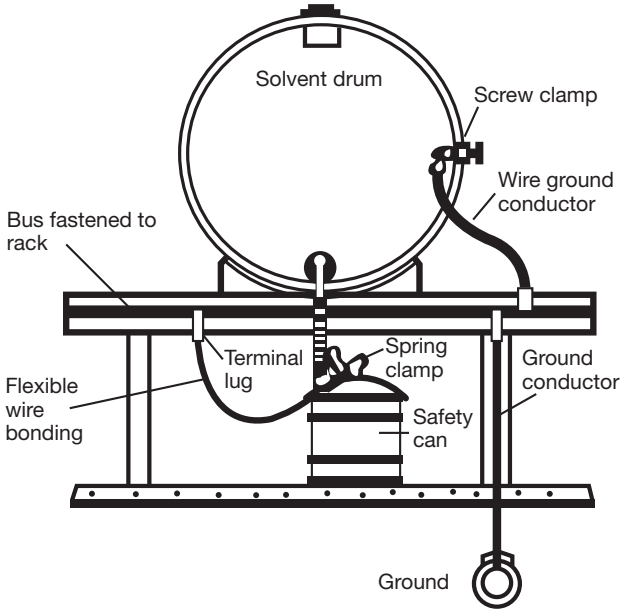
Grounding and Bonding for Flammable Liquid Transfer



From 2007 to 2011, U.S. municipal fire departments responded to 160,910 fires that started with ignition of a flammable or combustible liquid. This resulted in 454 civilian deaths, 3,910 civilian injuries, and $1.5 billion in direct property damage per year.

Static electricity poses a serious hazard when dispensing flammable liquids between two metal containers. This is typical when dispensing flammable liquids from a drum to a smaller electrically-conductive container.

The transfer of flammable liquids builds up static electricity. If the charge created by the flow does not have a path to ground, it will accumulate enough energy to jump to another grounded object. This creates a spark that may ignite the liquids causing a fire or an explosion.

A common practice to help reduce this hazard is to ground and bond the containers. Grounding and bonding provides a way for the static electricity to drain or flow.

Bonding is the process of connecting two metal containers. This ensures there is no difference in the electrical potential between the two containers; therefore, the static electricity will not build up.

Grounding is the process of connecting one metal container to an already grounded object that will conduct the electricity. This grounded object would include an underground water pipe (metal or copper), buried metal plates, or the metal frame of a building.

It is important to remember that all grounding and bonding connections must be bare metal to bare metal. The metal should be free of any type of paint, rust, dirt, debris, or corrosion in order to be effective. Specifically-designed and approved grounding and bonding wire assemblies should be used. These assemblies are available from safety equipment retailers.

These sources provide some guidance, as well as more details on proper grounding and bonding.

NFPA 30, 69, 70

https://www.grainger.com/content/qt-safety-bonding-grounding-255

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