

November 23, 2004

Static Sparks, Deadly Explosions

If you watch the television evening news regularly, you have probably seen reports of disastrous workplace explosions---involving tanks, grain elevators and underground utility tunnels.

Typically these disasters result in loss of lives and extensive property damage, sometimes leveling an entire plant.

Just a spark is all it takes to set off an explosion involving flammable liquids, gases or dusts. Often that spark comes from static electricity.

The same static electricity that gives you a shock when you shuffle across a carpet and touch a doorknob can generate a spark that can ignite a huge chain reaction explosion.

If you work around any of these flammable substances you need to learn the correct procedures for preventing static electric sparks.

Static electricity is generated in many substances and processes. It can build up in moving materials such as products which are being blended or conveyor belts moving over rollers. Even flowing water generates static electricity.

If the static electricity builds up and cannot find its way to ground, it discharges as a spark. Such a spark goes unnoticed in most situations. But it can set off an explosion in the presence of some substances and certain atmospheres. Examples are flammable liquid vapors such as gasoline, explosive gases, such as carbon monoxide and propane, or even dusts such as flour or metal powders.

There are a number of ways designed to prevent the build-up and discharge of static electricity. Some of these include the following:

- **Grounding.** This permits static electricity to find its way to the ground. An example of grounding is running a wire to a rod which goes deep into the ground. Grounding apparatus may be either portable or permanent.

- Using materials, equipment and clothing which are less likely to generate and discharge static electricity. For example, cotton clothing rather than synthetic fabrics may be recommended for working in situations where static electricity is a hazard. You might be required to wear special footwear which allows static electricity to be conducted to the ground. There would also likely be rules about taking loose objects from your pockets before entering a hazardous area.
- **When pumping gas at a self serve service station you should turn off your cell phone and follow the instructions that are posted at the pumps to avoid a static charge buildup and a possible fire or explosion at the pump.**
- **Never start the gasoline pump then return to your vehicle while the pump is operating. People normally do this to escape inclement weather or many times to retrieve a purse or wallet. If you return to your vehicle and then go back to finish operating the gas pump, you could cause a fire or explosion by the static charge buildup created from sliding across the seat of your vehicle.**

Safety Tip: Please pay special attention to static charge buildup when you are pumping gasoline or working in areas where generating a spark can cause a fire or explosion.

