

MercPure Series Mercury Emission Control Systems

Experience

APC's team has substantial depth of experience with removing of mercury from gas streams, including in a variety of production process and air emission control applications. The most challenging applications performed to date are for removal of mercury from natural gas in the process of LNG production, where very high gas pressures are encountered (700-2,000 psi), and extremely low residual mercury concentrations-- 0.01 µg/Nm³ or lower-- are required. Required mercury removal rates on the order of 99.99%, slow diffusional kinetics (due to the high gas pressures), and competition from C₃ and heavier hydrocarbons in the natural gas make these applications the most challenging mercury removal applications anywhere, and APC's team has worked on many successful LNG mercury removal projects. APC also has furnished a number of mercury control systems for sewage sludge incinerator exhausts; such applications are among the more challenging not in terms of mercury removal per se, but are challenging in terms of removing other contaminants and conditioning the exhaust gases prior to entrance into the mercury adsorber.



MercPure FB Series Systems

APC's MercPure Fixed Bed (FB Series) systems provide the highest removal efficiencies for mercury emissions using fixed adsorption beds of specialty activated carbon media that are custom-selected for the application. APC's activated carbon media for these systems are available to address both low- and high-temperature exhaust gas streams and are offered in granular or pelletized form of different sizes. APC is media-independent and will select the best media available on the market for the application considering cost, performance and bed longevity. APC offers multiple options to protect the carbon bed from particulate fouling, including baghouses (for dry gas streams) and the unique Ultra High-Efficiency Filter (UHF[®]) unit, which can precede the adsorption vessel to remove ultra-fine condensed (liquid-phase) and solid particulate down to and below 0.01 micron in size, greatly extending the carbon media bed life and also allowing continuous mercury emissions control at high efficiency. Mercury emission removal efficiencies by APC MercPure FB systems are commonly in the range of 99.9% or higher as measured through Owner compliance tests.

MercPure PAC Series Systems

APC's MercPure powdered activated carbon (PAC Series) injection systems include carbon metering and injection systems, interconnecting ductwork and piping, and downstream fabric filter to deliver mid to high removal efficiencies (up to 90-95%). These mercury control systems also work in both low and high-temperature conditions and are ideal for large volumetric gas flow rates where fixed adsorption beds are infeasible.

Broad Range of Applications

Applications for MercPure Series mercury control systems include: wastewater treatment plants (sludge incinerators), gold processing plants, hospital waste incinerators, municipal waste incinerators, waste-to-energy plants, fossil fuel fired boilers, LNG production plants, antimony processing plants, retort furnaces, fluorescent bulb manufacturing, chlor-alkali plants, taconite plants, chemical plants, and specialty refineries.