

Keeping the Lid on Flammable Liquids

"Flammable liquid is not quite an accurate term. It's not the liquid that is flammable, but the vapor that begins to form as soon as the container is opened. This is why it is so important to keep flammable liquids properly contained and to follow correct procedures when handling them.

What Are Flammables?

A flammable liquid is any liquid whose flash point—the temperature at which vapors *can* ignite when there is a spark, flame, or static electricity present—is below 100°F (37.8°C). At higher concentrations and higher temperatures the vapors of the liquid can ignite or explode without a spark. Most flammable liquids are volatile; that is, they evaporate quickly and reach a concentration in the *air* that could lead to an explosion. Read the MSDS for each liquid you use, so you will know its flash point as well as its upper and lower explosive limits—between these two numbers, vapors are at the right concentration to explode if they are ignited. Some flammable liquids that are highly volatile include gasoline, acetone and alcohol; these and other liquids with a flash point of 80°F (26.6°C) or less must be marked with a red label. To work safely with flammables, you need to control **three** potential hazards: temperature, concentration of vapor and ignition sources. Follow these guidelines and your company's policy.

Store Them Right

Store flammables separately from other chemicals, especially reactives such as oxidizers, in well-ventilated, temperature-controlled areas. These areas should be equipped with non-sparking electrical systems and heat sources. Smoking, of course, is not allowed in these areas. If you work in a flammable-liquid storage area, make sure flammables are stored in authorized containers and are correctly and clearly labeled for flammability. All containers must have grounding wires attached to prevent static electricity buildup. When you transfer flammable liquids from a



drum to a container, connect the container to the drum with a bonding wire before pouring the liquid, since the friction of pouring *can* produce enough static electricity to ignite the vapors.

Use only clearly labeled, fireproof safety containers with vapor screens and vaportight caps.

Use Them Safely

If you work with flammables, wear the right, correctly fitted personal protective equipment.

Whenever possible, use a hood or other ventilation system to keep vapor concentration down. Know what chemicals, such as oxidizers, increase the fire dangers of flammables. Avoid mixing flammables; even small amounts of highly volatile liquids *can* lower the flash point of the mixture to dangerous levels. Before you begin any operation involving flammables, know the location of the right fire extinguisher to use in a fire involving those flammables. Only use flammables in areas that are away from ignition sources; avoid areas where there is welding, grinding, smoking or faulty wiring. Keep flammable containers tightly closed, and store flammable-soaked rags and other waste materials in tightly covered, designated containers only. And dispose of used flammables according to company policy—don't throw them down the drain. You don't want an explosion in the sewer!

Emergencies—Get Ready Now

Chances are you will never have to deal with a fire or an explosion caused by flammables. But it *makes* sense to prepare for the possibility now. Know your company's emergency plan. If a fire breaks out, sound the alarm and evacuate the area immediately.

Remember, flammables are safe to use as long as you avoid excess heat, buildup of vapors and ignition sources such as sparks and friction. Read the MSDS to know what conditions your flammable *can* tolerate—and keep the lid on fire hazards. ☑