

## NFPA 30 FAQs

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### **1. The definitions of "flammable liquid" and "combustible liquid" in NFPA 30 differ from those used by the U.S. Department of Transportation. Why?**

Definition and classification of flammable and combustible liquids are addressed in Subsection 3.3.33 and Chapter 4 of NFPA 30. A flammable liquid is defined as a liquid whose flash point does not exceed 100°F, when tested by closed-cup test methods, while a combustible liquid is one whose flash point is 100°F or higher, also when tested by closed-cup methods. These broad groups are further classified as follows:

- Class IA - Flash Point less than 73°F; Boiling Point less than 100°F
- Class IB - Flash Point less than 73°F; Boiling Point equal to or greater than 100°F
- Class IC - Flash Point equal to or greater than 73°F, but less than 100°F
- Class II - Flash Point equal to or greater than 100°F, but less than 140°F
- Class IIIA - Flash Point equal to or greater than 140°F, but less than 200°F
- Class IIIB - Flash Point equal to or greater than 200°F

Notice that boiling point is only used to distinguish between Class IA and Class IB. Class IA liquids are extremely volatile, but there are few liquids that are so classed. Note also that, theoretically, there is no upper limit to Class IIIB.

These definitions and classifications were agreed to years ago by NFPA, the U. S. Department of Transportation (DOT), and the U. S. Occupational Safety and Health Administration (OSHA) in an attempt to remove inconsistencies in the definitions used at the time. Since then, DOT has changed its definition of "flammable liquid" by raising the upper limit to 141°F (60.5°C). This was done because the United States is a partner to a world-wide set of hazardous materials regulations sponsored by the United Nations and must use the UN definitions, at least for international transportation. Note, however, that DOT regulations include a so-called "domestic exemption" that allows a shipper to redesignate as a combustible liquid any liquid whose flash point is in the NFPA Class II range and which does not meet any other hazardous material definition.

**2. What are common examples of the various flammable and combustible liquids classified by NFPA 30?**

- Class IA - Diethyl Ether, Ethylene Oxide, some light crude oils
- Class IB - Motor and Aviation Gasolines, Toluene, Lacquers, Lacquer Thinner
- Class IC - Xylene, some paints, some solvent-based cements
- Class II - Diesel Fuel, Paint Thinner
- Class IIIA - Home Heating Oil
- Class IIIB - Cooking Oils, Lubricating Oils, Motor Oil

**3. Is there a lower limit to the application of Chapter 21, Storage of Liquids in Tanks?**

Until the 1993 edition, the answer was "no". A new definition of storage tank was added in 1993 that established 60 gallons capacity as the minimum quantity for a vessel to be considered a storage tank. This, in effect, sets a lower limit to the applicability of Chapter 21, and subsequent tank-related chapters of NFPA 30.

**4. Tables 22.4.1.1 (a) and (b), and other similar tables in Chapter 22 impose separation distances between the tank shell and "the nearest important building on the same property". When is a building considered to be important enough that these separation distances should be imposed?**

"Important Building" is defined by NFPA 30 in Paragraph 3.3.6.1. as "a building that is considered not expendable in an exposure fire.". Examples include, but are not limited to, occupied buildings, control buildings, or buildings that contain high value contents or critical equipment or supplies. Obviously, some judgment is involved in determining whether a building is important enough to warrant compliance with the separation distances. The key question becomes: "Can I really afford to lose this building or the people in the building or the contents of the building because of a fire in the tank?" Remember, the contents of a normally unoccupied building might be process control equipment critical to safe operation.

**5. Some safety cans have a wire mesh screen in their spouts to serve as a flame barrier; some others do not. Are these screens required?**

NFPA 30 does not require the screens, as can be seen in the definition of "safety can" in Subsection 3.3.48. However, third-party certification organizations require the screen in order to obtain listing or approval.

**6. Some flammable liquids storage cabinets have a grounding screw. Is the cabinet required to be electrically grounded?**

Flammable liquids storage cabinets are governed in Section 9.5 of NFPA 30. There is no requirement that the cabinet itself be grounded. Many manufacturers provide a grounding screw on their cabinets as a convenience to the user. The user can connect this screw to a building ground and use the cabinet-mounted ground point as needed to ground individual containers from which liquids are dispensed.

**7. Are flammable liquids storage cabinets required to have exhaust ventilation?**

Flammable liquids storage cabinets are governed in Section 9.5 of NFPA 30. There is no requirement for exhaust ventilation for storage cabinets, although most cabinets have plugged fittings that can be used for such purpose. Exhaust ventilation should only be provided when warranted by the materials in the cabinet, for example for particularly toxic or noxious materials. If provided, the manufacturer's instructions should be followed. Typically, this will involve small diameter steel duct or pipe leading directly and by the shortest route to the exterior of the building. Exhaust must be taken from the bottom of the cabinet.

**8. How does NFPA 30 address inside container storage areas?**

Chapter 12 of NFPA 30 describes two types of dedicated storage areas for flammable and combustible liquids: liquid storage rooms and liquid warehouses.

Liquid storage rooms cannot exceed 500 sq. ft. (46.5 sq. m.), assuming they are of 2-hour construction. If of 1-hour construction, then they are limited to 150 sq. ft. (14 sq. m.). The quantity of liquid allowed to be stored therein is based on so many gallons per square foot of floor area and this depends on the hourly rating of the construction and presence or absence of an automatic fire protection system. A liquid storage room can be completely within the footprint of the building in which it is located, i.e., it need not any exterior wall.

A liquid warehouse can be a separate building or a part of another building. If the latter, at least 25 percent of its perimeter wall must be an exterior wall. Allowable capacity of a liquid warehouse depends on the degree of fire protection provided.

**9. Can flammable or combustible liquids be stored in a "general purpose warehouse", i.e., one that is not specifically designed and constructed for liquids storage?**

Yes, but the warehouse must be protected in accordance with NFPA 13 for 20-foot high storage of Class IV commodity. In addition, there are restrictions on maximum container size, maximum storage height, and maximum total quantity stored. This is all covered in

Section 12.8 of NFPA 30.

**10. Does NFPA 30 govern storage of liquids in a laboratory?**

In the open work area of the laboratory, no. The quantity of liquid allowed in a laboratory work area is governed by NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals. However, NFPA 30, would cover a liquid storage room in a laboratory occupancy that is appropriately separated from the laboratory work space, as set forth in Subsection 12.6.1 of NFPA 30.