

KIMRE™

CLEAN AIR TECHNOLOGY



General Company Brochure

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KIMRETM

CLEAN AIR TECHNOLOGY

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Asphalt storage tank filter system

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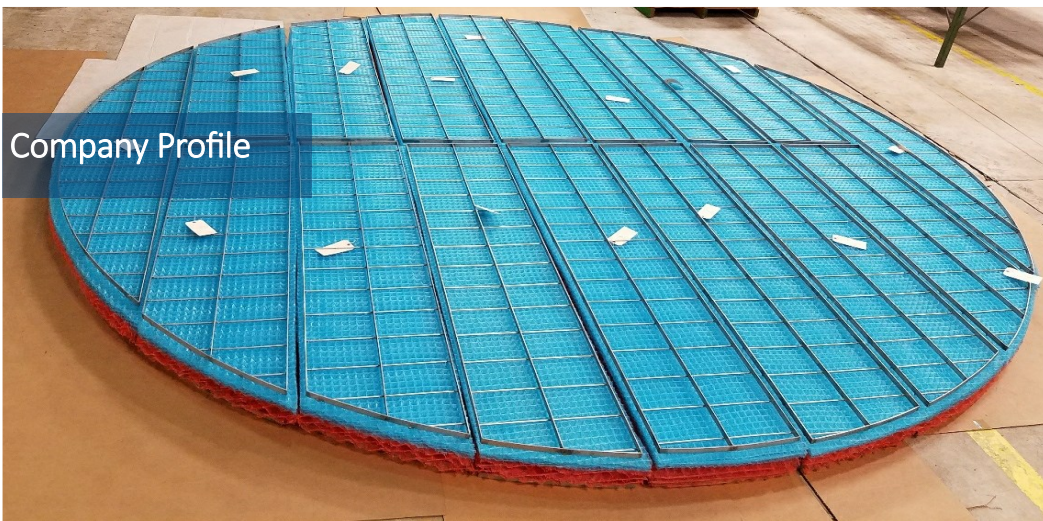
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Company Profile



180" diameter B-GON® Mist Eliminator composed of high temperature polypropylene and PVDF material, supported with stainless steel grids.

Company Profile

Kimre's **commitment to the customer** is what sets us apart and allows for our success. For more than 48 years, Kimre™ engineers and application specialists have been solving process gas stream and emission problems in plants around the world. Our combined experience results in a **superior understanding** of gas and vapor stream separation and mass and heat transfer. From the first inquiry to the final installation, our specialist will meet our commitment to deliver a quality engineered product that will **exceed your expectations**.

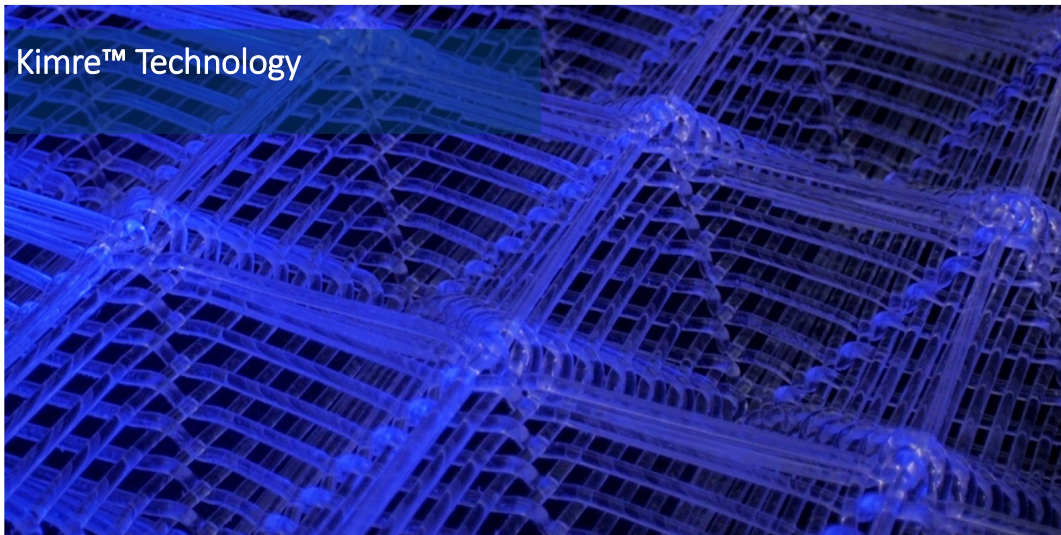
Process engineers, environmental engineers and production managers in operations as diverse as fertilizer, sulfuric acid, waste-to-energy and power plants around the world recognize Kimre as a valuable resource.



144" diameter B-GON® Mist Eliminator with external support grids. This is a replacement for a chevron mist eliminator in an odor control scrubber for a wastewater treatment facility. Kimre™ technology can perform at higher efficiencies with less thickness of material. Clients with liquid/ vapor separators, scrubbers, evaporators, bio trickling processes, odor control equipment and many more applications benefit from Kimre designs.

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Kimre™ Technology



Kimre's B-GON® Mist Eliminators are composed of a 3-dimensional ladder like structure, where the design creates a format in which nearly 100% of the fibers are essentially perpendicular to the airflow. This perpendicularity provides maximum probability of mist collection or gas liquid interface for mass transfer to occur.

Kimre™ Technology

In 1973, the introduction of Kimre's patented **high-performance**, Interlaced mesh structure revolutionized the technology of process fluid separation and air pollution control around the globe.

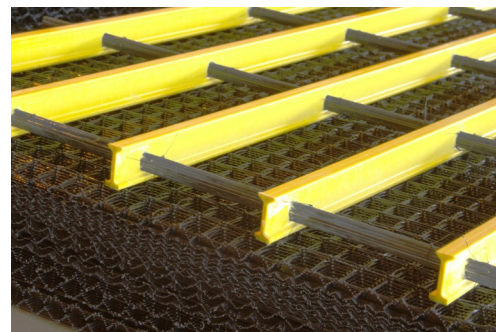
Our unique, **innovative concept** is far superior to the more commonly found structured tower packing, chevrons, and mesh pads used for mass and heat transfer, particulate removal and mist elimination.

As a result, industries around the world have increased their production, reduced energy consumption, lowered maintenance costs, and are able to meet stringent emissions requirements with comfort and assurance.

Kimre's interlaced mesh structure is simple, yet surprisingly effective, **durable and cost effective**. The basic structure of the mesh forms a ladder-like arrangement of thermoplastic filaments, forming double V systems that intersect each other at proper angles.

Our mesh construction has a large surface area and void fraction.

A variety of thermoplastic filament materials allows for continuous service up to 204° C (400° F) and various process corrosion resistance.

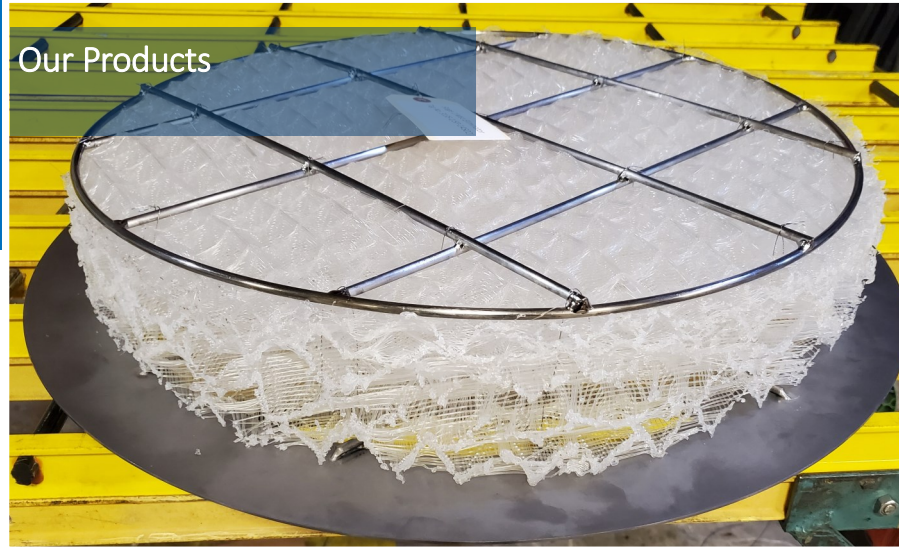


Composite B-GON® Mist Eliminator Pad



120" x 180" B-GON® Mist Eliminator & housing for DAP fertilizer production

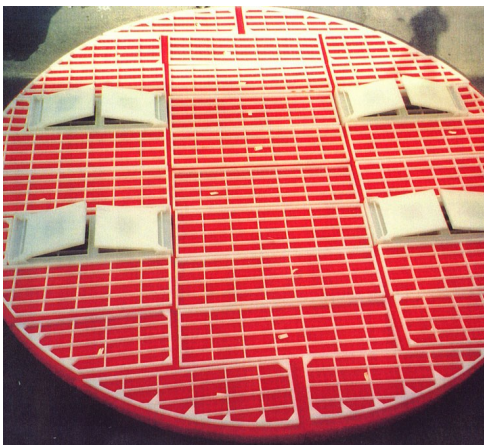
Our Products



PFA Teflon pad with top & bottom tantalum support grids for sulfuric acid evaporator service

Our Products

Kimre™ Technology provides products for scrubbing, absorption, drift elimination and liquid phase separation. We can provide new products for Original Equipment Manufacturers (OEM's) as well as products designed for specific plant applications or retrofits that will **guarantee improved performance** over equipment provided by other manufacturers. Kimre offers a full range of mist elimination products, from sub-micron droplet control for 0.05 - 0.1 μm using Fiber Bed Filters, to 2 microns and above using our B-GON® Mist Eliminators.



Fluorine scrubber pad with pressure relief doors - 22 ft diameter - designed for DAP applications.



Typically, fiber bed filters can provide removal efficiency greater than 99.9% of sub-micron particles. Virtually all existing Fiber Bed Mist Filters from any manufacturer can be replaced with E-LIMINATOR™ Fiber Bed Candle Filters to provide improved performance and/or filter life.

B-GON® Mist Eliminator Pads



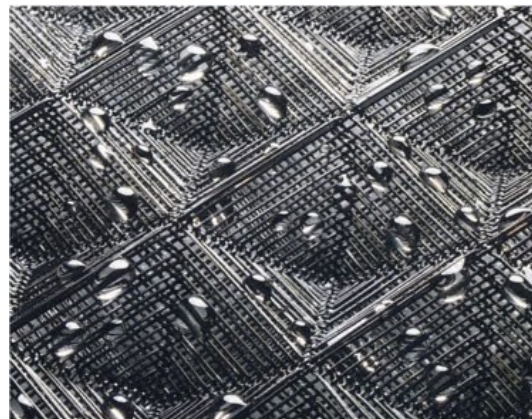
B-GON® Mist Eliminator Pads

B-GON® Mist Eliminators were introduced utilizing a unique structured media developed by Kimre™ to address the deficiencies inherent in the existing technologies. Kimre's structure is a three-dimensional ladder-like media constructed of interlocking thermoplastic monofilament wires. Our structure is designed to orient the wires such that nearly all of the fibers are arranged perpendicular to the gas flow for maximum contact with the entrained mist droplets in the gas stream. This ladder-like alignment causes a change in the vapor flow through the structure which provides **maximum mist droplet removal** by impaction, interception and centrifugal actions. B-GON® Mist Eliminator Pads provide the highest performance of any mesh-type mist eliminator with efficiencies as high as 99+ percent removal of 1 micron mists. Also, due to the high percentage of perpendicular fibers of the B-GON® Mist Eliminator Pads, the pressure loss through the media is dramatically lower for the same level of efficiency as a traditional knitted mesh mist eliminator. Kimre's structure allows us to produce our B-GON® Mist Eliminators in the widest range of fiber diameters in the industry, from the finest (0.05 mm / 0.002") to the coarsest (0.94 mm / 0.037"). The structure also is produced in a variety of void fractions which provide a wide range of flow and pressure drop characteristics to meet your site-specific requirements. The unique qualities of the B-GON® Mist Eliminator structure allows Kimre's engineers to provide custom-designed solutions for the highest level of performance at any particle or mist size across a wide range of operating conditions.

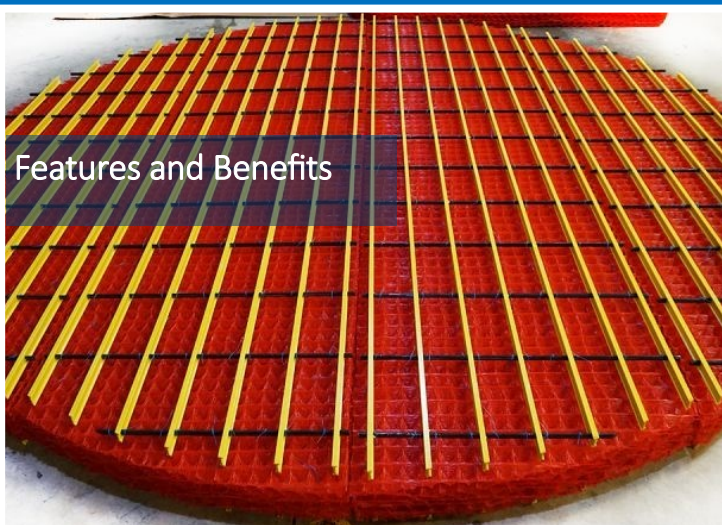
Close-up image of typical knitted mesh media



Close-up image of Kimre's B-GON® Mist Eliminator Media



Features and Benefits

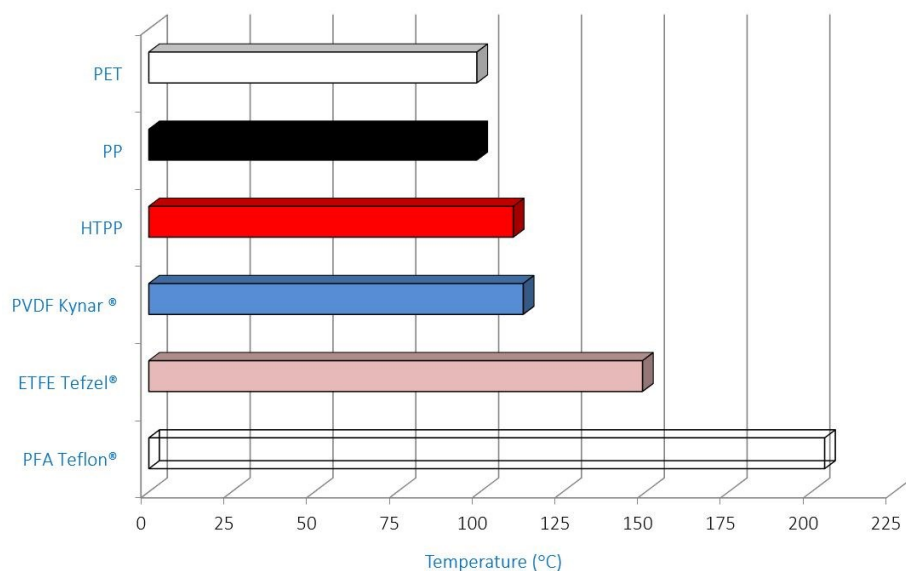


This pad is 156" diameter with external support grids used for hydrochloric acid and mist aerosol removal in a steel pickling facility.

Features and benefits of B-GON® Mist Eliminators

- Highest collection efficiency of ANY mesh-type media: 99+% @ 1 μm
- Composite pads of various mesh styles allow for optimization of efficiency, pressure drop, and pluggage resistance
- Able to handle the widest range of gas velocities and contaminant levels
- High void spaces (94 - 97%) and the largest fiber diameters contribute to the highest resistance to fouling
- Lower pressure drops than traditional knitted mesh
- Custom fabrication to conform to any vessel configuration and orientation
- The media is cleanable & reusable for extended service life in the harshest environments
Wide range of materials of construction available, including polypropylene, PVDF, ETFE and PFA, to meet any level of temperature and corrosion requirements.

Temperature Resistance For Continuous Service



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KON-TANE® Scrubber and Tower Packing



*KON-TANE® Scrubber and Tower Packing
utilizing Batten Bar™ Media Holding System*

KON-TANE® Scrubber and Tower Packing

KON-TANE® Scrubber and Tower Packing is a structured, interlaced, monofilament material. It is designed to facilitate the breakup of the liquid phase, creating maximum surface area for mass transfer in the vapor phase. KON-TANE® Scrubber and Tower Packing produces low pressure drop, prevents liquid holdup and drastically reduces energy use.

Due to its **inherent rigidity and strength**, KON-TANE® Scrubber and Tower Packing can be installed in layered pads that are numerous feet/meters deep. The pads maintain structure by using relatively simple supports. The material is flexible enough, that the individual layers can be inserted through a manhole. Due to the uniform cross section of the material, channeling at the wall of the vessel and throughout the material is minimized.

Unlike conventional packing, KON-TANE® Scrubber and Tower packing can be easily built into cassettes so that in case of pluggage, for example by salt crystals, the cassettes can be easily removed for cleaning. KON-TANE® Scrubber and Tower packing is **strong yet flexible**, therefore it can be cleaned in various manners; pressure washing, the use of solvents, or even crushing of the media to remove scale are all successful cleaning methods. Shutdowns can often be completely avoided or at worst, are a very short duration.



*KON-TANE® Scrubber and Tower Packing
stage for use in a phosphoric acid tail gas
scrubber*



*B-GON® Mist Eliminator pad used to
control sulfuric acid mist generated from
lead-acid battery production*

E-LIMINATOR™ Fiber Bed Candle Filters



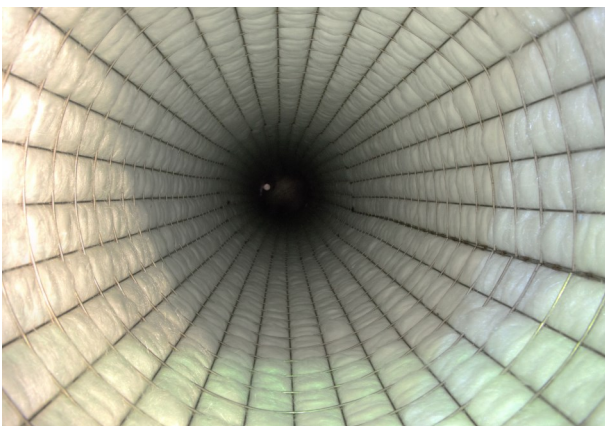
E-LIMINATOR™ Fiber Bed Candle Filters

Kimre™ offers a complete line of new and repacked E-LIMINATOR™ Fiber Bed Candle Filter mist collector systems that can meet the most challenging mist elimination needs. E-LIMINATOR™ Fiber Bed Candle Filters can be designed for new systems to **meet the customer's specific efficiency, pressure drop and footprint requirements**. The filters can provide removal efficiency greater than 99.9% of sub-micron particles. These systems can use standardized configurations or can be custom designed for your specific installation.

Fiber Bed Candle Filters are highly efficient mist eliminators. They are used to trap, collect and remove liquids and soluble particulate matter suspended in a gas stream. They are typically cylindrical elements where the “bed” is composed of fine fibers of media composed of various grades and densities packed between two cylindrical screens. As the particles try to pass through the Fiber Bed Filters, they are trapped and held by the fibers. While larger particles are collected by inertial methods of impaction onto or intercepted by a fiber, the high efficiency of the Fiber Bed Candle Filters results from the Brownian motion of the gas and the impact of gas molecules on the smallest, sub-micron particles.

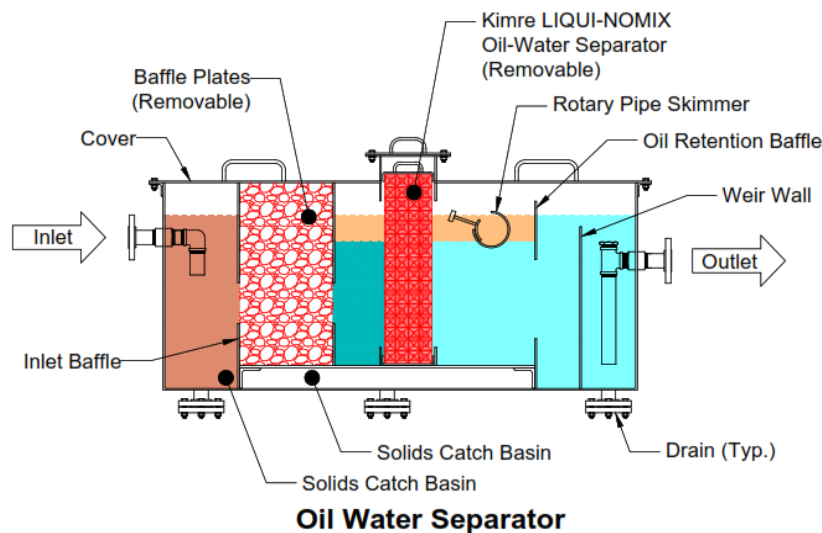
Virtually all existing Fiber Bed Filters from any manufacturer can be replaced with Kimre E-LIMINATOR™ Fiber Bed Candle Filters to provide improved performance and/or filter life. Kimre's sales and technical staff have **extensive experience** with existing installations allowing them to provide the exact solution you need.

Kimre E-LIMINATOR™ Fiber Bed Candle Filters are manufactured in our facility in Homestead, Florida. Our technician team consist of over 20 people who have extensive experience in manufacturing Fiber Bed Filters. Our engineers are on site to oversee all of the production aspects.



LIQUI-NOMIX®

Liquid/Liquid Coalescers



LIQUI-NOMIX® Liquid/Liquid Coalescers

LIQUI-NOMIX® Liquid/Liquid Coalescers are **extremely economic and efficient**. Kimre™ coalescers provide polishing of liquid streams to remove contaminant liquids which will meet any industry standards. Water quality levels below 2 ppm can be easily achieved.

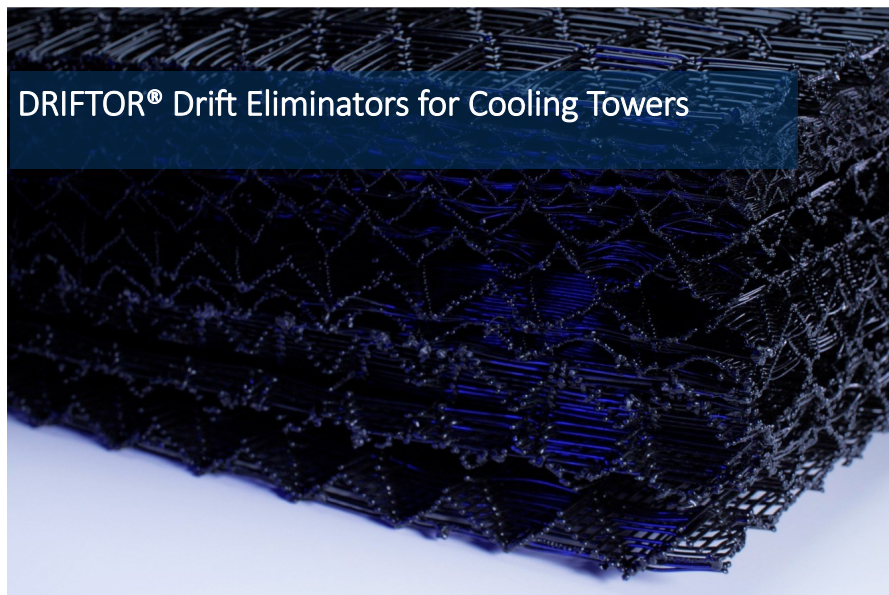
LIQUI-NOMIX® Liquid/Liquid Coalescers are used as a final polishing element by many of the industries' leading Original Equipment Manufacturers (OEM's) of oil/water separators.

Kimre™ can provide custom sized, **easy to install** cartridges. The cartridges can be used horizontally or vertically.

The filament structure of LIQUI-NOMIX® Liquid/Liquid Coalescers create a difficult path for the liquid flow to navigate, which creates a high surface area for collection of the contaminant liquid. LIQUI-NOMIX® Liquid/Liquid Coalescers are provided in thermoplastics, including polypropylene which is oleophilic. Therefore, the collection of oily contaminants in water is enhanced. Finely dispersed droplets that are too small to be separated by simple gravitational settling are collected by the fibers of LIQUI-NOMIX® Liquid/Liquid Coalescers. These droplets coalesce and form larger droplets, which can then rise to the top of the coalescer and be easily skimmed away from the aqueous phase.

LIQUI-NOMIX® Liquid/Liquid Coalescers utilize composite designs that allow for long-term operation and low maintenance. These specific designs incorporate layers of varying fiber diameters, ranging from the largest available in the industry to the finest. The large fiber diameter layers provide **resistance to fouling** by solids and sludge, therefore protecting the finer layers downstream. The finer layers are able to collect the droplets that are too fine to be removed by gravitational separation. Furthermore, LIQUI-NOMIX®'s three-dimensional structure allows for easy cleaning and re-use, virtually eliminating the replacement costs of other polyurethane coalescers.

DRIFTOR® Drift Eliminators for Cooling Towers



Composite B-GON® Mist Eliminator Pad

DRIFTOR® Drift Eliminators for Cooling Towers

DRIFTOR® Drift Eliminator for Cooling Towers is an adaptation of the proven B-GON® Mist Eliminator, engineered to collect droplets and to drain collected liquid away from the gas stream using our coarsest diameter monofilaments. It is made of polypropylene material filled with carbon black for **protection against ultraviolet deterioration** by sunlight and enhanced service life.

While most cooling towers are equipped with the standard chevron, or high velocity design drift eliminators, many towers have carryover problems which may be caused by:

- Pluggage and fouling in the fill or drift eliminator
- Irregular air flow patterns
- A damaged or chipped drift eliminator
- Poor drift eliminator collection performance

DRIFTOR® Drift Eliminator for Cooling Towers can be installed right over the existing drift eliminators to collect the drift carryover regardless of the cause. And, in many cases, it is **installed while the cooling tower is in continuous operation**, preventing long, expensive outages often associated with correcting carryover.

The AEROSEP®



AEROSEP® Multi Stage Aerosol Separation System installed in a urea granulation plant to control particulates and ammonia vapors. Gas flow exceeds 500,00 M3/hr.

The AEROSEP® Multi Stage Aerosol Separation System

AEROSEP® Multi Stage Aerosol Separation System Features **high submicron removal** efficiency, guaranteed to meet increasingly stringent emission standards while offering flexible vessel size and shape. The AEROSEP® system is specifically designed for the collection of hygroscopic, submicron particles (or “aerosols”) as small as 0.2 µm in diameter. The Technology utilizes particle growth via nucleated condensation and a stage-wise collection approach to meet the most stringent removal efficiency requirements.

Typically, a system is comprised of **four stages**:

Stage 1 is a pre-conditioning stage, designed for gas saturation and removal of particles that are 3 µm and larger in diameter.

Stage 2 is a particle growth stage, where the nucleated condensation of aerosols takes place, enlarging the aerosols to particles of 1µm in size.

Stage 3 coalesces or agglomerates the enlarged particles in a coalescing B-GON® Mist Eliminator to approximately 10-12 µm in diameter, which are then removed in **Stage 4**, an entrainment separator B-GON® Mist Eliminator.

The AEROSEP® is a **proven technology** for emission control in various applications such as flue gas clean-up in municipal solid waste burning, coal-fired power generation, nitrogenous fertilizer and semiconductor industries, but many other processes can benefit from this technology.

Our modular vessel fabrication provides quick delivery and installation. Flexible component adaptability: KON-TANE® Scrubber and Tower Packing and B-GON® Mist Eliminator designs can be exchanged for process variations.

Simplified maintenance is achieved with easy installation and removal of KON-TANE® Scrubber and Tower Packing and B-GON® Mist Eliminator utilizing PANTS HANGER™ Media Holding System or BATTEN BAR™ Media Holding System. It offers removable spray lances and on-line cleaning service of KON-TANE® and B-GON.

AEROSEP® Multi-Stage Aerosol Separation System will treat different pollutants without cross-contamination and offers independently control liquid-to-gas (L/G) ratio and recovers different solution concentrations.

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SXF™ Semi - Crossflow Scrubber

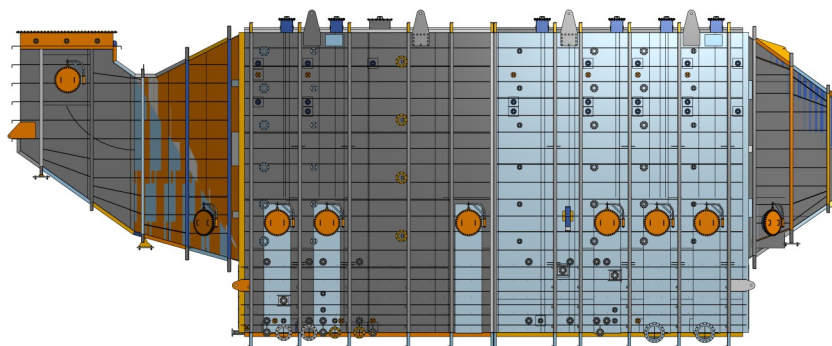


SXF™ Scrubber installed in phosphoric acid plant controlling fluorine vapors

SXF™ Semi-Crossflow Scrubber

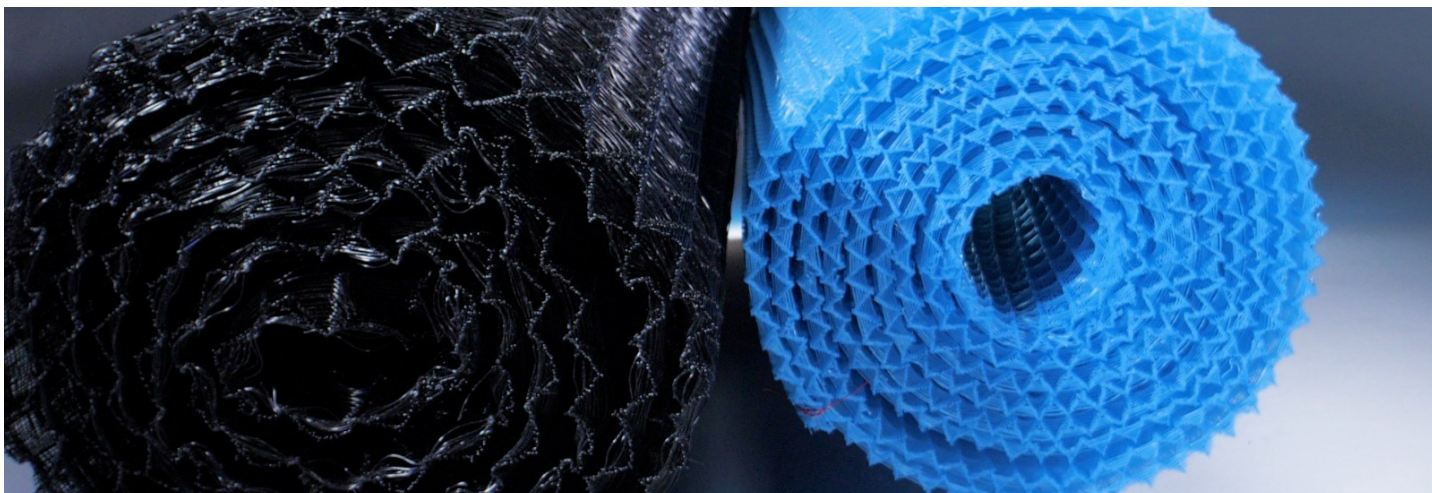
Kimre's SXF™ Semi-Cross Flow Contactor is a horizontal cross flow scrubber featuring Kimre™ technology. The term "semi cross-flow" refers to the scrubbing liquid running down the mesh as the gas flows through it perpendicularly. The SXF™ Semi-Cross Flow Contactor provides a **unique solution for superior performance** for cleaning gases of contaminants. The dirty gas flows horizontally through the scrubber, by way of a set of pre-conditioning sprays followed by a series of KON-TANE® Scrubber and Tower Packing stages. The pre-conditioning sprays mainly provide cooling and saturation of the gas while the KON-TANE® Scrubber and Tower Packing provides **exceptional mass transfer** for various gas scrubbing and absorption applications. A final B-GON® Mist Eliminator stage is designed and installed to capture mist and entrainment. The design of an SXF™ Semi-Cross Flow Contactor can accommodate a series of independent, individual scrubbing and absorption processes in one common vessel. While the design is optimum for services prone to pluggage due to heavy particulate loading, various other applications will benefit from this unique scrubber.

SXF™ Semi-Cross Flow Contactor features high efficiency that is **guaranteed to meet stringent emission standards**: Low pressure drop, flexible vessel size and shape as well as modular vessel fabrication provide quick delivery and installation. Simplified maintenance will be achieved with easy installation and removal of KON-TANE® Scrubber and Tower Packing stages and B-GON® Mist Eliminator utilizing PANTS HANGER™ Media Holding System or BATTEN BAR™ Media Holding Systems. We also feature, removable spray lances and on-line cleaning service of KON-TANE® and B-GON® Mist Eliminator.



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