

WHAT IS ESD?

Electrostatic Discharge (ESD) is simply a rapid transfer of electrostatic charges between two objects of different electro-potentials.

Here are some examples of Static Electricity:



Walking



Getting up from a chair



Handling Materials

How is Static Electricity created?

Static electricity is an electrical charge at rest. Static electricity is most commonly created by friction and separation. Friction causes heat which excites the molecular particles of the materials. When two materials are then separated, a transfer of electrons from one material to the other may take place. As electrons transfer, the absence or surplus of electrons creates an electrical field known as static electricity.

When is Static Electricity Dangerous?

The amount of static electricity generated depends upon materials subjected to friction or separation and the relative humidity of the environment. Common plastics generally will create the greatest static charge.

THINK OF IT THIS WAY!

Loaded Gun Analogy



Charged device or metal object is like a **LOADED GUN!**

- Charge = bullet
- Metal contact = pulling the trigger

Charge device with no metal contact:

- Loaded gun but trigger is never pulled
- **BAD: No damage but still very dangerous**

Uncharged device with metal contact:

- **OK: Pulling the trigger of an unloaded gun**

Charged device contacting metal: **BANG!**

- **VERY BAD: Pulling Trigger of LOADED GUN!**