

Air Emission Control Solutions for Chemical Processing



CECO
ENVIRONMENTAL

Chemical manufacturers operate across diverse production environments, including agrochemicals, specialty chemicals, pharmaceuticals, and consumer products. These operations often involve the handling of acids and other hazardous materials and can generate air emissions during routine production.

As a result, facilities must manage pollutants such as particulate matter, volatile organic compounds (VOCs), hazardous air pollutants (HAPs), acid gases, SO_x, NO_x, odors, aerosols and mists to meet environmental regulations and maintain safe, compliant operations.

For decades, CECO Environmental has supported chemical manufacturers with a comprehensive range of industrial air solutions designed for performance and durability. Our portfolio includes cyclones, dust collectors, baghouses, bin vents, thermal oxidizers, venturi scrubbers, packed bed scrubbers, and mist eliminators. These technologies help facilities manage emissions responsibly while improving operational efficiency.



Across the globe, CECO works to improve air quality, strengthen energy and process performance, and deliver custom-engineered solutions for industries such as chemical product manufacturing, petrochemical processing, power generation, water and wastewater treatment, battery production, and polysilicon manufacturing, among many others.

Within the chemical product manufacturing sector, we address complex air emission and process challenges with clean, safe, and efficient solutions delivered through our family of CECO brands shown below.



PARTICULATE MATTER CONTROL



Every chemical processing operation must have the right technology to control and reduce particulate matter that can result from combustion of fuels, or from process operations, such as dust from solids handling.



Bin Vent Dust Collectors

Provide rugged welded housings that are equipped with automatic pulse-jet cleaning.

Advantages and Design Features:

- Low total cost of ownership
- Quick and easy installation
- Air volumes up to 5,000 cubic feet per minute
- High efficiency performance, removing over 99.99% of entrained particles
- Reduced maintenance time and downtime with no internal moving parts and pulsing system inspection without collector shutdown

Baghouses

Offer a wide variety of sizes, materials of construction and filter media to fit your specific application needs. Flat wall Baghouses are used when you have large airflows that require a large amount of filter area, generally at lower pressures (less than 35" w.g.).

Advantages and Design Features:

- Handles large air volumes with high dust concentrations
- Customizable filter media and cleaning systems for specific dust characteristics
- Durable, modular design allowing section maintenance without full system shutdown
- Proven particulate control performance for regulatory compliance



Cartridge Collectors

Utilize a horizontal cartridge that allows for easy inspection and removal of cartridge filters. Cartridge Collectors can be the most cost-effective solution available for certain applications that require a small footprint.

Advantages and Design Features:

- Compact footprint ideal for space-constrained facilities
- High-efficiency pleated media providing superior fine particulate capture
- Quick cartridge changeout and automated pulse-jet cleaning to reduce downtime
- Lower pressure drop resulting in reduced fan energy consumption
- Premium quality construction materials, including stainless steel

Construction: MS (Mild Steel), 304 SS (Stainless Steel), 316 SS, custom.

Pressures: 20" w.g. (for pleated filters); 17" w.g. (for bag and cage filters); higher pressure designs available.

Cyclones

Remove relatively large particles from the air and help recover highly valuable product from process gas streams. We offer various levels of efficiency and capacities to meet your specific collection needs.

Advantages and Design Features:

- Ultra-high efficiency design
- Carbon, Stainless or Alloy Steel construction
- ASME code design and construction
- High temp designs with optional insulation available
- Abrasion resistant linings for extended life
- Explosion containment or venting per NFPA

VOC ABATEMENT



REGENERATIVE THERMAL OXIDIZERS (RTO)

With over 2,400 installations across the globe, CECO provides affordable, energy-efficient and reliable RTOs for VOC control.



RTO

Advantages and Design Features:

- Reliable, simple Dual Chamber RTO from 1K to 80K CFM
- Handles low to high VOC concentrations
- Up to 99% VOC DRE (Destruction Removal Efficiency)
- NO_x free operation with flameless Natural Gas Injection (NGI)
- Lower RETOX RTO gas usage with 95-97% primary heat recovery & NGI

Applications: Chemical Processing, Amine Treating and Dehydrating, Petrochemical Processing, Halogenated and Acid Gas Processes, Pharma, Flavors and Fragrances, Ethanol.

DIRECT FIRED THERMAL OXIDIZERS (DFTO)

DFTOs are suitable for high and rich Lower Explosive Level (LEL) process applications and are suitable for incinerate waste gas and liquid streams. CECO's DFTO system utilizes high-performance burners and refractory-lined combustion chambers to achieve complete destruction of industrial contaminants.

Advantages and Design Features:

- Retention time of one second and greater with turbulent mixing
- Excellent odor abatement for malodorous and high BTU processes with long chain aldehyde and hydrocarbon components
- Up to 99+% VOC DRE @1400 deg F
- NO_x free operation with flameless NGI
- Energy recovery capability with optional integration to steam generators and super-heaters
- Optional thermal oil heat recovery for process reuse



DFTO

ACTIVATED CARBON SYSTEMS

Suitable for low VOC concentration air streams.



Activated Carbon Tower

Advantages and Design Features:

- Custom designed single and dual bed systems
- Low pressure drop
- Space saving minimal footprint.
- FRP (Fiber Reinforced Plastic), PVC (Poly Vinyl Chloride), PP (Polypropylene) Construction; Alloy and Steel options available

ACID GASES REMOVAL

EnviroCare

HEEDUALL

VERANTIS
Environmental Solutions Group

PACKED BED WET SCRUBBERS

Superior chemical resistance to handle harsh and corrosive chemicals.

Advantages and Design Features:

- **Horizontal Design:** Cross flow, low profile, easy access
- **Vertical Design:** Counter current flow, minimal footprint
- **Airflow Range:** 1000 to 90,000 acfm
- **Removal Efficiency:** Up to 99% gaseous contaminants



Horizontal FRP Scrubber



Vertical PP Scrubber

NO_x SCRUBBERS

Superior chemical resistance to handle harsh and corrosive chemicals.

Advantages and Design Features:

- Low profile, space saving design
- More than 99% efficient on total NO_x removal
- Safe oxidation / reduction technology
- Eliminates the red NO_x plume



NO_x Scrubber

VENTURI SCRUBBERS

Compact cyclonic separator (velocity up to 2X traditional designs)

Advantages and Design Features:

- Horizontal venturi section with a variety of liquid injection methods
- External recycle tank - easier to maintain
- Open pipe liquid injection - plug resistant
- Vertical venturi with various throat designs available
- Flooded elbow - abrasion resistant
- Traditional or MS Cyclonic Separator can be used



Venturi Scrubber

MICROMIST SCRUBBER

Superior chemical resistance to handle harsh and corrosive chemicals. Engineered to be more efficient than traditional Venturi scrubbers, the MicroMist Scrubber collects even the finest particles with minimal energy input.

Advantages and Design Features:

- Achieves >99.5% particulate removal efficiency on submicron particles with significantly lower pressure drop and energy input
- Installs into your existing Venturi footprint and permanently eliminates throat erosion issues and constant maintenance.
- Meets Boiler MACT, SSI MACT 129 and CISWI regulations



Micromist Scrubber

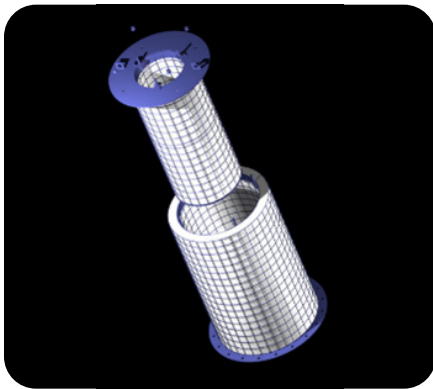
FIBER BED MIST ELIMINATORS



FIBER BED MIST ELIMINATORS

CECO Filters offers a complete line of Fiber Bed (or Candle Filter) Mist Collector Systems to eliminate sub-micron liquid mist emissions, aerosols, soluble solids and pre-filtering insoluble solids. Products range from single filter systems to large-scale units.

CECO's Patented **TWIN-PAK system** is perfect for retrofitting due to its reduced footprint and higher flow rates.



Twin-Pak



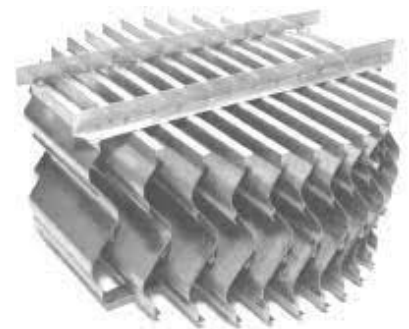
Standing Candle Filter



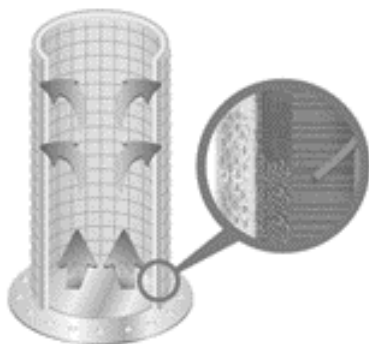
Hanging Candle Filter

Advantages and Design Features:

- Reduces footprint and total size to allow for a compact system
- Allows up to 60% more gas flowrates
- Quantity of filters are reduced in comparison to conventional filters
- Lower pressure drop in comparison to conventional filters
- Available in sitting or hanging arrangements
- Increases element life
- Perfect for retrofitting (Fits into existing tube sheet)



Chevron Mist Eliminator



CECO Graded Bed Filter

CECO Graded Bed Filters

CECO Graded Bed Filters provide superior performance with higher sub-micron particle collection efficiency and deeper loading into the media bed for extended element life.

A Graded Bed Filter consists of a media bed that is constructed of multiple layers of different types of media, each with a specific quality. In the CECO Graded Bed Filter we employ two or more types of media per bed.

EXHAUST AIR MANAGEMENT



FANS

Corrosion Resistant Exhaust Fans

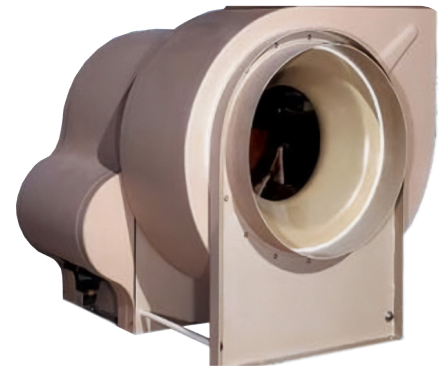
- Premium fiberglass and thermoplastic materials
- Four models: centrifugal, inline centrifugal, radial and lab
- Airflows from 500 to 165,000 cfm
- Static pressures up to 20+ inches w.g.

HPCA and HPIA Air Foil fans

- AMCA certification guarantees specified performance
- Capable of static pressures up to 18+” w.g.
- Static efficiency ratings up to 83%
- Eight different discharge positions
- Factory balanced to ASTM specifications
- Premium quality materials and components
- Capacities up to 165,000 cfm



HEE-DUALL Thermoplastic Fan



Inline Centrifugal
FRP Exhaust Fan



Application Examples for CECO products in the Chemical Process Industry

End Market	Emission Sources	Emissions	Emission Control Solutions
Adhesives	Coaters and dryers	VOCs, Solvents	Carbon Adsorption Towers and Thermal Oxidizers
Cellulosics	Storage tanks reactors, distillation columns, stripper columns and dryers	VOCs, HAP	Scrubbers
Sulfuric Acid	Post drying tower, inter pass absorption tower and final absorber	Mists (Sulfuric Acid PM10)	Fiber Bed Mist Eliminators
Fertilizers	Post dryer and granulator	PM recovery	Cyclones, MS Venturi Scrubbers
	Mists during steam purification; prilling operation	Mists; Removal of NH3 and Ammonium Nitrate PM	Fiber Bed Mist Eliminators
	Grinding and screening operation, slurry dryer/ cooler, bulk storage bin and conveyor	Particulate Matter	Fabric Filter
Pharmaceutical	Pill processes, post dryer	PM recovery	Cyclones, Baghouses

If you'd like to explore more applications and solutions, [click here](#).

Want to Learn More?

[Acid Gas Abatement](#)
[Thermal Oxidizers](#)
[VOC Abatement](#)

[Dust Collectors](#)
[Exhaust Fans](#)
[Cyclones and Scrubbers](#)

CECO ENVIRONMENTAL (NASDAQ: CECO) is a leading environmentally focused, diversified industrial company whose solutions protect people, the environment and industrial equipment across the globe, serving a broad landscape of industrial air, industrial water and energy transition markets.

CECO Environmental
cecoenviro.com | info@OneCeco.com