

Second Battery of Beltran WESPs for Mopani Copper, Zambia

Six Advanced Wet Electrostatic Precipitators remove acid mists and particulates, help Glencore unit achieve compliance on emissions.

December 17, 2014—Brooklyn, New York, USA—Beltran Technologies, Inc. has announced the start-up of a second air pollution control system for the mining and metallurgical operations of Mopani Copper Mines Plc, Mufulira, Zambia. Located in the heart of Zambia's mineral-rich Copperbelt region, Mopani is a unit of Glencore International AG.

The Mopani smelter and refinery complex utilizes pyrometallurgical processes that produce high levels of sulfuric dioxide, sulfuric acid mists, particulates and other emissions originating from the metallic concentrate. The company has expanded and modernized its sulfuric acid plant, which is designed to capture SO₂ and SO₃ in the smelting and refining exhaust gases, and convert them into industrial-quality sulfuric acid.

Before entering the acid plant, however, refinery flue gases must be cleaned of acid mists, fine particulates and other impurities in order to protect downstream equipment and assure a quality sulfuric acid end-product. In 2007, Mopani Copper hired Beltran Technologies to install two wet electrostatic precipitators (WESPs) to help the facility economically achieve compliance with new local air pollution regulations.

The Beltran WESPs used uniquely designed electrodes to induce electrostatic charges in target particles, impelling them toward grounded collection plates where they are flushed away. Operating in a cool, saturated environment, the WESPs achieved superior collection efficiency on submicron particulates, sulfuric acid aerosols, and condensable organics, while saving on equipment and energy costs.

To maintain maximum gas cleaning efficiency for its recently expanded mining operations and acid plant, Mopani Copper again contracted with Beltran to design and construct a complete gas cleaning system comprised of six new WESPs, including platform, ductwork, and valves. The modular system was easily scaled up and adapted to the existing equipment, which is now engineered to handle a gas flow of 300,000 normal cubic meters (Nm³) per year.

Zambia's Ministry of Mines and Minerals Development had required the Mopani Copper to reduce sulfur dioxide and acid mist to a safe level and fine particulate matter to 99.5 percent. The sulfuric acid plant, operating with Beltran's advanced WESP technology, has continued to meet those requirements.

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