



Product Recovery & Air Pollution Control For Industry

---

## ACTIVATED CARBON INJECTION (ACI) SYSTEMS FOR MERCURY CONTROL

---



### General Information

An Activated Carbon Injection System is an engineered system from which powdered activated carbon (PAC) is pneumatically injected from a storage silo into the flue gas ductwork of a coal-fired power plant. The PAC adsorbs the vaporized mercury from the flue gas and is then collected with the fly ash in the plant's particulate collection device.

ACI is the most established commercial technology for reducing mercury emissions from coal-fired boiler flue gases. It has been proven through numerous full-scale demonstrations to be the most effective, cost-efficient way to reduce mercury emissions from most coal-fired boilers. Depending upon the type of coal being burned and the type of air pollution control equipment installed on the plant, ACI can reduce mercury emissions by more than 90%. Dustex offers mercury control guarantees with our ACI systems, so you can be assured of the performance of any system you purchase from us.

### Standard Features

#### Silo

- 14 foot diameter, up to 120 feet tall
- Welded steel construction with structural skirt
- Roof mounted 24" diameter manway hatch with pressure and vacuum relief valve
- OSHA compliant caged ladder to silo roof
- Up to three product discharge connections with knife gate isolation valves
- Air fluidization system for reliable PAC discharge
- Fill pipe with cap
- Paint: SP-6 prep, epoxy prime and finish paint standard

#### Bin Vent Filter

- Pulse cleaned cartridge design
- 99.999% efficient for particles >0.5 $\mu$

#### Feed Systems

- Rotary valves to fill feed hoppers
- Feed hopper
- Stainless steel volumetric or gravimetric feeder with metering and conditioning augers
- 480V inverter duty motor, gear reducer
- Speed adjusted with variable frequency drive (VFD)
- Pneumatic conveying systems
- Regenerative blower
- Eductor
- Automated diverter valve assembly

#### Truck Unloading Panel

- NEMA 4X panel with switches, indicating lights, and alarms
- Power distribution and marshalling panel
- Shop mounted in silo electrical room or attached to the silo
- DCS terminal blocks for integration with plant controls
- Ship wired and tested
- Optional PLC or local control panel for maintenance operation

#### Instrumentation

- Level switches measure PAC level in silo
- Blower discharge flow switch
- Bin vent filter differential pressure switch
- Load cells mounted on screw feeder to monitor weight loss

#### Silo Enclosures (optional)

- Lighting and convenience receptacles
- Space heaters and ventilation fans
- Skirt interior wall insulation

#### PAC Distribution

- Custom manifolds with isolation valves and flex hoses
- Custom injection lances with mounting flanges

## Standard Design ACI Systems

Dustex offers a large selection of standard designed ACI systems that are based on our years of experience with the coal-fired power industry. These systems are designed to meet the rigorous requirements of the power plant environment and operate for extended time periods with little or no maintenance. Our standard top quality components have been chosen for their reliability and cost effective performance.

Dustex offers several options to tailor our standard ACI systems to meet the requirements of almost any power plant application. These options include:

- PLC or DCS controls
- Gravimetric or volumetric feeders
- Positive displacement or regenerative blowers
- Standard or deluxe instrument package

Using our standard design ACI systems will reduce the amount of engineering time required for a project and result in cost savings. Also, the amount of time required to fabricate and install the ACI system is reduced, resulting in greater efficiency and cost savings.

## Custom Design ACI Systems

Dustex has extensive experience working with utilities and their engineering firms' specifications for ACI systems. We can build our systems to meet the strict specifications required for your unique application and ensure that it will operate within all the limits required. Our team of project engineers and designers will work closely with your engineering team to ensure that all specifications and requirements of the system are built into the ACI system to integrate seamlessly into the plant where it will be installed.

## Mercury Control Guarantees

Dustex can accurately predict the level of control that our systems can provide for your application and give you the assurance of guaranteed performance when you purchase one of our systems.

We will evaluate your plant air pollution control configuration, along with the type of boiler and coal being burned. From this information, we will calculate a mercury control performance guarantee for our ACI system. This guarantee is good for up to 100% of the value of the ACI system.

## Our Experience Makes a Difference

At Dustex, we bring together a dedicated team of designers, engineers, project managers, and technology development experts to ensure the success of your mercury control project. Our largest advantages center around metering control, cleanliness, and primarily minimizing carbon usage. Due to exemplary distribution and design, we have repetitively achieved 90% mercury control with 1 #/macf or less. We are not just an equipment supplier; Dustex has been developing this technology since 1947. We apply all of this experience and knowledge to your project to ensure it's completed on time, within budget, and meets your mercury control requirements.

We provide a complete package of services:

- Project Management
- In-house engineering capabilities:  
AutoCAD design and CFD modeling
- UL listed panel shop
- Fabrication facilities
- Installation and start-up support
- Aftermarket products

## FEATURES and BENEFITS

- Cost effective
- Dependable, proven technology
- Top quality, utility grade components
- Effective across a wide range of coals and plant configurations
- Standard equipment design to reduce cost and minimize delivery times
- Designed and built to meet utility and A/E specifications
- High availability and low maintenance
- Operational flexibility
- Fully automated, hands-free operation
- Fail-safe interlocks and alarms

## Execution:

Dustex performs project execution independently utilizing in-house engineering and fabrication capabilities.

### Dustex Corporation

100 Chastain Center Blvd. NW, Suite 195  
Kennesaw, GA 30144  
Ph (770) 429-5575 / Fax (770) 429-5556  
[www.dustex.com](http://www.dustex.com)