

POLLUTION SOLUTIONS

VERTICAL COUNTER-CURRENT FLOW FUME SCRUBBER



Reference No. 15270-00

MAPCO PRODUCTS

- FUME SCRUBBERS
- ENFORCER III™ (CMP)
- MIST ELIMINATORS
- TERMINATOR™
- ULTRA-MACT™
- PREDATOR™
- FUME ARRESTOR™
- MISTMASTER™
- PVC DUCTWORK
- EXHAUST HOODS
- INSTALLATION
- SERVICE



SAMTEC IMPROVES WET SCRUBBING PERFORMANCE WHILE REDUCING EFFLUENT FLOWS

THE PROBLEM

Samtec, Inc., located in New Albany, Indiana, is a leading manufacturer of high quality electrical connectors. Part of the production process at Samtec involves the operation of many electroplating lines and their associated exhaust and scrubbing equipment. In the Summer of 2000, Mr. Willis Tucker of Samtec found himself faced with mounting maintenance problems involving several existing acid/alkaline wet scrubbers and fans. Rapid salting out within the scrubbers necessitated frequent removal and cleaning of interior scrubber spray nozzles and packing. Scrubber performance seemed to be deteriorating. Salted deposits on fan blades regularly threw the fans out of balance, causing severe vibrations and cracking of the fan and scrubber housings. To make matters worse, new production lines would soon require the addition of another scrubber and its associated maintenance problems. Mr. Tucker approached Mapco with these frustrating scrubber headaches and a request for a proposal. Mapco recognized Samtec's problems as symptoms of wet scrubbers that were not being operated with adequate fresh water make-up and overflow rates. The scrubbers had nearly become evaporator/concentrators. Unfortunately, overflow rates normal to wet scrubbers would severely tax Samtec's existing waste water treatment capabilities, and tend to be very expensive.

THE SOLUTION

Mapco recommended a new wet scrubber that would incorporate its "Fume Arrestor" design installed at the scrubber inlet. The "Fume Arrestor" uses a dry impingement technology to capture as much as 99% of the acid and alkaline mists before they enter the wet scrubber.

The "Fume Arrestor" is then washed briefly and periodically with liquor from the scrubber recirculation pump, controlled by a timer and solenoid valve.

Fume Arrestor effluent drains to waste treatment, while the wet scrubber sump is automatically refilled with fresh water after each washdown. The resulting system installed at Samtec created less than 50 gallons of concentrated effluent daily, while keeping the wet scrubber liquor almost crystal-clear. The new scrubbing equipment;

1. Stays clean
2. Creates a low-volume effluent that existing Samtec facilities can handle.
3. Eliminates the malfunctions and high maintenance experienced with the older wet scrubbers.
4. Provides far superior scrubbing performance.

Mr. Tucker stated his belief that the minimal capital investment for the "Fume Arrestor" portion of the system probably paid for itself in the first year through reduced labor, waste treatment costs and replacement parts. A wet scrubber of similar size operating on the continuous overflow method would have produced 1,500 GPD of scrubber effluent requiring treatment. Mapco states that the "Fume Arrestor" design also lends itself to retrofitting to existing wet scrubbing installations. If the host wet scrubber serves just one chemistry, the low effluent volume produced may offer the potential of reclaiming the solution to the process bath.

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