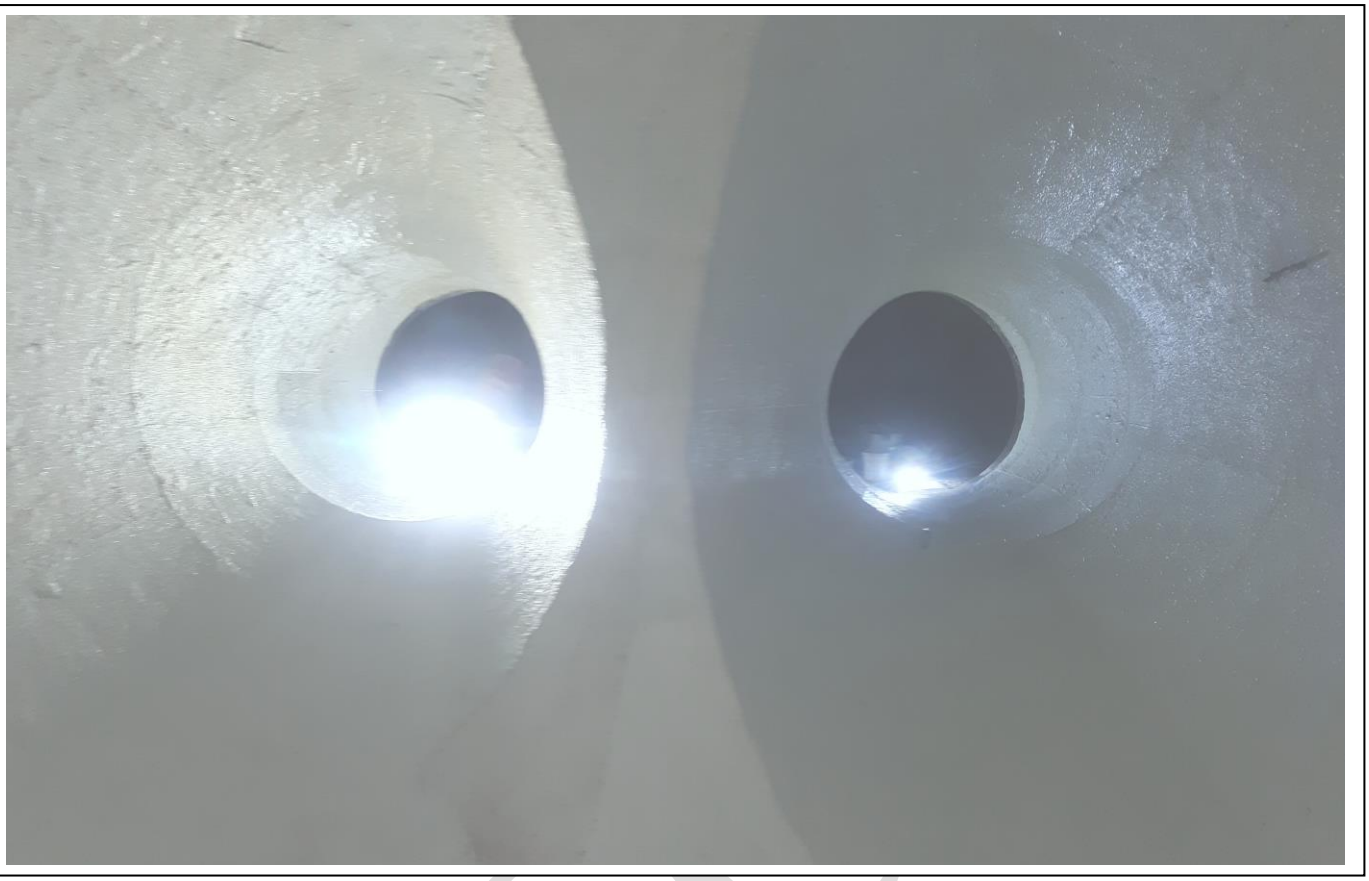
A.SURFACE PREPARATION:-

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. After manual cleaning, surface was cleaned by grit blasting to remove all loose particles.
3. As per ISO standard surface preparation of SA 2 1/2 by blasting with surface profile achieves of 70-90 microns.

B. PRODUCT APPLICATION:-

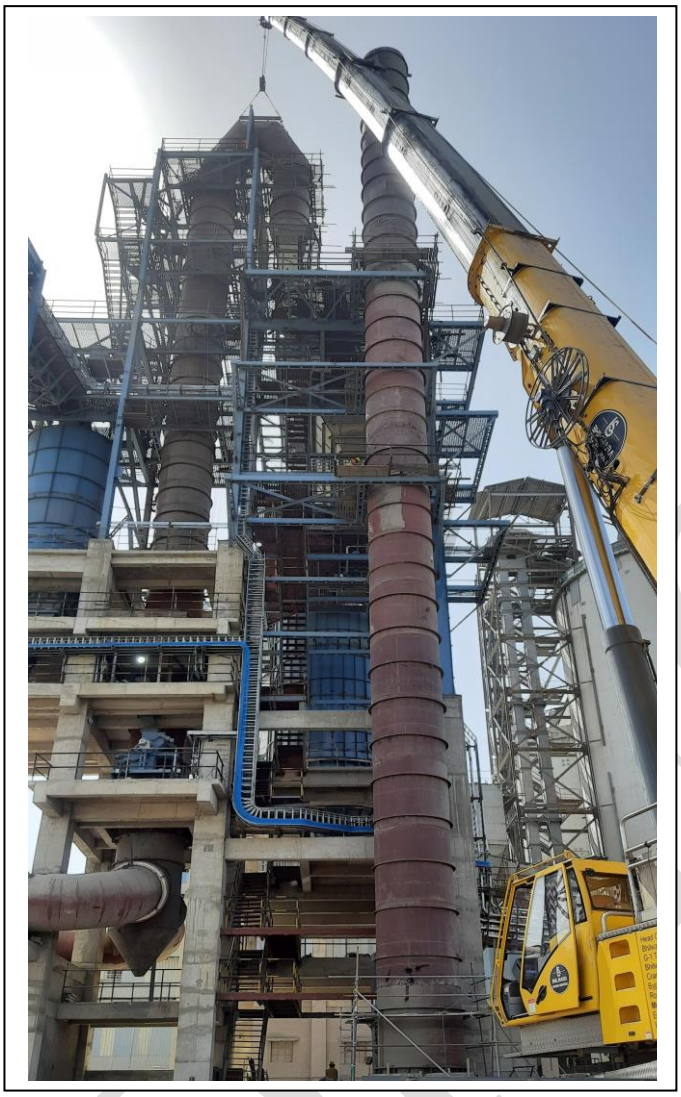
1) After surface preparation priming was done by **DIFF PRIME** with slight pressure.

2) Intermediate coat of **DIFF CERASCREED** was applied on DIFF PRIME to give resistance against Corrosion/ Abrasion.



3) Top coat of **CERAMETAL 2** was applied on DIFF CERASCREED to increase the Abrasion resistance property.

After completed of internal coating work of Fly ash bag house duct, erection and installation work was done.
Length of duct (L) – 5.4 meter
Internal Diameter of duct (ID) – 2.4 meter.
Total area was completed of duct (A) – 40 sq. meter.



ACKNOWLEDGEMENT:-

SITE ENGINEER:-

Mr. Ashish Ganvir (Product Specialist)

AREA ENGINEER: -

Mr. Harsh Pandey (Zonal Manager)

Mr. Ashish Shukla (Area Manager)

AGENCIES INVOLVED: -

Marudhar Enterprises, Beawar

APPLICATION TEAM: -

Ashish Deshmukh , Ajay kukudkar, Naresh Tumsare & Surendra Lilhare