



WET FGD ABSORBER BOX BEAM SURFACE REPAIR

Corrosion & Erosion protection - Duromar® coatings & linings

A. Problem

The absorber box beam surfaces of a fully operational 8-year-old Wet FGD system was severely damaged, due to the varying temperature levels & viscosity of the flue gas flowing through the ducts under continuous operation.

The existing FRP linings (3mm and more) had given away in most areas of the box beam and corrosion had aggravated across these beam systems, as a result weakening the overall structural integrity of the wet FGD absorber.

Arudra was required to assess the condition of the box beam surface and provide a suitable protective coating solution to prevent further corrosion, erosion & metal loss damage to the duct.

Protective coating & lining of Wet FGD Absorber Box Beam		
1	Industrial Unit	1300 MW Thermal (Coal Fired) Power Plant
2	FGD System Equipment	Absorber Box Beam - Wet FGD System
3	No of operating years	8
4	Year of Coating Installation	March, 2021
5	Surface Metal Type	Carbon Steel
6	Operating Conditions	Max Wet operating temp: 120°C
		pH level: 3 -12
		Surface Area coverage – 100 m ²
		Inspection Date: March, 2022

- i. Severely corroded box beam surface and peel-off of existing FRP and Vinyl ester liners.
- ii. Wall thickness loss noted upto 5mm across several portions of the box beam with excessive scaling.
- iii. Extensive erosion and metal damage across various areas of the box beam surface
- iv. Frequent downtime and weld repair of dissimilar metal plates carried out to tackle on going corrosion & erosion issues.



Arudra Engineers Private Limited

No 79, Valmiki Street, Thiruvanniyur, Chennai – 600041.

Phone No: +91 44 24901623 email id: coatings@arudra.co Website: www.arudra coatings.com



B. Solution

Upon inspection, the amount of corrosion & scaling damage seemed to be significant, thereby requiring Arudra to propose a rebuild solution using a thick, chemical and corrosion resistant epoxy liner Duromar® HPL 2131.

- i. Installation of scaffolding & cleaning entire internal surface of the box beams.
- ii. Holiday mapping & inspection of the surface of the box beams and identifying the areas which required rebuilding.
- iii. Sweep blasting the surfaces as per SSPC 10 standards to achieve a profile of 75 microns in minimum.
- iv. Installing the Duromar® HPL – 2131 100% solid epoxy liner across the marked portions and ensuring a coating thickness of 3mm – 4mm was achieved.
- v. Letting the Duromar® HPL – 2131 cure for 48 hours and conducting a thorough holiday tests across coated areas.



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C. Result

The condition of the coatings installed on the absorber box beam were installed for the first time after 12 months of operation and inferred:

- i. No wear out of installed coating materials.
- ii. Complete compatibility and adhesion with existing carbon steel & FRP surfaces.
- iii. Outstanding corrosion, chemical and temperature resistance under continuous operation.
- iv. Zero wall thickness reduction on Box Beam surfaces.



Arudra – in technical collaboration with Duromar Inc (USA) - is a licensed Indian manufacturer of Duromar® range of epoxy putties, grouts & coating grade products.



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