

A Study on the Field Corrosion Test of the Anti-Corrosion Steels for Flue Gas Desulfurization System

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The flue gas desulfurization (FGD) system in fossil fuel-fired power plants was installed to eliminate emissions of SO_x in flue gas for world environpolitics. In this system, corrosion and safety problems occurred due to applied materials were exposed to corrosive environment such like sulfuric acid, hydrochloric acid, changing temperature, high humidity, wet/dry conditions and so on. Therefore, sulfuric and hydrochloric acid corrosion resistance steels are required and developed anti-corrosion steels for this FGD system.

In this study, we investigated to compare and analyze the corrosion resistance of anti-corrosion steels currently developed by POSCO, being used in the market and stainless steels. The corrosion behavior of steels was characterized by field corrosion test in Korean FGD system and analyzed by weight/thickness loss, scanning electron microscopy and energy dispersive spectroscopy (SEM-EDS).

All of the tested samples reveal the type of general corrosion. We calculated the corrosion rate using weight loss and exposure time. Figure 1 shows that the corrosion rate reveals similar to tested steels by field corrosion test. And we confirmed that the corrosion products were consisted of Fe-oxide and Fe-S-oxide using SEM-EDS.

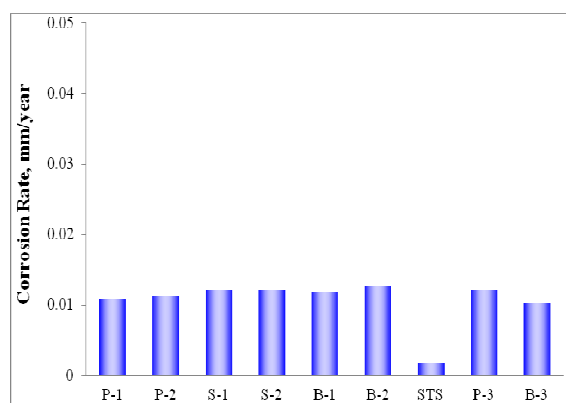


Figure1. The calculated corrosion rate of tested samples in Korean FGD system

Reference

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