

Flammable and Combustible Liquids Safe Handling and Storage

While workplace fires are less likely to occur than other types of incidents, its impact can be dangerous and cause significant property damage. This Safety Talk focuses on safe handling and storage of flammable and combustible liquids.

Key Facts

Flammability is determined by the flash point of a liquid. The flash point is the minimum temperature at which a liquid can form a vapor in sufficient concentration that it can be ignited. The primary difference between a flammable and a combustible liquid is the flash point.

Liquids are further categorized into classes used to determine the quantity that can be safely stored in the workplace.



Did you know that vapor is what burns and not the liquid itself? Vapor is directly affected by the ambient temperature, too. Consequently, flammable and combustible liquids are more hazardous as the temperature increases.

Flammable Liquids		
Class	Flash Point	Examples include:
1-A	Below 73°F	Diethyl ether, pentane, petroleum ether
1-B	Below 73°F but boiling point above 100 °F	Gasoline, benzene, acetone, isopropyl alcohol
1-C	Above 73°F but below 100 °F	Butyl alcohol, diethyl glycol, turpentine
Combustible Liquids		
Class	Flash Point	Examples include:
2	At or above 100°F but below 140 °F	Diesel fuel, pine tar, some cleaning solvents
3, 4	Above 140°F; Above 200°F	Creosote oil, formaldehyde, castor

Containers

Only use type 1 or 2 safety cans for gasoline or diesel fuel. Safety cans have a self-closing airtight lid, flexible metal dispensing nozzle, and a flame arrestor to protect from an external ignition source.



Storing

No more than 25 gallons of flammable and combustible liquids may be stored **outside** of a flammable liquid storage cabinet. No more than 10 gallons of that total may be flammable liquids.

Safe Handling and Storage of Flammables

Storage Cabinets

UL or FM approved flammable storage cabinets are engineered to protect the contents from sources of nearby ignition. In the event of a room fire, these special cabinets will provide an additional 10 minutes of safety before the contents ignite.

Do's and Don'ts

- Keep the area clear of spark generating tools and equipment.
- Not more than 120 gallons of flammable liquids may be stored inside a storage cabinet. Of this total, not more than 60 gallons may be category 1, 2 and 3 flammable liquids.
- Always ensure that the cabinet doors are fully closed and not malfunctioning.
- Do not store hazardous materials, such as acids, bases, or corrosive liquids. These should be stored in acid and corrosive storage cabinets, not flammable storage cabinets.
- Do not remove labels or warning signs from the cabinet.
- No more than three cabinets should be allowed in one room.
- Keep the lids closed on all containers inside the cabinet.

Transferring Liquids

Pouring flammable liquids can generate static electricity which could ignite a fire or cause an explosion. Bonding or grounding the two containers can prevent sparking.

Bonding refers to a technique used to ensure that all components (containers, piping, pumps, funnels) used in the dispensing process carry the same electrical potential.

Grounding is the process of carrying the electric charge to “earth” or “ground.”

Oily or Solvent Soaked Rags

Used rags containing solvents, thinners, and oils can spontaneously combust or ignite from nearby sources of ignition. To prevent this, store used oily or solvent soaked rags in an “oily waste can.” The self-closing lid blocks fire transmission and works to extinguish a can fire by preventing additional oxygen from being introduced.



Responding to a Flammable Liquid Fire

Never use water to extinguish a flammable liquid fire as it will only splatter and spread the flame. Use a Class B fire extinguisher (or multi-class) and only if you are trained and not in danger. Note that most commercial buildings are equipped with multi-class fire extinguishers to be used on a variety of fires including flammable liquids.

More Resources:

- [Cal/OSHA §5415 - 5629](#)
- [NFPA 30 – Flammable and Combustible Liquids Code](#)
- [SDRMA Risk Control Team](#)

This *Safety Talk* provides awareness level training on Safe Handling and Storage of Flammables. If this information is unclear or if you have any additional questions, please talk to your supervisor.