

## Fluidized Bed

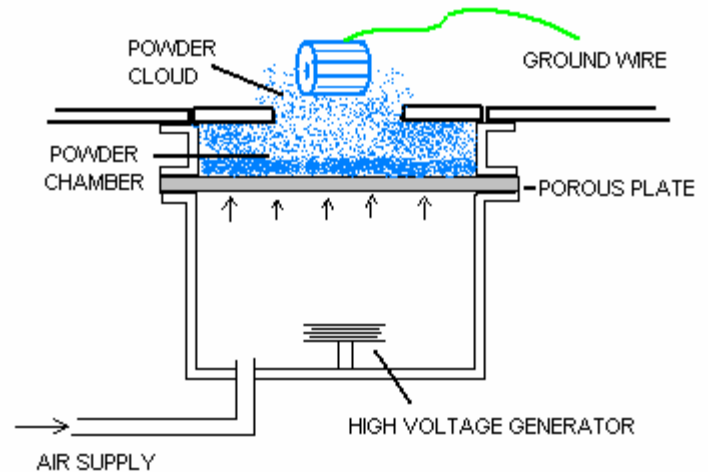
### Summary

To coat items in an electrostatic fluidized bed<sup>1</sup> coating process, powder particles are aerated in a fluidizing chamber at room temperature and are electrostatically charged by ionized air forced through a porous plate at the base of the chamber.

The powder particles become charged, and a grounded material attracts these charged particles to its surface when the material is placed in or conveyed through an electrostatic field. Powder particles are then preferentially deposited on areas previously not coated and will form a uniform coating.

Coating thickness<sup>2</sup> is controlled by the magnitude of the applied voltage and exposure time in the system. The electrostatic fluidized bed process typically uses negatively charged voltages of up to 90 kilovolts. Unlike processes that use equipment with exposed electrodes, the air ionization process safely charges the powder, keeping the operator and the substrate from making contact with the charging media.

Because the powder cloud is formed at low velocity and the process is contained within a containment hood, airborne powder may be collected for reuse, yielding usage efficiencies up to 98%.



<sup>1</sup> **Fluidized bed:** Finely divided powders can be made into a fluid-like state by passing air through a porous plate bottom of a powder hopper. This permits the fluidized bed of powder particles to be used in dip tanks and to be transported in a manner similar to liquids.

<sup>2</sup> **Thickness:** When applied as an electrical insulator, generally coating can be as little as 4 mills or up to 18+ mills in thickness after curing. Sharp edge coverage is about 50 % less.