

## CCS® Earns "Preferred Technology" Status As Replacement for Electrostatic Precipitators

Another provider of specialty optical fiber and fiber-based products to the photonics industry has selected a Tri-Mer CCS to control SiO<sub>2</sub> in its fiber manufacturing area.

Cloud Chamber's principle of operation, energy requirements, and efficiency ratings are all radically different from traditional devices.

Inside the CCS collection chamber, billions of droplets are formed and electrically charged, causing droplets and (uncharged) particles to move continuously in relation to each other. The fact that particles are not

charged is an important distinction, because the corona discharge used by ESP devices to drive particulate to a grounding plate consumes large amounts of energy. In fact, the CCS operates at barely one percent of the total energy required by an ESP for the same task. The CCS primary charge modules require just 600 watts of power, which is about 1% of the typical electrostatic precipitator power draw of 60,000 watts or more.



Continued on Page 3 - CCS

*The Cloud Chamber Scrubber® is highly effective in removing submicron particulate, including airborne anthrax spores and other bioagents circulating in HVAC systems.*

## East Penn-Deka Proves Out All-Mechanical Acid Fume Scrubber



A new Tri-Mer technology for controlling sulfuric acid fumes from dry charge formation operations offers the highest collection efficiencies possible at all loading levels. Developed for East Penn-Deka, (Lyon Station, PA), the system relies purely on mechanical separation, and does not consume chemicals.

The impetus for development began in 1999, when new performance standards were set by East Penn. These goals included operation on a "24/7" basis, with zero shutdown, and a collection efficiency of greater than 99%. In addition, the company initiated a proactive air emissions policy.

On advice from its engineering firm, Tate Engineering, (Aston, PA), East Penn consulted Tri-Mer, whose Fan/Separator®, Crossflow scrubber and Whirl/Wet® lead oxide collector systems already had solid track records within battery forming. What emerged was a hybrid, scaleable technology that incorporated key features from those systems.

Continued on Page 4 - East Penn

# Harley Shines with Whirl/Wet® Technology



Gabilan Manufacturing produces all the mufflers used on Harley Davidson motorcycles. Recently, the Salinas, CA company installed a Whirl/Wet – its third – to serve a metal polishing operation. “This operation is critical to chrome plating,” explains Mark Leliart, Gabilan’s Director of Engineering. “What attracted us to the Whirl/Wet was its polypro construction. Other wet collectors we knew about didn’t hold up very well, no matter what they were coated with. Metal dust fines, plus water, will, sooner or later produce rust in any metal unit. And other non-metal wet collectors we considered were too costly. Whirl/Wet had the best design, and was the most competitively priced. “We’ve had excellent success with it.”

The three Whirl/Wet units are installed in the same facility; all interface with polishing or sanding operations. Collected material is processed through a magnetic filter which separates-out the fines. The system is great from a housekeeping and clean-up standpoint, and is also very much in line with our ‘safety first’ commitment,” adds Leliart.



# Aketon Licenses Emissions Technology from Tri-Mer®

Tri-Mer Corporation in conjunction with Atmospheric Physics, Inc., has granted a license for its Cloud Chamber Scrubber® technology to Aketon Technologies, Cordvallis, OR. The license, which is exclusive and world-wide, applies to all new applications within the semiconductor and flat panel display manufacturing industries.

Aketon supplies facility management software, non-thermal POU abatement devices, and exhaust management systems and services to the semiconductor industries. It is also a systems integrator for semiconductor and microelectronics manufacturing operations. The company is an operating unit within the CH2M Hill family of companies.

Aketon will market cloud chamber technology under its own recently established trade name, **The Blue Sky™ Scrubber.**



## PCC Airfoil Selects Tri-Mer® Packed Tower

PCC Airfoil, Merida, Mexico manufactures airfoils for gas turbine engines, and aircraft engines. IWI's Bob Snyder recently received an order from PCC for a Tri-Mer packed tower fume scrubber. The 3000 cfm capacity vertical flow tower will scrub hydrogen chloride fumes from an auto-etching line. The unit is all-polypro; installation will be completed by early February.

Tri-Mer packed scrubbers are highly recommended for the efficient removal of inorganic gases, odors and fumes. Vertical flow scrubbers are suitable for chemical producers, metal finishing, semiconductor manufacturing and dozens of other operations generating fumes and gases.

IWI also received a contract award from Alcoa's new Monterey, Mexico wheel-making facility, set to start production in mid-2002.

**IWI has supplied Alcoa facilities throughout North America with material handling and dust collection systems since 1985.**

With the CCS®, as any particle passes between 10 and 20 microns of a water droplet, electrical attraction causes the particles to enter the water droplets. Each water droplet therefore becomes a “collector” of thousands of particles, constantly re-energizing with each pass through the cloud chamber. Since the charged droplets are the “collectors,” there is no need for fibrous filters, collector plates, venturi throats, layered pads, bags or cartridges.

The Cloud Chamber collects both soluble and insoluble particulate, and to scrub corrosive fumes, gases, and odors simultaneously with particulate. The system can easily take 100 ppm of HCl to below 0.5 ppm, for instance, while collecting ammonium chloride, ammonium nitrate or other particulate matter, including silica dioxide and lead oxide.

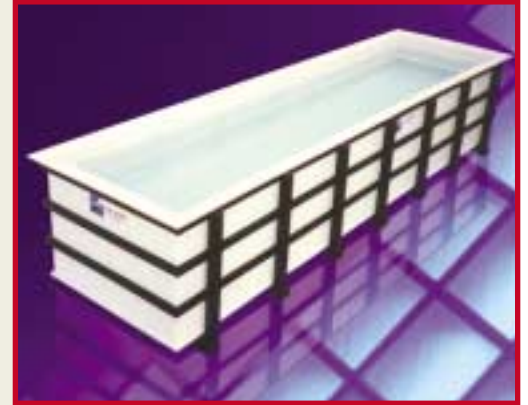
CCS technology can handle particulate 0.1µ and smaller, as well as very large particulate hundreds of microns in size.

## Polypropylene Thermoplastics Are Cost-Effective Alternative to Stainless Steel

Tri-Mer polypropylene tanks have become a cost-saving alternative to stainless for food, pharmaceutical, chemical and other applications that demand a non-corrosive tank with a long service life.

Polypro is a chemically inert polymer with outstanding stability, low coefficient of expansion and contraction, excellent dimensional stability and exceptional resistance to chemicals at both extremes of the pH scale. It is a superior moisture barrier and can be used continuously at up to 210°F. The material is also exceptionally strong and resilient, not subject to fatigue or stress cracking, and easily repaired if damaged.

Tri-Mer thermoplastic tanks do not contain plasticizers, which can leach out or cause



embrittlement. They have excellent UV resistance for outstanding weatherability in exposed applications.

Tri-Mer vessels are up to 1” solid wall polypropylene, with 1-1/2” foundation plates for optimum rigidity. Sizes to 100” and longer. **Tri-Mer also supplies custom hoods, ducting and other tank accessories.**

## Morton Salt “Rains” with Whirl/Wet®

IWI Inc. is a preeminent supplier of engineered process equipment for Great Lakes industry. Headquartered in Cleveland, the company specializes in material handling and air pollution control systems.

IWI Sales engineer Marty Slunski recently won a contract for a 32,000 cfm Whirl/Wet from Morton Salt, America’s leading producer of salt for household and agricultural applications. This is the fourth Whirl/Wet purchased by Morton.

The most recently installed Whirl Wet serves a salt flakes line. It’s a 32,000 cfm polypropylene Whirl/Wet with automatic drain-down. According to Slunski, Whirl/Wet’s non-corrosive design, and low water use – a critical concern given the water table at this facility – were key.

Whirl/Wet’s simple design and low maintenance requirements, are also factors: “For applications such as salt, Tri-Mer’s wet collection technology is clearly the best alternative,” says Slunski. In addition to service life, there are no filters to change, and far fewer components to worry about.”



**Whirl/Wet systems are well-suited to the hygroscopic environments common to food processing. Systems are also on-line at Kraft, Halben Foods, and Hester Industries division of ConAgra.**

Recently, northeast rep John Chudy (Chudy Industrial, Palmer, MA) engineered a 5000 cfm Whirl/Wet® for Fishery Products International’s Danvers, MA facility.

The application is a breeding line where excess breeding is blown off before baking, creating dust which would otherwise settle on piping and other surfaces. In applications such as this, the Whirl/Wet contributes greatly to the maintaining of a clean environment. One key factor in favor of Whirl/Wet was the successful use of WW technology by Pierce Foods, division of ConAgra Poultry, which also uses a variety of hygroscopic breeding products. The high humidity washdown environment of both facilities would quickly blind dry filters, rendering them useless. By contrast, Whirl/Wet is uniquely well-suited to these applications.

Fishery Products specializes in the harvesting and primary processing of groundfish and shellfish, and the secondary processing of value-added seafood. It is the largest seafood company in Canada.

The technology has since been commercialized by Tri-Mer under the tradename UltraScrub. At East Penn, the first phase of a 3-phase program employs six UltraScrub units, installed side-by-side. Each has its own stack and fan, but is ducted to a single 9' diameter plenum. This configuration allows any unit to be shut down for annual maintenance or other purposes and restarted seamlessly. The units, which are UV-stabilized polypropylene, each have a capacity of 32,000 cfm.

The UltraScrub units have four stages, arranged as a series of cartridges.

The first stage is a proprietary rigid tube packing, a media first proved on Tri-Mer's Fan/Separator®. The Fan/Separator is a low energy, low water use scrubber developed for the control of sulfuric hydrochloric, hydrofluoric and nitric acids. Its packing media is designed to perform at 99%+ efficiency on sulfuric acid fumes at all loading levels. Engineered for battery forming mist, it sacrificially prefilters the air prior to the scrubber section. Notably, there is no visual carryover from stage one forward.

Mists next contact a stage containing 1" Tri-Packs® "random-dump" packing media. This media prevents the formation of dry spots and compression interlock, two problems common to packing media that cause liquid and air to channel, thereby reducing system efficiency.

The third stage is an interwoven polypropylene Kimray pad; stage four is a rigid chevron blade mist eliminator which removes droplets from the system. The dual mist eliminator



developed by Tri-Mer has a minimum performance requirement of 99% on 2 micron droplets. The captured sulfuric acid mists are sent with other process wastewaters to the company's waste treatment plant.

The UltraScrub systems are designed to operate "dry" at least 99% of the time. Each stage has an independent magnehelic gage to indicate when cleaning is necessary. To prevent the corrosion of the fan from exposure to sulfuric acid mists, the fan is installed at the back end of the scrubber; fumes drawn through are cleaned and exhausted before contact.

The order to design, build and install the first three UltraScrub units, along with plenums, fans and stacks, was fast-track: a major contract that held East Penn to firm delivery dates kept lead time to just 65 days.

All of the units operate as engineered. Additional UltraScrub units will be installed as part of the second and third stages of the project.

**East Penn is a leading manufacturer of lead-acid batteries for the automotive, telecommunications, marine, commercial, industrial and stationary market.**

## Tri-Mer Collector Superior for Fertilizer Dusts



Mears Fertilizer, (El Dorado, KS) is a leading manufacturer of lawn and agricultural fertilizers. To collect nuisance dusts from mixing and storage areas, the company recently purchased a Model 100H Whirl/Wet®. According to Bob Walla, sales engineer for R&W Engineers, (Shawnee Mission, KS), there was never a consideration of dry collectors, due to their compunction to plug in high moisture environments. "In fact," he says, "the environment is so humid that fume scrubbers were considered as one solution."

Dust intake worked against that as a practical solution, however "Whirl/Wet really is the perfect answer," he adds, "because it functions as a hybrid between a dust collector and a fume scrubber. I think this is one of the reason why the unit has so many applications."

**R&W engineers specializes in industrial hvac and dust collection systems.**

## Tri-Mer Exhibit Part of AISE 2001



More than 10,000 attendees had the opportunity to see how Tri-Mer technology is helping the iron and steel industries reduce air pollution control costs during the AISE (Association of Iron and Steel Engineers) Annual Convention held recently in Cleveland. Featured in the Tri-Mer exhibit were the Cloud Chamber Scrubber®, (best available technology for the scrubbing of particulate from 0.1 microns to 300+ microns); Tri-NO<sub>x</sub>® Multi-Chem® gas scrubbers (or a guaranteed clear stack regardless of NO/NO<sub>2</sub> ratio) and heavy-duty process tanks.



*"Look, I'm sorry your wife doesn't understand you, but this is a dry cleaner's."*

**Tri-Mer**<sup>®</sup>  
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**Air Pollution Control Systems**

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