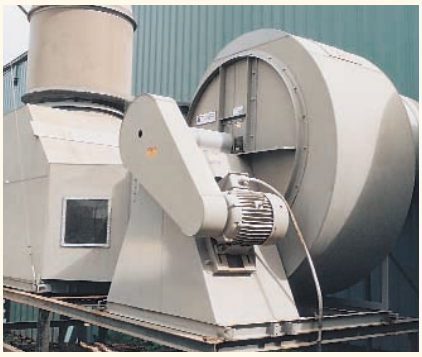
Tri-Mer® Product Catalog

Air Pollution Control Systems For Industry

Acid and Fume Scrubbers



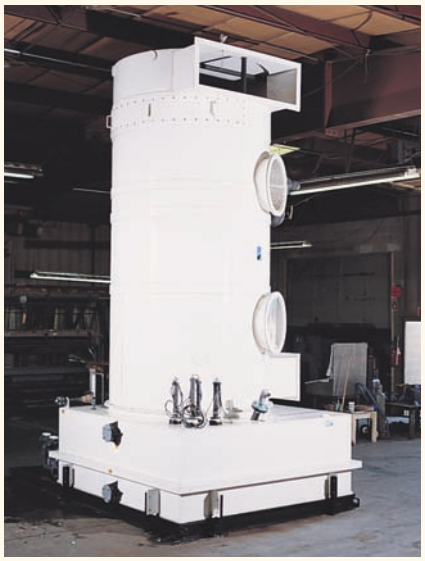
Fan/Separator®

Controls corrosive fumes better than standard wet scrubbers. Fumes generated from steel pickling, hundreds of plating processes, aluminum anodizing and battery charging can be eliminated more efficiently and with less water and energy using Tri-Mer's easy-to-install Fan/Separator. Fan/Separator scrubber sections and fans are made specifically to mate to each other – no fan undersizing. Fan outlet velocity is precisely controlled, so air crossing the rigid packed media never exceeds design parameters. The unit is extremely efficient in eliminating corrosive contaminants with a resulting low humidity exhaust stack. This combination of low humidity and high efficiency makes return air possible in certain specialized applications incorporating the closed-loop Tri-Mer design.

Tri-Mer's Fan/Separators can operate in the 99% efficiency range, removing fumes containing sulphuric acid, hydrochloric acid, nitric acid, plating exhaust and corrosive fumes resulting from metal finishing operations.

Requires less than 1/10 the water of most wet scrubbers and uses 20% less brake horsepower due to its unique design, which incorporates the fan as a centrifuge in the scrubbing process. Single-size units are available up to 100,000 cfm. PVC or polypropylene are standard materials of construction; fiberglass-overlayed PVC, 304 and 316L stainless steel or mild steel are available optionally.

VTB Packed Bed Scrubbers



Tri-Mer's packed bed tower system is the industry standard for applications requiring capacity between 50 and 14,000 cfm. Light-through heavy-duty packed beds are available, with packing depths in excess of 60" where needed. Specify with or without recirculation system; integral or remote recirculation is available. Top discharges are provided for customers with existing fans. Materials of construction include PVC, polypropylene, stainless steel and fiberglass-overlayed PVC. Tri-Mer's VTB scrubber is designed for indoor or outdoor installation; its compact size makes start-up possible in a single shift. This is a high-efficiency fume scrubber from one of America's foremost scrubber designers.

Crossflow Scrubbers

This top-performing fume scrubber is used throughout industry. Tri-Mer's fume washer is constructed of UV-stabilized polypropylene, with a mist elimination section. It is completely corrosion-resistant and designed for high inlet concentrations. Tri-Mer's fume washer is unique in that it features a dual-action system which continually floods the packing media, insuring optimum contact between the contaminant and the packing material.

All Tri-Mer horizontal crossflow scrubbers are available with mated fan or can be coupled to your existing fan. The Tri-Mer fume washer is also available in UV-stabilized PVC and alloys such as stainless steel. Deep-pack models are available for heavy loadings; for special situations other scrubber modifications such as multiple stages, redundant fans and pumps, and the Ultra-Scrub® option can be engineered. Crossflow scrubber capacities range through 100,000 cfm.

Cloud Chamber Scrubber® (CCS®)

The Tri-Mer® Cloud Chamber Scrubber® (CCS®) Is the First "Really New" Scrubber Technology in 30 Years

Who benefits?

Makers of Semiconductors, Companies Who Make (or use) Chemicals, Foundries, Kiln Operators, All Generators of Particulate Under 1 Micron.

Revolutionary Technology Is the "Ultimate Solution" to Submicron Particulate

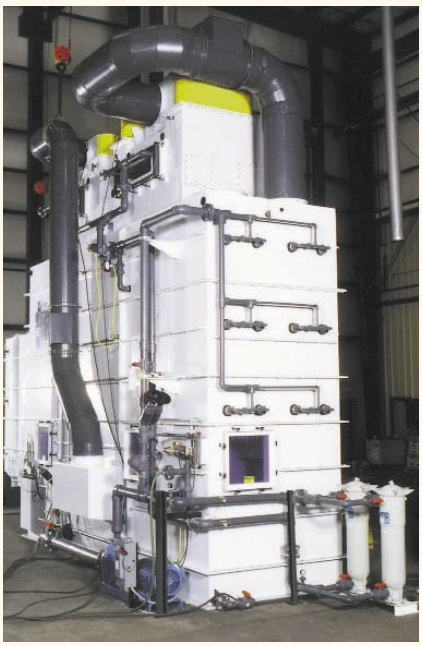
Tri-Mer Corporation has proved and commercialized a new technology for collecting submicron particulate.

The Cloud Chamber Scrubber® (CCS®) was developed by Tri-Mer Corporation and Atmospheric Physics, Inc. (Albuquerque, NM).

The CCS is a wet scrubber technology that allows particulate and water droplets to be charged with an opposite polarity using just 600 watts of power. In a Cloud Chamber Scrubber, billions of droplets and particles move continuously in relation to each other. As they approach 10 microns of separation, electrical attraction causes the particulate to enter the droplets. This means that collector water droplets are delivered to the particulate in a way that has never been accomplished before. This fact is critical in understanding the function of the CCS.

CCS meets PM 2.5, and offers numerous other advantages over conventional devices used for submicron control. Chief among them is the requirement of less than 1.0" of w.g. pressure drop per stage under full load operation. By contrast, Venturi systems typically require 40" to 70" of w.g. pressure drop; diffusion candles typically require 16" to 20" of pressure drop. This factor is a major contributor to the CCS system's low operating costs. Also notable: the CCS is applicable to both soluble and insoluble particulate.

Another distinguishing feature of the CCS is its ability to remove fumes and gases, including HCl, HF, HNO_3 , H_2SO_4 , SO_2 , Cl_2 and NH_3 , and others, simultaneously with particulate. This is important because now one device can handle particulates and corrosive fumes simultaneously. In practical terms, it gives management the ability to eliminate the maintenance costs and labor associated with packed towers.



"CCS® " Cloud Chamber Scrubber® is 99%+ efficient down to 0.1 microns.

New Technology Slashes Energy Required for Submicron Particulate Collection

Efficiencies of 99%+ are easily achievable with the CCS equipment based on a micron size between 0.1 and 0.9 microns. Particles above 0.9 microns will also be collected at efficiencies of 99%+.

Tri-Mer Corporation has exclusive worldwide rights to commercialize CCS technology.

For particulate above 5 microns, Tri-Mer offers the Whirl/Wet® collector, which is 99% efficient or better over a wide range of micon sizes and for particulate both soluble and insoluble.

US patent 5147423.
US patent 5941465.
Additional patents pending.
Foreign patents pending.

Packed Bed Systems/Multi-Stage

NO_X Scrubbers/Tri-NO_X® Process

Handles any NO/NO_2 Ratio. Tri-Mer's versatile Tri-NO_X system accommodates any combination of NO and NO_2, including nitration-related NO_X, which is typically high on the NO_2 scale and combustion-related NO_X, which is generally higher in NO. The system also handles N_2O_4.

Clear Stack Guaranteed. Tri-NO_X technology eliminates the visible plume generated by high NO_2 loading. This yellow-brown colored emission is commonly caused by processes using nitric acid in conjunction with metal refining, metal finishing or chemical nitrations.

No CFM or PPM Limitations on Gas Input. Tri-NO_X systems are efficient, versatile workhorses that adapt to a wide range of requirements. Virtually any target stack output can be met, including reducing loads in excess of 100,000 ppm to below 10 ppm.

Predictable operation. All Tri-NO_X systems are guaranteed to operate within pre-determined ppm limits for stack output without repeated adjustments. Tri-NO_X is the technology of choice for industry located within districts where NO_X emissions are most restrictive.

Chemically safe Tri-NO_X systems can be engineered to handle NO_2 exclusively if opacity is the only problem, or they will handle complete NO_X output, (NO + NO_2), for comprehensive NO_X control.

The process is applicable to both hot and cold gas phase systems. It will handle multiple gas stream residuals, including Cl_2, HCl, SO_2, other acids, other gases, caustics and can be designed to handle particulates.

Incinerator Scrubbers

Tri-Mer's Q-Scrub wet scrubber section interfaces with all industrial, medical and municipal incinerators. Q-Scrub predictably and reliably handles HCl, SO_2, NO_X, particulates and other gas stream contaminants. The process can incorporate heat recovery, gas quenching and wet or dry particulate control and can incorporate the Tri-NO_X process if required by operation permit.

Odor Control

Tri-Mer odor control systems incorporate single-, dual- and triple-stage wet sections. The process includes alkali or acidic sections depending on the odor source. Mercaptins, amines and dozens of uncommon industrial odor problems can be eliminated with the Tri-Mer system. Carbon systems can be incorporated if required.

Tri-Mer's multi-stage system is guaranteed to operate free of detectable odor at the stack under all conditions.

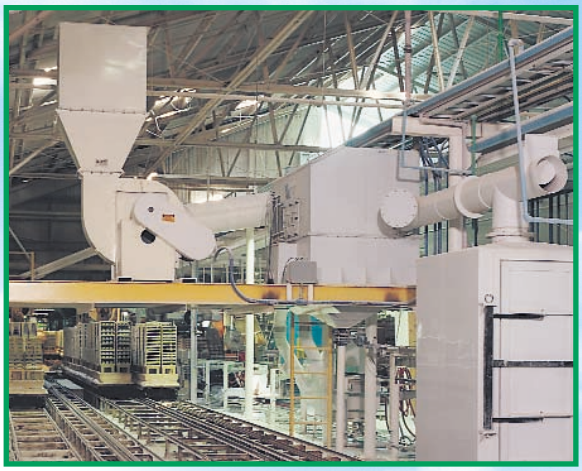
Packed Gas Scrubbers and Venturi Systems

Eliminate Cl_2, SO_2, HCl, HF, NH_3 and other off-gas loads with the Tri-Mer chemical or water packed bed dry sump process. Unique designs incorporate low-energy packed towers as stand-alone systems and can include venturi designs as separate systems for processes requiring higher energy output. Flexibility allows staging as required.

Tri-Packs® Tower Packing

Tri-Packs represent a significant breakthrough in scrubber tower packings. Their spherical design provides maximum surface contact between the gas and the scrubbing liquid by creating a continuous formation of droplets throughout the packed bed. This results in extraordinarily high scrubbing efficiency.

Tri-Packs develop a very low static pressure per foot of depth. They can often reduce both the size of the tower needed and the amount of scrubbing liquid required.

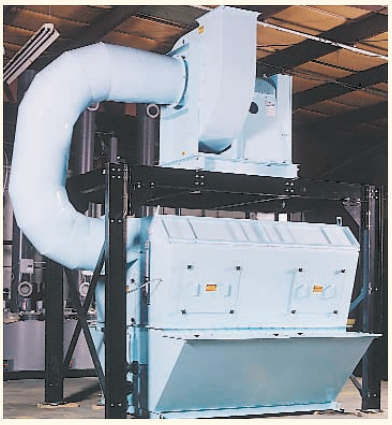


Wet Dust Collector

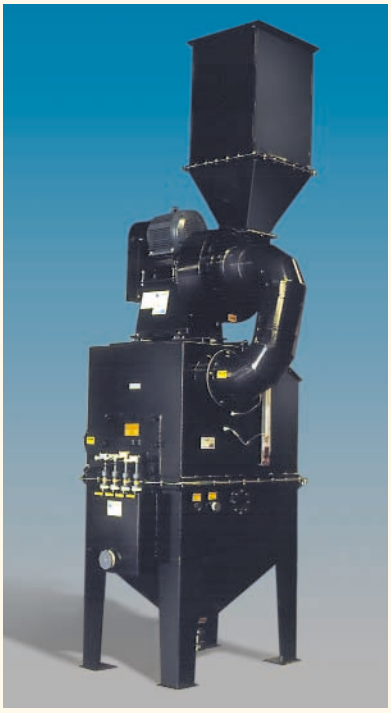
Whirl/Wet®

Applicable for soluble and insoluble particulates. Tri-Mer's Whirl/Wet performs equally well collecting soluble and insoluble dust loads. Particulates settle to the bottom of the unit for easy disposal by a variety of techniques.

Whirl/Wet's unique, dual-opposed, internally mounted blades develop 8" of water gauge while the system is operating as a medium-energy scrubber. The aggressive action of liquid and particulate over the blade system makes the unit impossible to clog. Collection efficiency ranges between 95 and 99.9%, and is geared to meet specific grain loading requirements.



Whirl/Wets are applicable for particulates greater than 1 micron. This wet dust collector can handle extremely high inlet grain loads with complete success 24 hours per day with zero downtime. Tri-Mer generally provides the Whirl/Wet dust collector and mating blower as a package. Blowers can be integral top-mounted or remotely located.



Materials of construction include coated mild steel, 304 and 316L stainless steel and (unique to the industry) **all-plastic models.** Complete polypropylene construction is recommended with abrasion or when corrosives are present in the particulate mix and when an absolute non-stick, non-corrosive surface is desired.

Whirl/Wet is the simplest to maintain of any dust collection system currently in use. It is self-cleaning and requires no recirculation pumps, recirculation tanks or complex plumbing commonly needed by other wet dust collectors. Particulate removal is quick and uncomplicated by hopper-style, drain-down (manual or automatic), continuous conveyor drag-out, or manual clean-out.

Tri-Mer's Whirl/Wet *(left) wet dust collector features an integral, top-mounted blower that eliminates most duct work and minimizes installation expense.*

Whirl/Wet systems are ideal for the chemical and fertilizer industries, pulp and paper processors, and operations involving powder such as food mixing/blending. It is also recommended wherever grinding or sanding are part of the manufacturing process.

Tri-Mer manufactures the Whirl/Wet in capacities up to 50,000 cfm.

The modular conveyor drag-out option allows continuous removal of collected particulate. Unique Tri-Mer design eliminates maintenance problems commonly found with conveyors by using a slide-in/slide-out system.

The Whirl/Wet design eliminates the need for filter bags, cartridges and other consumable items required by dry systems.

For submicron particulate, Tri-Mer's Cloud Chamber Scrubber® (CCS®) is 99% efficient, uses just 600 watts of power, meets MACT and EPA PM 2.5.