

## ***Dealing with Flammable & Combustible Liquids- Preventing Workplace Fires & Explosions***

Each year fire departments respond to thousands of business fires, mostly in the winter months. Many of the fire calls are a result of mishandling and improper storage of flammable or combustible liquids, and with winter bearing down, there will be an increased risk. Let's take a look at some of the safe practices for preventing fires attributed to flammable and combustible liquids used in the workplace.

What flammable or combustible liquids are used, stored, or dispensed by your company? Do your employees know how to handle them properly?

Every business operation normally has flammable and combustible liquids (FCL) incidental to their operation. There is gas, diesel, oil and propane/LP gas for operating the forklift and delivery trucks. Retail customers may be purchasing items you sell such as the paint thinner, acetone, MEK, toluene, kerosene, and WD-40 for their painting activities at home or construction site. Some businesses even sell pool maintenance chemicals. All of these chemical substances are flammable or combustible and deserve special storage and handling. Each chemical also requires a business/company to retain a copy of the MSDS sheet in it Hazard Communication Program, available to employees. This MSDS is where management can gain the safety knowledge needed to train employees, store the chemical, handle a medical incident or a spill, and prevent or prepare for a fire incident.

Generally, the difference between a flammable and a combustible liquid is that vapors from flammable liquid can be ignited at a lower temperature than vapors from a combustible liquid. A flammable liquid is any liquid with a flashpoint below 100° Fahrenheit. The flashpoint is the lowest temperature at which a liquid gives off a vapor that can be ignited when mixed with air. Flammable liquids are also known as Class I liquids. A combustible liquid is any liquid having a flashpoint at or above 100° Fahrenheit. Combustible liquids are categorized as Class II liquids if their flashpoint ranges from 100° to 140° Fahrenheit, or as Class III liquids if their flashpoint is above 140° Fahrenheit. Examples of combustible liquids include: Oil, kerosene, greases, lubricants, and Oil-based paints.

Proper handling of FCLs starts with reading the MSDS sheet. Then the chemicals should be appropriately stored, not in office closets nor near electrical panels or near exit doors nor under stairways. The containers used for transferring FCLs should be OSHA approved safety cans with the self-closing spout cap and equipped with a flame arrestor when used in the business operations. Next, the container should be properly labeled, especially if it isn't going to be immediately used in equipment or the operation process.

Good housekeeping is a must. Many business owners think safety professionals are nit-picking when they bring up the subject of housekeeping, but most flammable and combustible liquids flow easily. A small spill can cover a large area of workbench or warehouse floor. Burning liquids can flow under doors, down stairs and even into neighboring buildings, spreading fire widely. Materials like wood, cardboard and cloth can easily absorb flammable and combustible

liquids. Even after a spill has been cleaned up, a dangerous amount of liquid could still remain in surrounding materials or clothing, giving off hazardous vapors.

Fire ignition sources should always be eliminated immediately. Electrical cord and plugs seem like a trivial item to the average worker, but an electrical spark can change the course of an average work day. Electrical equipment should be inspected frequently for safe use. "No Smoking" signage should be placed and enforced in chemical storage areas. Storing propane gas cylinders next to the warehouse roll-up doors and then finding cigarette butts on the ground in the immediate area is not a real good sign of enforcement to a safety inspector. And welding & cutting activities should never begin without a thorough inspection of the immediate area to assess if FCLs are present.

So, in summary, flammable and combustible liquids do need careful attention to prevent fires and explosions in the workplace. Train all employees to:

- ensure storage areas are appropriately placarded and safety signage erected,
- prevent ignition sources from being introduced into a hazardous area, where there is a possibility of a fire or explosion occurring,
- practice good housekeeping and contain & manage leaks and spills,
- protect all containers (e.g., tanks, pails & other containers) from damage, (especially from forklifts & vehicle traffic),
- inspect & maintain fire protection systems and fire extinguishers,
- follow best practices provided on MSDS associated with storage, stacking, and handling of tanks, drums, pails, and other containers.

This is only a summary of common safety concerns addressing the storage and handling of flammable and combustible liquids & substance. Should you need additional or more specific information, consult the MSDS for your chemicals, logon to the [www.osha.gov](http://www.osha.gov) website, or consult National Fire Protection Association Section 30 (NFPA-30). Or, you may call CSA at (678) 674-1860.

*NOTE: This article is designed to provide accurate information in regard to the subject matter covered. It is provided for informational purposes only with the understanding that the information is not intended to constitute professional advice or an express or implied warranty of any kind. It is the sole responsibility of the user to determine the applicability of any information discussed herein to any particular use. Neither CSA nor any of its agents will be responsible for any action taken by any user of this publication.*