

JUL 6 1965

FARM STORAGE OF

**FLAMMABLE &  
COMBUSTIBLE  
LIQUIDS**

**1965**

N. F. P. A.  
LIBRARY  
BOSTON, MASS.

1057-



Forty Cents

Copyright © 1965

**NATIONAL FIRE PROTECTION ASSOCIATION**  
International

60 Batterymarch Street, Boston, Mass. 02110

# National Fire Protection Association

## International

### Official NFPA Definitions

Adopted Jan. 23, 1964. Where variances to these definitions are found, efforts to eliminate such conflicts are in process.

**SHALL** is intended to indicate requirements.

**SHOULD** is intended to indicate recommendations or that which is advised but not required.

**APPROVED** means acceptable to the authority having jurisdiction. The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of nationally recognized testing laboratories,\* i.e., laboratories qualified and equipped to conduct the necessary tests, in a position to determine compliance with appropriate standards for the current production of listed items, and the satisfactory performance of such equipment or materials in actual usage.

\*Among the laboratories nationally recognized by the authorities having jurisdiction in the United States and Canada are the Underwriters' Laboratories, Inc., the Factory Mutual Engineering Division, the American Gas Association Laboratories, the Underwriters' Laboratories of Canada, the Canadian Standards Association Testing Laboratories, and the Canadian Gas Association Approvals Division.

**LISTED:** Equipment or materials included in a list published by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

**LABELED:** Equipment or materials to which has been attached a label of a nationally recognized testing laboratory that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling is indicated compliance with nationally recognized standards or the conduct of tests to determine suitable usage in a specified manner.

**AUTHORITY HAVING JURISDICTION:** The organization, office or individual responsible for "approving" equipment, an installation, or a procedure.

### Units of Measurements

Units of measurements used here are U. S. standard. 1 U. S. gallon = 0.83 Imperial gallons = 3.785 liters. One foot = 0.3048 meters. One inch = 25.40 millimeters. One pound per square inch = 0.06805 atmospheres = 2.307 feet of water. One pound = 453.6 grams.

### Copyright and Republishing Rights

This publication is copyrighted © by the National Fire Protection Association. Permission is granted to republish in full the material herein in laws, ordinances, regulations, administrative orders or similar documents issued by public authorities. All others desiring permission to reproduce this material in whole or in part shall consult the National Fire Protection Association.

# Standard for the Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects

NFPA No. 395 — 1965

The 1965 edition of this Standard supersedes the 1959 and all previous editions.

This Standard was prepared by the Sectional Committee on General Storage of Flammable Liquids, approved by the membership of the Committee on Flammable Liquids, and adopted at the Annual Meeting of the National Fire Protection Association in Washington, D. C., on May 19, 1965.

The principal amendments to this edition of the Standard were made for conformity with the basic classification of flammable and combustible liquids.

## Sectional Committee on General Storage of Flammable Liquids

Deputy Chief Raymond M. Hill, *Chairman*

|                                                       |                                                   |                                                    |
|-------------------------------------------------------|---------------------------------------------------|----------------------------------------------------|
| <b>B. H. Battaglin</b><br>(alternate to T. T. Singer) | <b>W. S. Marsh</b>                                | <b>E. C. Sommer</b>                                |
| <b>W. C. Bluhm</b>                                    | <b>J. F. McKenna</b><br>(alternate to A. F. Dyer) | <b>R. I. Spencer</b><br>(alternate to W. H. Doyle) |
| <b>W. S. Brooks</b>                                   | <b>R. M. Patton</b>                               | <b>J. K. Sundermeyer</b>                           |
| <b>Richard G. Brown</b>                               | <b>George F. Prussing</b>                         | <b>E. F. Tabisz</b>                                |
| <b>W. H. Doyle</b>                                    | <b>J. Sharp Queener</b>                           | <b>W. H. Van Arnum</b>                             |
| <b>A. F. Dyer</b>                                     | <b>T. T. Singer</b>                               | <b>Glenroy M. Walker</b>                           |
| <b>Charles H. Howe, Jr.</b>                           | <b>Allan R. Smith</b>                             | <b>J. H. Witte</b>                                 |
| <b>D. M. Johnson</b>                                  |                                                   | <b>Miles E. Woodworth</b>                          |
| <b>O. W. Johnson</b>                                  |                                                   | <b>T. H. Wright</b>                                |

## Committee on Flammable Liquids

**Paul C. Lamb**, *Chairman*,

Lever Brothers Company, 390 Park Ave., New York, N. Y. 10022

**Miles E. Woodworth**, *† Secretary*,

National Fire Protection Assn., 60 Batterymarch St., Boston, Mass. 02110

- J. Robert Adams**, Improved Risk Mutuals.  
**R. H. Albisser**, Manufacturing Chemists Assn., Inc.  
**W. J. Baker**, Conference of Special Risk Underwriters.  
**C. V. Batley**, Bethlehem Steel Corp.  
**W. C. Bluhm**, American Petroleum Institute.  
**Herbert R. Bogardus**, Fire Insurance Rating Organization of New Jersey.  
**W. S. Brooks**, Oklahoma Inspection Bureau.  
**Richard G. Brown**, American Reciprocal Insurers.  
**G. E. Cain**, National Paint, Varnish & Lacquer Assn.  
**A. C. Clark**, Manufacturing Chemists' Assn., Inc.  
**Harold Crouch**, Eastman Kodak Co.  
**W. H. Doyle**, Factory Insurance Assn.  
**A. F. Dyer**, American Petroleum Institute.  
**D. M. Dymond**, Testing Laboratories, Division of Canadian Standards Assn.  
**E. H. Fallin**, National Petroleum Refiners Assn.  
**G. G. Fleming**, Manufacturing Chemists' Assn., Inc.  
**Parker C. Folse**, American Petroleum Institute.  
**Roger D. Freriks**, Federation of Societies for Paint Technology.  
**Ward A. Gill**, National Automatic Laundry and Cleaning Council  
**S. L. Halac**, National Soybean Processors Assn.  
**Raymond M. Hill**, Fire Marshals Assn. of North America.  
**C. P. Hoffmann, Jr.**, Truck Trailer Manufacturers Assn.  
**Charles H. Howe, Jr.**, Fire Marshals Assn. of North America.  
**Rodger R. Jackson**, Laundry & Cleaners Allied Trades Assn.  
**D. M. Johnson**, Western Oil & Gas Assn.  
**O. W. Johnson**, Palo Alto, Calif.  
**Hugh V. Keepers**, Fire Prevention and Engineering Bureau of Texas.  
**Paul J. Keller**, National Paint, Varnish & Lacquer Assn.  
**George F. Kennedy**, Fire Marshals Assn. of North America.  
**Louis F. Langhurst**, Vegetable Oil Extraction.  
**Fred Lolbl**, National Institute of Drycleaning.  
**W. S. Marsh**, Factory Mutual Engineering Div.  
**J. F. McKenna**, American Petroleum Institute.  
**Dr. W. G. McKenna**, Bureau of Explosives.  
**L. S. Miller**, Oil Insurance Assn.  
**N. Hunt Moore**, The American Oil Chemists' Society.  
**J. W. Morris, Jr.**, South-Eastern Underwriters Assn.  
**Dean Olds**, Institute of Appliance Mfrs.  
**R. M. Patton**, Joseph E. Seagram & Sons, Inc.  
**George F. Prussing**, Washington, D. C.  
**George A. Quandee**, Swift & Co.  
**J. Sharp Queener**, National Paint, Varnish & Lacquer Assn.  
**M. J. Reed**, National Oil Fuel Institute.  
**Rudolph Schmidt, Jr.**, American Insurance Assn.  
**T. T. Singer**, Western Actuarial Bureau.  
**Allan R. Smith**, Steel Tank Institute.  
**Walton Smith**, National Cottonseed Products Assn., Inc.  
**E. C. Sommer**, American Petroleum Institute.  
**R. I. Spencer**, Factory Insurance Assn.  
**G. H. Steel**, Ralston Purina Co.  
**E. H. Stockdale**, Gulf Oil Corp.  
**J. K. Sundermeyer**, Manufacturing Chemists' Assn., Inc.  
**C. Austin Sutherland**, National Tank Truck Carriers, Inc.  
**E. F. Tabisz**, Underwriters' Laboratories of Canada.  
**Wm. H. Van Arnum**, American Insurance Assn.  
**Glenroy M. Walker**, Fire Marshals Assn. of North America.  
**Wm. C. Whiting**, New England Insurance Rating Inc.  
**J. H. Witte**, Underwriters' Laboratories, Inc.  
**T. H. Wright**, Ohio Inspection Bureau.  
**Dr. M. G. Zabetakis**, U. S. Bureau of Mines.

†Non-voting member.

**Alternates.**

**B. H. Battaglin**, Western Actuarial Bureau.  
(Alternate to T. T. Singer.)

**C. E. Blome**, National Oil Fuel Institute.  
(Alternate to M. J. Reed.)

**B. H. Lord, Jr.**, American Petroleum Institute.  
(Alternate to A. F. Dyer.)

**J. B. Mathis**, Institute of Appliance Manufacturers.  
(Alternate to Dean Olds.)

**H. S. Robinson**, Oil Insurance Assn. (Alternate to L. S. Miller.)

**A. T. Schrage**, Factory Insurance Assn.  
(Alternate to R. I. Spencer.)

**R. I. Spencer**, Factory Insurance Assn.  
(Alternate to W. H. Doyle.)

**Clay B. Wade**, South-Eastern Underwriters Assn.  
(Alternate to J. W. Morris, Jr.)

**Wm. B. White**, National Automatic Laundry and Cleaning Council. (Alternate to Ward A. Gill.)

**Corresponding Members.†**

**Dr. Ing. Gert Magnus**, Branddirektor,  
Brueckenstr. 2, Hauptfeuerwache, Mannheim, Germany.

**Ingvar Stromdahl**, Statens Brandinspektion,  
Box 7097, Stockholm 7, Sweden

---

†Non-voting Member.

**Standard for the****Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects****NFPA No. 395 — 1965****1. Scope.**

**11.** This Standard is intended to apply to the storage on farms or in rural areas of flammable and combustible liquids having a flash point below 200° F (as defined in the Flammable and Combustible Liquids Code, NFPA No. 30). It is also applicable to the storage of flammable and combustible liquids at farms, rural road construction and other rural earth-moving projects, including gravel pits and borrow pits, where it is customary to obtain fuels in bulk and dispense or transfer them under control of the owner or contractor and where isolation from other structures and temporary use make it unnecessary, in the opinion of the authority having jurisdiction, to require compliance with the more rigid standards of NFPA No. 30.

**12.** This Standard does not apply to the storage, handling and use of fuel oil tanks and containers connected with oil burning equipment.

**2. Types of Approved Storage.**

**21.** Storage of flammable and combustible liquids in rural areas for private use shall be permitted in any of the following:

(a) In aboveground or underground tanks in accordance with NFPA No. 30;

(b) In containers of 60 gallons or less capacity each in accordance with Section 3 of this Standard;

(c) In tanks of 61 to 1,100 gallons capacity each in accordance with Section 4 of this Standard.

**3. Individual Containers of 60 Gallons or Less Capacity Each.**

**31.** Containers shall be substantial closed metal drums of 60 gallons or less capacity each. Discharge devices requiring pressure on the container are prohibited. Pumping devices or faucets used for dispensing flammable and combustible liquids shall be well maintained to prevent leakage. Individual containers shall not be interconnected.

**32.** Containers as provided in this section shall be stored outside at least 40 feet from any building or may be stored inside of a building

used exclusively for the storage of flammable and combustible liquids and located at least 40 feet from any other building. Buildings used for storage of flammable and combustible liquids shall be provided with cross ventilation with at least two vents of 64 square inches area each, placed at floor level.

#### **4. Tanks of 61 to 1,100 Gallons Capacity Each.**

**41.** Flammable and combustible liquids in aboveground tanks of 61 to 1,100 gallons capacity shall be stored outside buildings in tanks of single compartment design constructed in accordance with accepted engineering practice. Joints shall be riveted and caulked, riveted and welded, or welded. Tank heads over six feet in diameter shall be dished, stayed, braced or reinforced. Tanks shall meet the following:

| CAPACITY<br>Gallons | MINIMUM THICKNESS OF STEEL<br>Mfrs. Std. Gage No. |
|---------------------|---------------------------------------------------|
| 61 to 560           | 14                                                |
| 561 to 1,100        | 12                                                |

**42.** A fill opening shall be provided and shall be equipped with a closure designed so that it may be locked.

**43.** A vent having a free opening of at least 1½-inches diameter shall be provided to relieve such vacuum or pressure as will develop in normal operation or from exposure to fire.

**44.** Tanks as provided in this section shall be kept outside and at least 40 feet from any building and shall be so located or such additional distance from buildings shall be provided as will insure that any vehicle, equipment or vessel being filled directly from such tank will be at least 40 feet from any building.

**45.** Tanks as provided in this section may be either tanks with top openings only or tanks elevated for gravity discharge.

#### **46. Tanks with top openings only.**

**461.** Tanks constructed and located as provided above may be designed with all openings in the top of the tank and in such event shall be mounted and equipped as follows:

(a) Stationary tanks shall be mounted on timbers or blocks approximately 6 inches in height so as to protect the bottom of the tank from corrosion from contact with the ground and when so placed to be in a stable position; or portable tanks may be equipped with attached metal legs resting on shoes or runners to be at least one tank diameter apart, which in turn rest upon the ground, designed so that the tank is supported in a stable position and so that the entire tank and its supports may be moved as a unit.

(b) Tanks shall be equipped with a tightly and permanently attached approved pumping device having an approved hose of sufficient length for filling vehicles, equipment or vessels to be served from the tank. Either the pump or the hose shall be equipped with a padlock to its hanger to prevent tampering. An effective anti-siphoning device shall be included in the pump discharge. Siphons or internal pressure discharge devices are prohibited.

#### **47. Tanks elevated for gravity discharge.**

471. Tanks constructed and located as provided above may be designed with an opening in the bottom or the end of the tank for gravity dispensing of flammable and combustible liquids and shall be mounted and equipped as follows:

(a) Supports to elevate the tank for gravity discharge shall be of adequate strength and design to provide stability. Supports may be of steel or of wood having no dimension less than 2 inches nominal.

(b) Alternately the tank may be placed on a pile of earth or near the edge of a cut bank to provide the necessary elevation, and may be supported on timbers or blocks as described in the preceding paragraph.

(c) Bottom opening for gravity discharge shall be equipped with a valve located adjacent to the tank shell which will close automatically in the event of fire through the operation of an effective heat actuated releasing device. If this valve cannot be operated manually, it shall be supplemented by a second valve which can be. The gravity discharge outlet shall be provided with an approved hose equipped with a self-closing valve at the discharge end, of a type that can be padlocked to its hanger to prevent tampering.

#### **5. Marking of Tanks and Containers.**

51. Tanks and containers for the storage of flammable and combustible liquids in rural districts shall be conspicuously marked with the name of the product which they contain and **FLAMMABLE — KEEP FIRE AND FLAME AWAY**. Tanks of 61–1,100 gallons capacity shall bear the additional marking **KEEP 40 FEET FROM BUILDINGS**.

NOTE: Clearance of 40 feet from buildings should also apply to other combustible structures, haystacks, etc.

# National Fire Protection Association

International

60 Batterymarch Street, Boston, Mass. 02110

The National Fire Protection Association was organized in 1896 to promote the science and improve the methods of fire protection. Anyone interested may become an Associate Member; the annual dues are \$20.00. National and regional societies and associations are eligible to be Organization Members, annual dues are \$150. Full membership information is available on request.

This is one of a large number of publications on fire safety issued by the Association. All NFPA codes, standards, and recommended practices are prepared by NFPA Technical Committees and adopted at an Annual Meeting of the Association. They are intended to prescribe reasonable measures for minimizing losses of life and property by fire.

This and other NFPA codes, standards, and recommended practices are published in the **National Fire Codes**, a ten-volume compilation of NFPA's official technical material. Following are the titles of the ten-volume set.

- Vol. 1 Flammable Liquids
- Vol. 2 Gases
- Vol. 3 Combustible Solids, Dusts and Explosives
- Vol. 4 Building Construction and Facilities
- Vol. 5 Electrical
- Vol. 6 Sprinklers, Fire Pumps and Water Tanks
- Vol. 7 Alarms and Special Extinguishing Systems
- Vol. 8 Portable and Manual Fire Control Equipment
- Vol. 9 Occupancy Standards and Process Hazards
- Vol. 10 Transportation

Write the Association for full information.

## Discount Prices on this Pamphlet

The following schedule of discount prices for multiple copies of this pamphlet have been established:

|                               |                             |
|-------------------------------|-----------------------------|
| 1-5 copies: Single copy price | 24- 47: 20%                 |
| 6-11 copies: 10%              | 48-100: 25%                 |
| 12-23 copies: 15%             | Over 100: Special Quotation |