

Advanced Corrosion Protection of FGD Process Tanks Using High-Build Glass Flake Lining



Industry: Power Generation – Flue Gas Desulphurization (FGD)

Location: India

Application Area: Secondary Tank, Waste Water Tank & Filtrate Water Tank

Project Duration: 45 Days

Product: Duromar® HPL-2131 Glass Flake Lining System

Project Overview

The Secondary Tank, Waste Water Tank, and Filtrate Water Tank in the FGD system were exposed to corrosive conditions from process water, wastewater, dissolved chemicals, and acidic contaminants. These conditions can cause corrosion, coating failure, and reduced equipment life.

To provide long-term protection, a high-build Glass Flake Lining System was applied to the internal steel surfaces. The lining offers excellent chemical resistance and barrier protection, helping to prevent corrosion, improve reliability, and extend the service life of the tanks.



Problem

The Secondary Tank, Waste Water Tank, and Filtrate Water Tank were subjected to aggressive operating conditions, including:

- Continuous exposure to process water, wastewater, and dissolved chemicals
- Exposure to chlorides, sulphates, and acidic contaminants from the FGD process
- Risk of corrosion, steel degradation, and coating failure
- Potential leakage and metal loss due to corrosion
- Requirement for long-term chemical and corrosion protection
- Need for a durable, high-build protective lining system

Without adequate protection, these conditions could significantly reduce the service life and reliability of the tanks.



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Solution

A high-build Glass Flake Lining system was selected to provide superior resistance against corrosion, chemical attack, and permeation in the aggressive FGD environment. The lining was applied at a nominal thickness of 3 mm, creating a durable and impermeable barrier that protects the steel substrate and extends the service life of the filtrate water tank.

Surface Preparation

- Internal tank surfaces were abrasive blasted using copper slag to achieve **SA 2.5 surface cleanliness** in accordance with **ISO 8501-1 and SSPC-SP10 standards**.
- Surface profile measurements were conducted across the prepared surfaces to verify compliance with project requirements.
- **An average anchor profile of approximately 85-90 microns was achieved to ensure optimum mechanical adhesion of the lining system.**
- All blasted surfaces were thoroughly cleaned to remove dust, abrasive residues, and other contaminants prior to coating application.
- Sharp edges, weld spatter, and surface irregularities were addressed to ensure a smooth and uniform substrate.
- **Final inspection of the prepared surfaces was carried out to confirm readiness for the application of the Glass Flake Lining system.**



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Coating Application

- **Duromar® HPL-2131 Glass Flake Lining** was applied to the internal surfaces of the **Secondary Tank, Waste Water Tank, and Filtrate Water Tank** to provide long-term protection against corrosion and chemical attack.
- **The coating was applied using plural component spray equipment to ensure accurate mixing and consistent application throughout the project.**
- Multiple coats of Duromar® HPL-2131 were applied to achieve the specified **3 mm dry film thickness (DFT) across all designated tank surfaces.**
- Application was carried out under controlled environmental conditions with regular monitoring of relative humidity, dew point, and steel surface temperature.
- **The completed lining system was allowed to cure as per specification before undergoing final inspection and quality assurance testing.**



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Inspection & Quality Assurance

A comprehensive QA/QC protocol was implemented at every stage:

- **A comprehensive QA/QC program** was implemented throughout the project to ensure coating quality and long-term performance.
- **Surface cleanliness verification** confirmed SA 2.5 abrasive blast preparation.
- **Surface profile measurements** verified an anchor profile of approximately 85–90 microns for optimum adhesion.
- **Environmental conditions** including humidity, dew point, and steel temperature were monitored during application.
- **Dry Film Thickness (DFT) measurements** confirmed the specified lining thickness of approximately 3 mm.
- **Holiday/Spark testing** was conducted to ensure a defect-free lining system.
- **Hardness and adhesion testing** verified the durability and bond strength of the coating.
- **Visual inspection and final acceptance** confirmed uniform coverage and compliance with project specifications.



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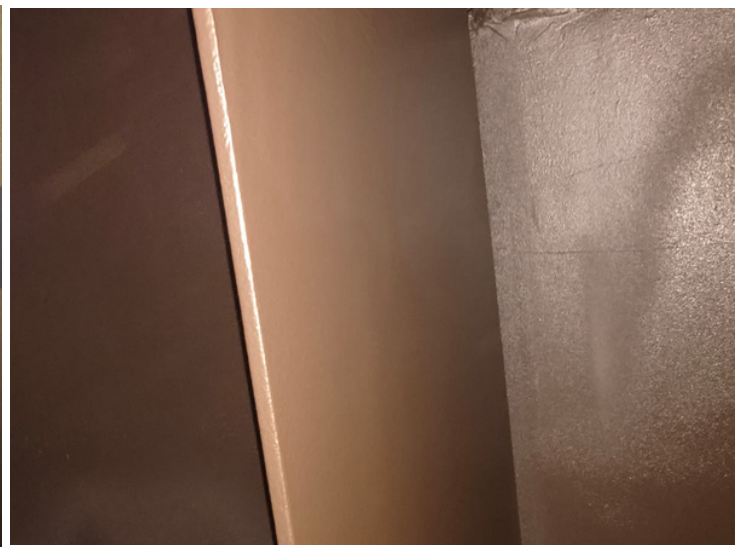


Outcome

The completed lining system provided a highly durable and chemically resistant barrier for the Secondary Tank, Waste Water Tank, and Filtrate Water Tank. The project successfully met all specified quality requirements, ensuring long-term protection against corrosion, chemical attack, and operational degradation.

Key Highlights:

- **3 mm High-Build Glass Flake Lining** applied to provide long-term protection against aggressive FGD operating conditions.
- **SA 2.5 Abrasive Blast Surface Preparation** completed to achieve near-white metal cleanliness for optimum coating adhesion.
- **85–90 Micron Surface Profile achieved** to ensure strong mechanical bonding of the lining system.
- **Excellent Chemical and Corrosion Resistance against acidic contaminants, chlorides, sulphates, process water, and wastewater streams.**
- **Glass Flake Reinforced Barrier Protection** providing enhanced impermeability and resistance to corrosive media penetration.
- **Comprehensive QA/QC Inspection Program** including surface profile checks, DFT measurements, holiday testing, and final quality verification.
- **Improved Asset Reliability and Extended Service Life** with reduced maintenance requirements and enhanced protection of critical FGD tanks.



KEY FEATURES



High-build glass flake protection



Excellent chemical and corrosion resistance



Strong adhesion to blasted steel



Seamless coating reduces corrosion risk



Long service life, low maintenance



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