



## Considerations for the Storage of Flammable/Combustible Liquids

Flammable and combustible liquids come in many forms. They can be hazardous because they may be easily ignited, burn intensely, or have a rapid rate of flame spread. Flammable and combustible liquids have similarities but they also possess different characteristics and can act differently when exposed to a heat source. General information on flammable and combustible liquid properties and storage is listed here. This information is based on national regulations or guidelines from the Occupational Safety and Health Administration ([OSHA](#)) and from the National Fire Protection Association ([NFPA](#)). Additional information may be obtained through local fire officials.

### Combustible Liquids:

Combustible liquids can be defined as any liquid having a flash point at or above 100°F. Combustible liquids are divided into two classes: Class II liquids, those with flash points at or above 100°F and below 140°F; and Class III liquids, those with flash points at or above 140°F. Common examples of combustible liquids include: Class II, diesel fuel, some thinners; Class III, heating oil, motor oil and cooking oils. More on combustible liquid definitions is available from the [NFPA](#).

### Flammable Liquids:

Flammable liquids can be defined as any liquid having a flash point below 100°F, except any mixture having components with flashpoints of 100°F or higher. Flammable liquids are also known as Class I liquids. Class I liquids are divided into three subclasses: Class IA, those having flash points below 73°F and a boiling point below 100°F; Class IB, those having flash points below 73°F and a boiling point at or above 100°F; and Class IC, those having flash points at or above 73°F and still below 100°F. Common examples of Class I liquids include: Class IA, ether, light crude oil; Class IB, gasoline, thinners; Class IC, oil-based paints, solvents, some adhesive cements. More on flammable liquid definitions is available from the [NFPA](#).

### Storage:

Storage of flammable and combustible liquids should be kept to a minimum in most facilities in order to reduce fire hazards and interactions with other chemicals; specifically oxidizers such as pool chemicals. It is generally best to keep inventory of these substances to a minimum; whatever is required for general operations and maintenance. To prevent fires, hazardous liquids require special precautions in storage, handling and use. Both OSHA and the NFPA allow for several storage options.

## **Safety Cans:**

One technique utilized to reduce the hazards associated with flammables is the use of safety cans. OSHA defines a safety can as an approved container of not more than 5 gallons capacity, with a spring-closing lid, a spout cover and designed so it will relieve internal pressure when exposed to heat. Safety cans commonly carry a Factory Mutual (FM) or Underwriter Laboratory (UL) approval.

## **Storage Cabinets:**

A common method of controlling hazards and storing flammable and or combustible liquids is the use of an approved storage cabinet. The NFPA and OSHA require storage cabinets to be designed and constructed to specific requirements; including double-walled steel construction, spill containments and proper labeling with warning notice. Wooden cabinets are also allowed by some locations as long as they are constructed within strict parameters. No more than 60 gallons of Class I and/or Class II liquids, or not more than 120 gallons of Class III liquids may be stored in an individual cabinet. Read more on storage cabinets [HERE](#).

## **Storage Rooms:**

Hazardous liquid storage rooms are another common method utilized for storing flammable and or combustible liquids. Both NFPA and OSHA allow for this method of storage providing certain standards are met and that liquids are in approved containers. Rooms of a 2-hour construction fire rating cannot exceed 500 sq/ft in size and rooms of a 1-hour construction fire rating are limited to 150 sq/ft in size. The quantity of liquid storage allowed is based on gallons per sq/ft of floor area dependent on the fire rating of construction and the presence a fire protection system. A liquid storage room can be completely within the footprint of the building in which it is located. The room must also meet electrical and ventilation requirements. Rooms must be maintained and organized in a manner that is free of clutter and allows for ease of movement within.

## **General Considerations:**

- Minimize the amount flammable liquids that are in use and being stored
- Avoid the use of glass and other non-metal containers
- Storage cabinets should be labeled: Flammables - Keep Fire Away.
- Incompatible materials (e.g., oxidizers) shall not be stored adjacent to flammables. Storage cabinets should not be stored near doors, hallways, common egress points, or near potential ignition sources
- Safety Data Sheets for all substances should be reviewed for compatibility, storage, handling and other safety precautions
- Flammable/combustible solids should follow the same practices as liquids

Local and state codes may have other restrictions and requirements; additional information is available from [OSHA](#), the [NFPA](#) and the [Online Resource Library](#)