



August 2006

## Static Electricity



A customer was filling an ungrounded gasoline can in the cargo area of a truck when the vapors were ignited by a static electric discharge. The fire caused severe damage to the truck and the gasoline station. The customer suffered severe burns on both legs, and it could have been much worse if four bystanders had not managed to extinguish the flames using their own clothing.

This incident reminds us of the consequences of failing to recognize static electric ignition hazards of containers, piping, and any equipment used to handle flammable and combustible liquids or gases, combustible mists, or combustible dusts.



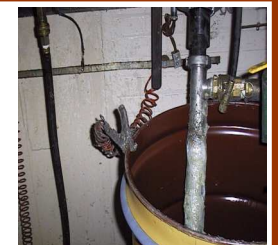
### Did you know?

- Static electric charges on material, equipment, and people result from materials contacting each other and then being separated. Electric charge can transfer from one of the materials to the other, and this charge will build up if it cannot flow to ground.
- Solids or liquid drops falling through air can create static charges on the solids or drops.
- Static electric discharges can be sufficiently energetic to ignite a flammable atmosphere – for example the vapors from a flammable liquid or a combustible dust cloud.
- The first defense against static ignition is to eliminate the flammable atmosphere if possible. If this is not possible, it is important to prevent and control electrostatic charge accumulation.
- Bonding means that conductive parts of equipment are connected to each other so there can be no electric discharges between the parts.
- Grounding means that conductive parts of equipment are connected to an electrical ground, preventing electric discharges to ground.

### What can you do?

- Always ground conductive containers - drums, pails, portable tanks, tank trucks, railroad cars, and any other vessels - when transferring flammable or combustible materials.
- Make sure that process equipment is properly grounded, and that grounding is periodically tested.
- Minimize free fall of solids or liquids through the air when filling vessels and containers.
- If you do maintenance on equipment, make sure that all grounding connections are properly replaced and tested following the maintenance.
- If you work in an area that requires special procedures to prevent static discharge – for example, special shoes or clothing or use of other special equipment – be sure to understand and follow all procedures.
- The pictures below show some examples of good grounding and bonding practices.

CCPS PSID Members see "Static Spark" and "Static Electricity." in Free Search



***Never have ungrounded conductive parts in a system handling flammables!***

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