

## Static Electricity

Static electricity is the release of stored electricity created by the sliding, rubbing, turning or separating of material that generates electrostatic voltages. Plastics, fiberglass, rubber, textiles, etc. are prime generators of static electricity, and under certain conditions can build up to 30,000-40,000 volts.

When an electrostatic charge occurs in an insulating material, the built-up charge tends to remain in the local area of contact. It will discharge in the form of an arc or spark when the material comes in contact with a body at a sufficiently different potential, such as a person or microcircuit. If electrostatic discharge (ESD) occurs to a person, the result can range from a mild to very painful shock. In extreme cases, ESD can cause loss of life. ESD can also trigger explosions or fire in any environment containing flammable liquids, solids, or gasses. Since conveyor rollers are often used in these environments it is critical that they provide a means to safely dissipate the electrical charge.

Plastic parts and components are classified as insulating materials having typical surface resistivity of  $10^{16} - 10^{17}$  ohms/sq. Most electrically conductive plastics today contain insulating base resins and conductive fillers or reinforcing agents to provide for static electricity dissipation. Electrically conductive plastics are defined as:

- Dissipative Composites -  $10^5 - 10^{11}$  ohms/sq resistivity
- Conductive Composites -  $10^2 - 10^4$  ohms/sq resistivity
- ESD Shielding Composites -  $10^{-4} - 10^1$  ohms/sq resistivity

### *Engineered Plastics Data:*

	<b>Non-Conductive Polypropylene</b>	<b>Conductive Polypropylene</b>	<b>Non-Conductive Acetal</b>	<b>Conductive Acetal</b>
<b>Bearing Parts</b>	Housings (On Request)	Housings <b>(STANDARD)</b>	Housings (On Request)	Housings (On Request)
	Internal Parts (On Request)	Internal Parts (On Request)	Internal Parts (On Request)	Internal Parts <b>(STANDARD)</b>
<b>Chemical Resistance</b>	Excellent	Excellent	Inquire	Inquire
<b>FDA Approved</b>	Yes	No	Yes	No
<b>Normal Operating Temperatures *</b>	10 - 150 °F *	10 - 150 °F *	10 - 200 °F *	10 - 200 °F *
<b>Surface Resistivity (Ohms)</b>	$10^{13} - 10^{16}$	$10^3 - 10^6$	$10^{13} - 10^{16}$	$10^3 - 10^6$

\* Assumes no shock loading.