

## Chapter 14

### Industrial Fire Protection; Flammable and Combustible Liquids



#### Purpose:

This chapter provides facility guidance for fire protection and prevention programs as they pertain to the storage and use of all flammable and combustible liquids.



#### Scope:

Fire safety and protection requires familiarity with the material covered in this chapter under the following topics.

- ❖ Responsibilities
- ❖ General Safety Measures
- ❖ Loading and Unloading
- ❖ Storage
- ❖ Tank Operations
- ❖ References
- ❖ Related Chapters



#### Responsibilities:

NFPA 30 is the basic standard for flammable and combustible liquids. Each contractor shall have a system of control of storage and use of flammable substances to insure compliance with this standard. Definitions in this chapter shall be as in NFPA 30.



#### General Safety Measures:

1. Use and Handling:
  - a) Flammable and combustible liquid storage tanks, valves, and piping shall be conspicuously identified
  - b) Flammable liquids for shop, bench, and laboratory use shall be restricted to the minimum reasonable quantities, generally one litre. Use, handling, and storage shall be as required by Subpart III of this manual.
  - c) All portable dispensing flammable liquid containers shall be painted red and be labeled to allow ready identification of the contents.
  - d) When flammable liquids are to be used in unusual circumstances, a “Safe Work Permit” control system or equivalent shall be used to assure prevention of dangerous mixtures and to establish safe working conditions.
  - e) Flammable liquids (having a flash point of less than 100°F) shall not be used as general cleaning solvents.



2. Smoking and Open Flames:
  - a) Smoking and the use of open flames shall be prohibited in areas where flammable liquids are stored, handled, or used.
  - b) Where smoking is prohibited, “No Smoking” signs of a uniform type shall be conspicuously displayed.
  - c) Each contractor shall develop and maintain a control system for the use of open flames.
  
3. Bonding and Grounding:

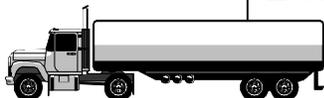
All fixed and portable lines, storage tanks, and other equipment used in handling flammable or combustible liquids shall be properly bonded and grounded in accordance with NFPA Codes.
  
4. Electrical Equipment:
  - a) All electrical equipment, wiring, and fixtures located or used in areas in which flammable liquids are stored, used, or handled, shall be U.L. approved and of a type and installed in a manner complying with requirements of the National Electrical Code for such type of installations.
  - b) An electrical inspection, testing, and maintenance program shall be conducted at a frequency sufficient to insure that ignition of flammable vapor or dust by electrical causes will be minimized.
  - c) NFPA 77 for details of grounding requirements for portable tools and extension cords used in locations where flammable vapors may exist.
  
5. Non-sparking Tools:

When the use of hand tools is required in areas where flammable gases or liquids are present, such use should be limited to approved, non-sparking tools.
  
6. Health Hazards:

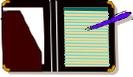
Applicable consideration of Industrial Safety and Industrial Hygiene requirements shall be complied with to protect employees from health hazards of flammable or combustible materials.
  
7. Combustible Gas Indicators:

Each facility shall maintain or have available adequate test equipment capable of determining the existence of flammable gases (or vapors) of types constituting actual or potential explosion hazards in the facility.

**Loading and Unloading:**



The loading, unloading, and onsite transportation of bulk quantities of flammable and combustible liquids shall be in accordance with NFPA



30, API Manual No.8, and the applicable parts of 49 CFR, Transportation (DOT Regulations).



**Storage:**

The storage of flammable liquids shall be in accordance with the pertinent NFPA Codes.

**Tank Operations:**



If entry is required into any confined space (tank, vat, tank car, pit, etc.) that has contained any flammable or combustible liquid, then all of the requirements for entry shall apply. Special attention shall be given to the additional provisions required to prevent fire or explosion.



**References:**

- ❖ National Fire Protection Association (NFPA) Codes
- ❖ NFPA 30, “Flammable and Combustible Liquids Code,”
- ❖ API Manual No. 8, “Bulk Plant Operation and Delivery of Products.”
- ❖ 49 CFR, “Transportation,” DOT Regulations.



**Related Chapters:**

- ❖ Chapter 2, “Organization and Program for Operational Safety; Codes and Standards.”
- ❖ Chapter 5, “Construction and Demolition.”
- ❖ Chapter 13, “Industrial Fire Protection.”