

AirPol, Inc.

199 Pomeroy Road
Parsippany, New Jersey 07054
Telephone 973-599-4400 Fax 201/428-6048, E-mail: info@airpol.com



Two Scrubbers Reduce SO₂ Emissions on Smelting Operation

Company: Cyprus Miami Mining Corporation
Claypool, Arizona

Highlights: FLS/AirPol scrubbers remain effective using a variety of scrubbing reagents. Units perform to specifications whether utilizing sodium carbonate, sodium hydroxide, or magnesium oxide as the scrubber reagent.

Reference: In 1991 Cyprus Miami Mining undertook a modernization of the copper concentrator smelting operation at its plant in Arizona. As part of the upgrade, the Company contracted with FLS/AirPol to supply a system to remove SO₂ from the ventilation fumes and **acid plant tail gases**. The flue gas volume to be handled was 290,000 acfm at 110°F, and 191,994 acfm at 240°F respectively. FLS/AirPol designed a solution which included two wet scrubbing systems with two reagent storage and supply systems.

The systems were originally designed with soda ash as the scrubbing medium. This solution, being temperature sensitive, required heat tracing and insulation of the equipment to prevent potential crystallization. In the fall of 1993, in a general effort to cut back on plant maintenance, CMMC decided to switch temporarily to a magnesium hydroxide reagent.

Although the units continued to operate efficiently, some impurities in the Mg(OH)₂ solution and make-up water caused scaling and plugging, requiring CMMC to periodically clean the absorber with a caustic solution to dissolve the build-up. Also, because this solution could not be stored in the reagent preparation system, additional personnel were required during the daily un-loading of the solution from the rail cars.

To resolve the issue permanently the plant switched in 1994 to using a sea water grade powder magnesium oxide, which is highly reactive. Since making the switch to this reagent, scaling is no longer an issue, and it has not been necessary to clean the absorber since the new reagent was taken in use. In addition, the existing reagent storage system can again be utilized.

Testing conducted in early 1995 showed a 95% SO₂ removal efficiency.