

Flammable Liquid Storage Limits and FDNY Permitting Requirements



Overview

The New York City Fire Department (FDNY) requires all work areas that store, handle and/or use combustible/flammable liquids to have a permit if the quantity is over the permit threshold set in the Fire Code. The FDNY also restricts the maximum amount of all combustible/flammable liquids that may be stored in any work area. Chemical Owners are responsible for maintaining their stocks of combustible/flammable liquids below their work area limit. This Update provides information on storage permit thresholds and limits for work areas.

Applicability

This Update applies to all WCMC Chemical Owners who purchase and maintain combustible and flammable liquid inventories.

Responsibilities

- **Chemical Owners** are responsible for:
 - ensuring that the area where combustible/flammable liquids are stored, handled and/or used above the permit threshold limit has a valid and current FDNY permit,
 - maintaining compliance with the FDNY combustible and flammable liquid storage limits, and
 - keeping an accurate and up-to-date chemical inventory in [Salute](#).
- **Environmental Health and Safety (EHS)** provides guidance, training, and assistance on flammable liquid storage. EHS also helps chemical owners with obtaining FDNY permits.

Definitions

- **Class I Flammable Liquids** are liquid mixtures, substances or compounds, which will emit a flammable vapor and have a closed cup flash point below 100°F (38°C). Examples include acetone, acetonitrile, ethanol, hexanes, isopropanol, methanol, N,N,N',N'-tetramethylethylenediamine, and xylene. To determine whether a chemical is flammable, refer to the manufacturer's label or the Safety Data Sheet (SDS).
- **Combustible liquids** are liquids which emit a flammable vapor at temperatures between 100°F and 300°F when tested in a Tagliabue open-cup tester. Examples include acetic acid, naphtha and Stoddard solvent. Combustible liquids are referred to as Class II, Class IIIA or IIIB liquids based on flash point as follows:
 - Class II liquids - flash points at or above 100°F (37.8°C) and below 140°F (60°C).
 - Class IIIA liquids - flash points at or above 140°F (60°C) and below 200°F (93.4°C).
 - Class IIIB liquids - flash points at or above 200°F (93.4°C).
- **Rubbing alcohol** is a liquid that typically contains 70% of ethyl alcohol or isopropyl alcohol. Rubbing alcohols are considered a Class I flammable liquid (flash point below 100°F).
- **Alcohol-based hand rubs/sanitizers** are defined by the New York City Fire Code as alcohol-containing preparations designed for application to the hands for anti-bacterial or other medicinal purposes. They usually contain ethanol or isopropanol in an amount below 70% by volume. They are typically classified as either a Class I flammable liquid (flash point below 100°F) or a Class II combustible liquid (flash point at or above 100°F and below 140°F).
- **Laboratory unit** is an enclosed space of a minimum one-hour fire rated construction, designed or used as a non-production laboratory. Laboratory units may include one or more separate laboratory work areas, and accessory storage rooms or spaces within or contiguous with the laboratory unit, such as offices and lavatories.
- **Non-lab control area** is a space within a building that are enclosed and bounded by exterior walls, fire walls, fire barriers and roofs, or a combination thereof, where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, handled or used, including any dispensing; for example, clinical areas, animal facilities, non-lab storage areas, and other non-lab service areas.



- **Safety Data Sheets (SDSs)** are documents created by chemical manufacturers or suppliers which identify a chemical's physical and health hazards, exposure limits, precautions, personal protective equipment required when handling the material, and procedures that should be followed in the case of an emergency. SDSs are available from the manufacturer or the ChemWatch database. Additional information about ChemWatch is available on the [EHS SDS website](#).
- **Health and Safety Door Signs (HSDS)** are managed and posted by EHS. They provide emergency contacts, hazard information, and flammable liquid storage limits. To request or update a HSDS, please contact EHS at ehs@med.cornell.edu or 646-962-7233, or your Safety Advisor.

Procedure

1. **Permit:** an FDNY permit is required to maintain or operate a non-production lab unit or a non-lab unit (e.g., clinic) in which flammable or combustible liquids are stored or used above the FDNY-permitting threshold quantity for this class of materials. EHS manages the FDNY permit program.
2. **Permit unit classification:** FDNY will inspect and determine the type or class of a laboratory permit based on fire rating and fire protection (i.e., sprinklered or non-sprinklered) systems. The type or class will be included on the HSDS. WCM laboratories constructed under the new NYC Fire Code will be Class B or D and those constructed under the old NYC Fire Code will be Type I, II, III, or IV.
3. **Permit threshold for flammable and combustible liquids:** the permitting threshold for non-production laboratory unit is 1 gallon of flammable or combustible liquids. The threshold for non-laboratory units is 5 gallons. If quantities of flammable and/or combustible liquids exceeds these volumes then a FDNY permit is required.
4. **Certificate of Fitness (CoF):** for units / spaces that require a FDNY permit, the space must be under the personal supervision of a Certificate of Fitness holder as follows:
 - Laboratory– C-14 Certificate of Fitness for Supervising Non-Production Chemical Laboratories.
 - Non-laboratory– C-92 Certificate of Fitness for Supervision of Flammable and/or Combustible Liquid.
 - Visit the [EHS website](#) for further guidance on how to obtain a C-14.
5. **Storage limits:** FDNY restricts the amount of combustible and flammable liquids that may be stored or used in each lab unit. Tables 1 and 2 below show the permitting threshold, maximum storage limits, and FDNY certificate of fitness number for laboratory units and Table 3 displays the same information as it pertains to non-lab control areas. For non-laboratory units such as clinics, the permit threshold depends on the materials stored or used in the space.

Table 1. Threshold and maximum storage limits for **Laboratory Unit** constructed under the old NYC Fire Code.

Laboratory Unit Constructed Under Old NYC Fire Code			
Type	Permitting Threshold	Maximum Storage Limits (with Permit)	Certificate of Fitness (CoF)
Type I	1 gallon	30 gallons	C-14 Supervising Non-Production Chemical Laboratories
Type II	1 gallon	25 gallons	
Type III	1 gallon	20 gallons	
Type IV	1 gallon	15 gallons	

Table 2. Threshold and maximum storage limits for **Laboratory Unit** constructed under the new NYC Fire Code.

Laboratory Unit Constructed Under New NYC Fire Code						
Type	Permitting Threshold	Excluding Quantities in Storage Cabinets or Safety Cans*		Including Quantities in Storage Cabinets or Safety Cans		CoF
		Max. quantity Class I liquids alone	Max. quantity Class I, II, IIIA liquids	Max. quantity Class I liquids alone	Max. quantity Class I, II, IIIA liquids	
Class B	1 gallon	5 gal/100 ft ² 25 gal max	10 gal/100 ft ² 25 gal max	10 gal/100 ft ² 25 gal (max)	20 gal/100 ft ² 25 gal (max)	C-14
Class D	1 gallon	1 gal/100 ft ² 75 gal max	1 gal/100 ft ² 75 gal max	2 gal/100 ft ² 150 gal max	2 gal/100 ft ² 150 gal max	

*Refer to HSDS for the room specific storage limit calculated by the FDNY.

**Table 3.** Threshold and maximum storage limits for non-lab control area.

Materials	Permitting Threshold	Maximum Storage Limits (with Permit)	Certificate of Fitness
Class I Liquids (excluding laboratories, paints, varnishes, lacquers, gasoline and other petroleum-based Class I liquids)	5 gallons	Determined by the FDNY Permit type issued	C-92
Gasoline and other petroleum-based Class I liquids (excluding laboratories, paints, varnishes, and lacquers)	2½ gallons		
Rubbing alcohol	5 gallons		
Alcohol-based hand rubs/sanitizers (Class I)	5 gallons		
Alcohol-based hand rubs/sanitizers (Class II)	10 gallons		
Oil-based paints, varnishes, and lacquers	20 gallons		
Class III combustible liquids	70 gallons		

- 6. Exceeding limits:** if the permit limits are exceeded, the Chemical Owner must take measures to reduce the quantity by:
- Moving the excess flammable/combustible material to a different permit unit;
 - Utilize the EHS Surplus Reagent Program to temporarily store excess flammable liquids with EHS.
 - Review purchasing practices and update the chemical inventory to ensure adherence to the limits.
- 7.** Contact EHS at ehs@med.cornell.edu or 646-962-7233 or your Safety Advisor with any questions.

References

- FDNY New York City Administrative Code Title 29 New York City Fire Code
- FDNY Certificate of Fitness study materials <https://www1.nyc.gov/site/fdny/business/all-certifications/certificates-of-fitness.page>
- WCMC EHS Laboratory Chemical Hygiene Plan
- EHS Update Salute Chemical Inventory System
- EHS C-14 Application Overview & Checklist