



## PPC Industries

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### **Wet or Dry Electrostatic Precipitator ( ESP )?**

#### **Which is Right for you?**

**Dry electrostatic precipitator ( ESP ) devices are employed on hot process exhausts (250 - 850 deg. F) that operate above the dew point of the gas stream.**

Dry electrostatic precipitator devices typically collect dry dust particles such as wood ash, incinerator ash, or coal ash from boiler or incinerator applications. Additional dry electrostatic precipitator applications include carbon anode ovens, cement kilns, and petroleum cat crackers. Dry electrostatic precipitator devices are attractive due to their ability to collect and transport the dust in a dry condition. This eliminates the use of water and the concerns of pollution, corrosion and dewatering efforts associated with scrubbers. If the dust particles can be collected and handled in a dry condition it is always more advantageous to employ a Dry ESP.

**Wet electrostatic precipitator ( ESP ) devices are employed on exhausts that contain wet, sticky, tarry, tacky or oily particulates.**

Wet electrostatic precipitator ( ESP ) devices are an old technology originally designed in the 1920's to collect sulfuric acid mist using lead collection tubes. Today, WESP devices are employed on gas streams that include oily and sticky particulates or gas streams that must be cooled to saturation in order to condense aerosols that were formerly in the gas phase. Due to the different characteristics of the collected precipitate, the mechanical removal systems (rappers and vibrators) in Dry electrostatic precipitator devices are not effective. Consequently, the Wet electrostatic precipitator uses a water flushing system to remove the particles from the collecting surface. The gas stream is either saturated before entering the collection area or the collecting surface is continually wetted to prevent agglomerations from forming. Some mist aerosols simply gravity flow down the collecting surfaces. Wet electrostatic precipitator ( ESP ) devices are effective on acid mist, oil and tar based condensed aerosols or applications where dry dust particles combine with condensables to form paste like residues. Due to the wet environment of wet electrostatic precipitator devices, they are typically fabricated out of corrosion resistant materials such as stainless steel or special alloys.