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## THE NEUTRALIZER AC – Technical Info

### How are Electrostatic charges created?

Electrostatic charges are most commonly generated through a process called triboelectric charging. Whenever differing materials are brought into close contact and then separated an exchange of electrons can take place resulting in two oppositely charged objects when the materials are separated.

### Controlling electrostatic charges

There are several ways that can be employed to control static problems. Two of which are:

- **Grounding:** Static charges on a conductor can be easily controlled if the object can be grounded. This method provides a path for the charge to flow to ground eliminating the charge. However, you cannot ground an insulator because charges will not flow through an insulator.
- **Ionization:** Air ionization systems work by flooding the atmosphere with charged particles called ions. Air ions are molecules of one or more of the gases that make up air (nitrogen, oxygen, carbon dioxide, etc.) that have gained or lost electrons. If they lose electrons the molecules have a net positive charge, and are "positive ions". If they gain electrons, the molecules have a net negative charge, and are negative ions. These ions are attracted to charges of the opposite polarity on the affected surface. As a result, the static electricity that has built up on products, equipment and surfaces is neutralized.

### Corona ionization

Corona ionizers work by applying high voltage to the tip of a sharp point, which in turn generates a high electrical field gradient in the vicinity of the point. The net result is that when the point is connected to a high voltage of positive polarity, positive ions will drift away from the point into the surrounding atmosphere, while negative ions will be attracted to the point. When the point is connected to a high voltage of negative polarity, the opposite is true, and negative ions will drift away from the point into the surrounding atmosphere while positive ions will be attracted to the point. In the Neutralizer®AC, ions that drift into the atmosphere surrounding the corona point are carried away by airflow in the induction tube and delivered to the outlet nozzle.