



## Unit 1 Just What Is Electricity?

### \* Glossary

**(to) build up:** to increase in quantity  
**spark:** the light produced by a sudden discontinuous discharge of electricity through air  
**lighting:** equipment in a room, building, or street for producing light  
**hose:** a flexible tube conveying water  
**chute:** a sloping channel or slide for conveying things to a lower level

### ▶ What is Static Electricity?

At its simplest, static electricity is an electrical charge that cannot move. It is created when two objects or materials that have been in contact with each other are separated. When in contact, the surface electrical charges of the objects try to balance each other. This happens by the free flow of electrons (negatively charged particles) from one object to the other. When the objects separate, they are left either an excess or shortage of electrons. This causes both objects to become electrically charged.

If these charges don't have a path to the ground, they are unable to move and become static. If static electricity is not rapidly eliminated, the charge will **build up**. It will eventually develop enough energy to jump as a **spark** to some nearby grounded or less highly charged object in an attempt to balance the charge. A good example of this in everyday life is **lighting**. Lighting is produced by a discharge of electricity from one cloud across an air gap to another cloud or between a cloud and the Earth.

People can also accumulate static charges generated by clothing or footwear. This is most likely to happen in dry atmospheres, such as heated buildings in winter, or when walking across carpets and then touching a metal frame or door.

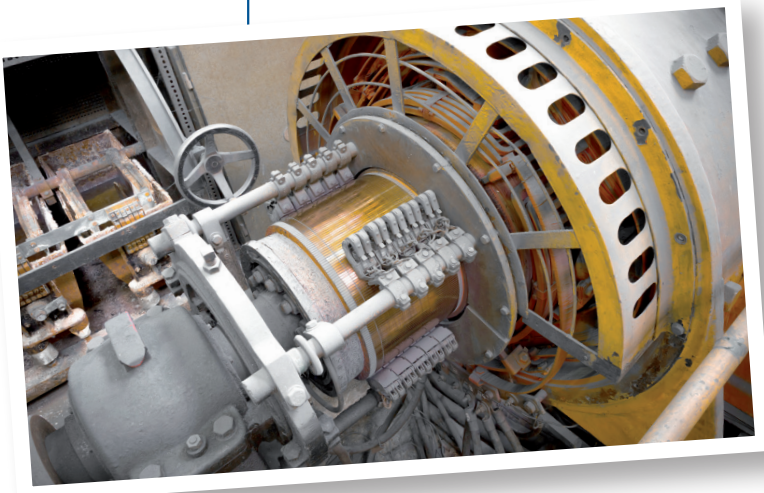
Static electricity is commonly produced when:

- liquid flows through a pipe or **hose**, or through an opening in a pipe or hose;
- spraying and coating;
- blending and mixing;
- filling tanks, cans or pails;
- dry powdered material passes through **chutes** or pneumatic conveyors;
- non-conductive conveyor belts or drive belts and moving appliances are plugged into electrical outlets.

The main hazard of static electricity is the creation of sparks in an explosive or flammable atmosphere.

These sparks can set off an explosion or fire. The danger is greatest when flammable liquids are being poured or transferred.

(Adapted from The Industrial Accident Prevention Association, "Static Electricity", [www.iapa.ca](http://www.iapa.ca))





## Understanding the text

1. Find adjectives and terms in the text that are associated with the nouns and expressions below.

1. .... electrical charges
2. .... flow
3. .... gap
4. .... , ..... atmosphere
5. .... outlet
6. .... hazard

2. Choose the correct synonym for each verb.

1.  Balance: a. delete; b. stabilize; c. modify
2.  Build up: a. increase; b. decrease; c. stop
3.  Flow: a. turn, b. exit; c. move through
4.  Set off: a. start; b. prevent; c. bind

3. Answer the following questions.

1. Describe the difference between two objects or materials before and after being separated.
2. Give an example of static electricity and what determines it.
3. Mention four situations in which static electricity is produced.
  - a. ....
  - b. ....
  - c. ....
  - d. ....
4. What is the greatest danger of static electricity?