

Information Bulletin

NUMBER 19

Bonding and Grounding for Class I Flammable Liquids

Bonding and grounding is the process of providing an electrically conductive path between a dispensing container, a receiving container, and an earth ground.

Class I flammable liquids are liquids with a flash point lower than 73 degrees Fahrenheit. Flash point is defined as the temperature of a liquid that will produce a flammable mixture. Examples of common Class I flammable liquids are gasoline, alcohol, and acetone.

In the workplace, OSHA and local authorities require the use of bonding and grounding procedures to eliminate the build up of static electricity while transferring Class I flammable liquids.

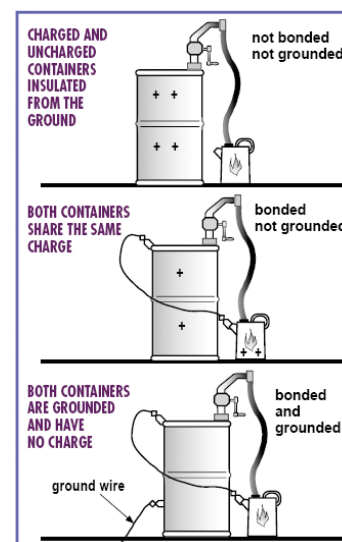
When transferring flammable liquids from one container to another container, the movement of the flammable liquid creates static charge. This occurs when transferring the liquid through a hose, pipe, or *splash loading. If the build up of the static charge is sufficient, a spark may occur. The spark can set off a flash fire if there is a flammable mixture of fuel vapor and air. Steps must be taken to reduce the potential for this occurrence.

The standard control method is a complete bonding and grounding system. The bonding is completed by attaching a bond wire from the dispensing container to the receiving container. This creates a path for the static electricity to flow. The grounding is completed by connecting the dispensing container to a common ground. The common ground is connected to an earth ground. This system provides an electrical pathway for the static electricity to follow and be dissipated by the ground. Typical common grounds are electrical

conduits or water pipes. The common ground is in turn connected to an earth ground. Gas mains and fire sprinkler pipes should be avoided to prevent explosions or fire alarm activation.

To be effective, bonding and grounding connections should be metal to metal between the containers and the cables. To get a good connection, all paint, dirt, and rust must be removed from the spots where the cable clamps will be attached. Some plastic containers may not need to be bonded because they cannot disperse a static charge. There are two types of connections, permanent and temporary. Permanent connections are attached using a screw clamp. Temporary connections attach using a spring loaded or a magnetic clamp.

*Splash loading occurs when the flammable liquid is poured from one container into an open container, creating turbulence and a static charge.



This bulletin is intended only as a reminder and is offered solely as a guide to assist management in its responsibility of providing a safer working environment. This bulletin is not intended to cover all possible hazardous conditions or unsafe acts that may exist.