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Chemical Processing

HCl Fumes Eliminated at Two Plants

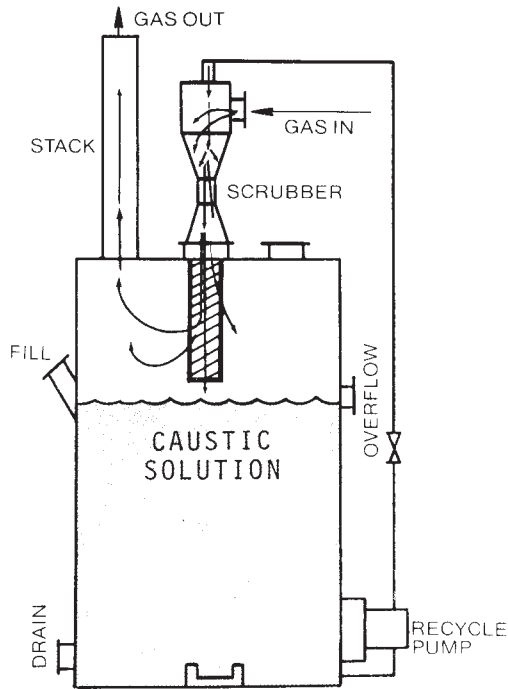
Jet-Venturi scrubbers reduce pollution at Hoffmann-LaRoche and Tenneco Chemicals. In both installations the scrubber is made of fiberglass-reinforced polyester.

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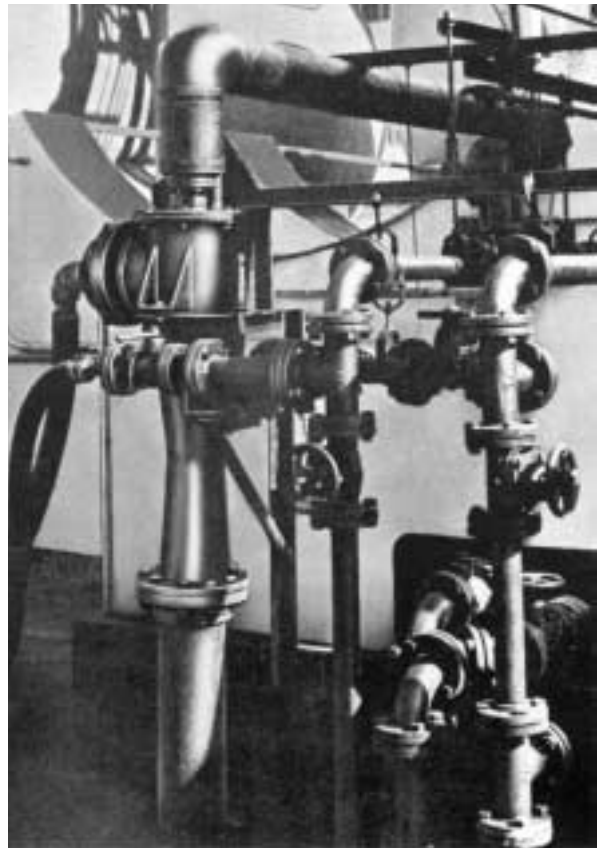




Process diagram of jet-venturi fume scrubber shows how the motivating fluid enters the scrubber from a nozzle in a hollow cone spray, creating a draft that draws the acid-laden air into the stream where it is absorbed. Following absorption, the stream enters the separator below

HCl fumes eliminated at two plants

Little maintenance needed on jet-venturi scrubbers



Croll-Reynolds Jet-Venturi Fume Scrubber removes HCl gas from outlet airstream at Hoffmann-La Roche plant in Nutley, New Jersey.

NEW SOLUTIONS OF PLANT PROBLEMS

Two plants — Tenneco Chemicals, Reading, Pennsylvania and Hoffmann-La Roche, Nutley, New Jersey — are preventing the escape of HCl fumes from their plants by the use of jet-venturi wet scrubbers and separators. Fiberglass-reinforced polyester construction of scrubber units is major factor that has allowed the equipment to operate with little maintenance for a year longer in both plants.

Tenneco uses 32% HCl in the process of making azo dyes. The acid is stored in a 12,000-gal tank which supplies several 400-gal measuring tanks. Corrosive fumes are generated at main tank during refilling from tank trucks or during pumping to smaller vessels. Problem was overcome with installation of standard, packaged jet-venturi fume scrubber and separator. Fumes from main storage tank are continuously circulated to scrubber system.

Caustic solution enters the scrubber from a nozzle in the

shape of a hollow cone spray, creating a draft that draws the acid-laden air into the moving stream where it is absorbed. Following absorption, the stream enters a separator chamber below the scrubber which separates the gas from the liquid. The liquid then passes to a caustic storage tank which is continually recycled to the scrubber. Periodically, the spent caustic solution is sent to the waste disposal system where the neutral sodium chloride presents no problem.

Hoffmann-La Roche purchases HCl in bulk, a portion of which is transferred to drums or portable tanks. The small containers are filled under fume hoods. Exhaust from the fume hoods goes to the jet-venturi scrubber. The acid fumes are dissolved in water, the resulting weak acid solution being neutralized with lime.



Close-up of packaged jet-venturi fume scrubber and separator at Tenneco Chemicals used for recovery of HCl Fumes during refilling or pumping operations.