

**WAC 296-24-33009 Container and portable tank storage. (1)**

**Scope.**

(a) **General.** This section must apply only to the storage of flammable liquids in drums or other containers (including flammable aerosols) not exceeding 60 gallons individual capacity and those portable tanks not exceeding 660 gallons individual capacity.

(b) **Exceptions.** This section must not apply to the following:

(i) Storage of containers in bulk plants, service stations, refineries, chemical plants, and distilleries;

(ii) Category 1, 2, or 3 flammable liquids in the fuel tanks of a motor vehicle, aircraft, boat, or portable or stationary engine;

(iii) Flammable or combustible paints, oils, varnishes, and similar mixtures used for painting or maintenance when not kept for a period in excess of thirty days;

(iv) Beverages when packaged in individual containers not exceeding 1 gallon in size.

(2) **Design, construction, and capacity of containers.**

(a) **General.** You must use only approved containers and portable tanks. Metal containers and portable tanks meeting the requirements of and containing products authorized by Chapter I, Title 49 of the Code of Federal Regulations - October 1, 1972, (regulations issued by the hazardous materials regulations board, department of transportation), must be deemed to be acceptable.

(b) **Emergency venting.** You must provide each portable tank with one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 p.s.i.g., or 30% of the bursting pressure of the tank, whichever is greater. The total venting capacity must be not less than that specified in WAC 296-24-33005 (2) (e) (iii) or (v). You must use at least one pressure-actuated vent having a minimum capacity of six thousand cubic feet of free air (14.7 p.s.i.a. and 60°F). You must set it to open at not less than 5 p.s.i.g. If fusible vents are used, they must be actuated by elements that operate at a temperature not exceeding 300°F.

**TABLE H-12**  
MAXIMUM ALLOWABLE SIZE OF  
CONTAINERS AND PORTABLE TANKS FOR FLAMMABLE LIQUIDS

Container type	Category 1	Category 2	Category 3 and 4
Glass or approved plastic	1 pt	1 qt	1 gal
Metal (other than DOT drums)	1 gal	5 gal	5 gal
Safety cans	2 gal		
Metal drums (DOT specifications)	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal

Container exemptions:

(c) Medicines, beverages, foodstuffs, cosmetics and other common consumer items, when packaged according to commonly accepted practices, must be exempt from the requirements of subsection (4) (a) and (b) of this section.

(d) **Size.** Flammable liquid containers must be in accordance with Table H-12, except that glass or plastic containers of no more than 1-gallon capacity may be used for a Category 1 or 2 flammable liquid if:

(i) Such liquid either would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container so as to create a leakage hazard; and

(ii) The user's process either would require more than 1 pint of Category 1 flammable liquid or more than 1 quart of a Category 2 flammable liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality which is not met by the specified standards of liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth the capacity of the container allowed under Table H-12 for the category of liquid; or

(iii) The containers are intended for direct export outside the United States.

**(3) Design, construction, and capacity of storage cabinets.**

(a) **Maximum capacity.** Not more than 60 gallons of Category 1, 2, or 3 flammable liquids, nor more than 120 gallons of Category 4 flammable liquids may be stored in a storage cabinet.

(b) **Fire resistance.** Storage cabinets must be designed and constructed to limit the internal temperature to not more than 325°F when subjected to a ten-minute fire test using the standard time-temperature curve as set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969. All joints and seams must remain tight and the door must remain securely closed during the fire test. You must label cabinets "Flammable—Keep fire away."

(i) Metal cabinets constructed in the following manner must be deemed to be in compliance. The bottom, top, door, and sides of cabinet must be at least No. 18 gage sheet iron and double walled with 1 1/2 inch air space. Joints must be riveted, welded or made tight by some equally effective means. The door must be provided with a three-point lock, and the door sill must be raised at least two inches above the bottom of the cabinet.

(ii) Wooden cabinets constructed in the following manner must be deemed in compliance. The bottom, sides, and top must be constructed of an approved grade of plywood at least one inch in thickness, which must not break down or delaminate under fire conditions. All joints must be rabbetted and must be fastened in two directions with flathead woodscrews. When more than one door is used, there must be a rabbetted overlap of not less than one inch. Hinges must be mounted in such a manner as not to lose their holding capacity due to loosening or burning out of the screws when subjected to the fire test.

**(4) Design and construction of inside storage rooms.**

(a) **Construction.** Inside storage rooms must be constructed to meet the required fire-resistive rating for their use. Such construction must comply with the test specifications set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969. Where an automatic sprinkler system is provided, the system must be designed and installed in an acceptable manner. You must provide openings to other rooms or buildings with noncombustible liquid-tight raised sills or ramps at least 4 inches in height, or the floor in the storage area shall be at least 4 inches below the surrounding floor. You must provide openings with approved self-closing fire doors. The room must be liquid tight where the walls join the floor. A permissible alternate to the sill or ramp is an open-grated trench inside of the room which drains to a safe location. Where other portions of the building or other properties are exposed, you must protect windows as set forth in the Standard for Fire Doors and Windows, NFPA No.

80-1968, for Class E or F openings. Wood at least one inch nominal thickness may be used for shelving, racks, dunnage, scuffboards, floor overlay, and similar installations.

(b) **Rating and capacity.** Storage in inside storage rooms must comply with Table H-13.

**TABLE H-13**  
STORAGE IN INSIDE ROOMS

Fire protection* provided	Fire resistance	Maximum size	Total allowable quantities (gals./sq. Ft./floor area)
Yes _____	2 hours _____	500 sq. ft. _____	10
No _____	2 hours _____	500 sq. ft. _____	4
Yes _____	1 hour _____	150 sq. ft. _____	5
No _____	1 hour _____	150 sq. ft. _____	2

\* Fire protection system must be sprinkler, water spray, carbon dioxide, or other system.

(c) **Wiring.** Electrical wiring and equipment located inside storage rooms used for Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), must comply with the provisions of chapter 296-24 WAC Part L for Class I, Division 2 Hazardous Locations; for Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids, must be approved for general use.

(d) **Ventilation.** You must provide every inside storage room with either a gravity or a mechanical exhaust ventilation system. Such system must be designed to provide for a complete change of air within the room at least six times per hour. If a mechanical exhaust system is used, it must be controlled by a switch located outside of the door. You must operate the ventilating equipment and any lighting fixtures by the same switch. You must install a pilot light adjacent to the switch if Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are dispensed within the room. Where gravity ventilation is provided, the fresh air intake, as well as the exhaust outlet from the room, must be on the exterior of the building in which the room is located.

(e) **Storage in inside storage rooms.** In every inside storage room you must maintain one clear aisle at least 3 feet wide. You must not stack containers over 30 gallons capacity one upon the other. Dispensing must be by approved pump or self-closing faucet only.

(5) **Storage inside building.**

(a) **Egress.** You must not store flammable liquids, including stock for sale, so as to limit use of exits, stairways, or areas normally used for the safe egress of people.

(b) **Containers.** The storage of flammable liquids in containers or portable tanks must comply with subsection (4)(c) through (e) of this section.

(c) **Office occupancies.** You must prohibit storage except that which is required for maintenance and operation of building and operation of equipment. You must keep such storage in closed metal containers stored in a storage cabinet or in safety cans or in an inside storage room not having a door that opens into that portion of the building used by the public.

(d) **Mercantile occupancies and other retail stores.**

(i) In rooms or areas accessible to the public, you must limit storage to quantities needed for display and normal merchandising purposes but must not exceed 2 gallons per square foot of gross floor area. You must consider the gross floor area used for computing the maximum quantity permitted as that portion of the store actually being used for merchandising flammable liquids.

(ii) Where the aggregate quantity of additional stock exceeds 60 gallons of Category 1, or 120 gallons of Category 2, or 180 gallons of Category 3 liquids with a flash point below 100°F (37.8°C), or 240 gallons of Category 3 liquids with a flash point at or above 100°F (37.8°C) and below 140°F (60°C), or 500 gallons of Category 4 liquids, or any combination of Category 1, 2, and 3 liquids exceeding 240 gallons, you must store it in a room or portion of the building that complies with the construction provisions for an inside storage room as prescribed in subsection (4) of this section. For water miscible liquids, these quantities may be doubled.

(iii) You must not stack containers in a display area more than 3 feet or two containers high, whichever is the greater, unless the stacking is done on fixed shelving or is otherwise satisfactorily secured.

(iv) Shelving must be of stable construction, of sufficient depth and arrangement such that containers displayed thereon must not be easily displaced.

(v) You must remove leaking containers to a storage room or taken to a safe location outside the building and the contents transferred to an undamaged container.

(e) **General purpose public warehouses.** Storage must be in accordance with Table H-14 or H-15 and in buildings or in portions of such buildings cut off by standard firewalls. Material creating no fire exposure hazard to the flammable liquids may be stored in the same area.

**TABLE H-14**  
INDOOR CONTAINER STORAGE

Category liquid	Storage level	Protected storage maximum per pile		Unprotected storage maximum per pile	
		Gal.	Ht.	Gal.	Ht.
1	Ground and upper floors	2,750 (50)	3 ft. (1)	660 (12)	3 ft. (1)
	Basement	Not permitted		Not permitted	
2	Ground and upper floors	5,500 (100)	6 ft. (2)	1,375 (25)	3 ft. (1)
	Basement	Not permitted		Not permitted	
3 (with flashpoint <100°F)	Ground and upper floors	16,500 (300)	6 ft. (2)	4,125 (75)	3 ft. (1)
	Basement	Not permitted		Not permitted	
3 (with flashpoint ≥100°F)	Ground and upper floors	16,500 (300)	9 ft. (3)	4,125 (75)	9 ft. (3)
	Basement	5,500 (100)	9 ft. (3)	Not permitted	
4	Ground and upper floors	55,000 (1,000)	15 ft. (5)	13,750 (250)	12 ft. (4)
	Basement	8,250 (450)	9 ft. (3)	Not permitted	

Note 1: When 2 or more categories of materials are stored in a single pile, the maximum gallonage permitted in that pile must be the smallest of the 2 or more separate maximum gallonages.

Note 2: You must provide aisles so that no container is more than 12 ft. from an aisle. Main aisles shall be at least 8 ft. wide and side aisles at least 4 ft. wide.

(Numbers in parentheses indicate corresponding number of 55-gal. drums.)

Note 3: Each pile must be separated from each other by at least 4 ft.

**TABLE H-15**  
INDOOR PORTABLE TANK STORAGE

Category liquid	Storage level	Protected storage maximum per pile		Unprotected storage maximum per pile	
		Gal.	Ht.	Gal.	Ht.
1	Ground and upper floors	Not permitted		Not permitted	
	Basement	Not permitted		Not permitted	
2	Ground and upper floors	20,000	7 ft.	2,000	7 ft.
	Basement	Not permitted		Not permitted	
3 (with flashpoint <100°F)	Ground and upper floors	40,000	14 ft.	5,500	7 ft.
	Basement	Not permitted		Not permitted	
3 (with flashpoint ≥100°F)	Ground and upper floors	40,000	14 ft.	5,500	7 ft.
	Basement	20,000	7 ft.	Not permitted	
4	Ground and upper floors	60,000	14 ft.	22,000	7 ft.
	Basement	20,000	7 ft.	Not permitted	

Note 1: When 2 or more categories of materials are stored in a single pile, the maximum gallonage permitted in that pile must be the smallest of the 2 or more separate maximum gallonages.

Note 2: You must provide aisles so that no portable tank is more than 12 ft. from an aisle. Main aisles shall be at least 8 ft. wide and side aisles at least 4 ft. wide.

Note 3: Each pile must be separated from each other by at least 4 ft.

(f) **Flammable liquid warehouses or storage buildings.**

(i) If the storage building is located 50 feet or less from a building or line of adjoining property that may be built upon, the exposing wall must be a blank wall having a fire-resistance rating of at least 2 hours.

(ii) The total quantity of liquids within a building must not be restricted, but the arrangement of storage must comply with Table H-14 or H-15.

(iii) You must separate containers in piles by pallets or dunnage where necessary to provide stability and to prevent excessive stress on container walls.

(iv) Portable tanks stored over one tier high must be designed to nest securely, without dunnage and adequate materials handling equipment must be available to handle tanks safely at the upper tier level.

(v) No pile must be closer than three feet to the nearest beam, chord, girder, or other obstruction, and must be 3 feet below sprinkler deflectors or discharge orifices of water spray, or other overhead fire protection systems.

(vi) You must provide aisles of at least 3 feet wide where necessary for reasons of access to doors, windows or standpipe connections.

(6) **Storage outside buildings.**

(a) **General.** Storage outside buildings must be in accordance with Table H-16 or H-17, and (b) and (d) of this subsection.

**TABLE H-16**  
OUTDOOR CONTAINER STORAGE

1 Category	2 Maximum per pile (see note 1)	3 Distance between piles (see note 2)	4 Distance to property line that can be built upon (see notes 3 & 4)	5 Distance to street, alley, public way (see note 4)
	gal.	ft.	ft.	ft.
1 _____	1,100	5	20	10
2 _____	2,200	5	20	10
3 (with flashpoint <100°F) _____	4,400	5	20	10
3 (with flashpoint ≥100°F) _____	8,800	5	10	5
4 _____	22,000	5	10	5

- Note 1: When 2 or more categories of materials are stored in a single pile, the maximum gallonage in that pile must be the smallest of the 2 or more separate gallonages.
- Note 2: Within 200 ft. of each container, there must be 12-ft. wide access way to permit approach of fire control apparatus.
- Note 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 must be doubled.
- Note 4: When total quantity stored does not exceed 50 % of maximum per pile, the distances in columns 4 and 5 may be reduced 50 %, but not less than 3 ft.

(b) **Maximum storage.** A maximum of 1,100 gallons of flammable liquids may be located adjacent to buildings located on the same premises and under the same management provided the provisions of (b)(i) and (ii) of this subsection are complied with.

(i) The building must be a one-story building devoted principally to the handling and storing of flammable liquids or the building must have 2-hour fire-resistive exterior walls having no opening within ten feet of such storage.

(ii) Where quantity stored exceeds 1,100 gallons, or provisions of (b)(i) of this subsection cannot be met, you must maintain a minimum distance of 10 feet between buildings and nearest container of flammable liquid.

**TABLE H-17**  
OUTDOOR PORTABLE TANK STORAGE

1 Category	2 Maximum per pile	3 Distance between piles	4 Distance to property line that can be built upon	5 Distance to street, alley, public way
	gal.	ft.	ft.	ft.
1 _____	2,200	5	20	10
2 _____	4,400	5	20	10
3 (with flashpoint <100°F) _____	8,800	5	20	10
3 (with flashpoint ≥100°F) _____	17,600	5	10	5
4 _____	44,000	5	10	5

- Note 1: When 2 or more categories of materials are stored in a single pile, the maximum gallonage in that pile must be the smallest of the 2 or more separate gallonages.
- Note 2: Within 200 ft. of each portable tank, there must be a 12-ft. wide access way to permit approach of fire control apparatus.
- Note 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 must be doubled.
- Note 4: When total quantity stored does not exceed 50 % of maximum per pile, the distances in columns 4 and 5 may be reduced 50 %, but not less than 3 ft.

(c) **Spill containment.** You must grade the storage area in a manner to divert possible spills away from buildings or other exposures or surround it by a curb at least 6 inches high. When curbs are used, you must make provisions for draining of accumulations of ground or rain water or spills of flammable liquids. Drains must terminate at a safe location and must be accessible to operation under fire conditions.

(d) **Security.** You must protect the storage area against tampering or trespassers where necessary and keep it free of weeds, debris and other combustible material not necessary to the storage.

(7) **Fire control.**

(a) **Extinguishers.** You must make available suitable fire control devices, such as small hose or portable fire extinguishers, at locations where flammable liquids are stored.

(i) At least one portable fire extinguisher having a rating of not less than 12-B units must be located outside of, but not more than 10 feet from, the door opening into any room used for storage.

(ii) At least one portable fire extinguisher having a rating of not less than 12-B units must be located not less than 10 feet, nor more than 25 feet, from any Category 1, 2, or 3 flammable liquid storage area located outside of a storage room but inside a building.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

(b) **Sprinklers.** When sprinklers are provided, you must install them in accordance with chapter 296-24 WAC, Part G-3.

(c) **Open flames and smoking.** You must not permit open flames and smoking in flammable liquid storage areas.

(d) **Water reactive materials.** You must not store materials which will react with water in the same room with flammable liquids.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 17-02-066, § 296-24-33009, filed 1/3/17, effective 2/3/17; WSR 15-24-100, § 296-24-33009, filed 12/1/15, effective 1/5/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1910 Subpart Z. WSR 14-07-086, § 296-24-33009, filed 3/18/14, effective 5/1/14. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 04-18-080, § 296-24-33009, filed 8/31/04, effective 11/1/04. Statutory Authority: RCW 49.17.010, [49.17].040, and [49.17].050. WSR 01-17-033, § 296-24-33009, filed 8/8/01, effective 9/1/01. Statutory Authority: Chapter 49.17 RCW. WSR 94-15-096 (Order 94-07), § 296-24-33009, filed 7/20/94, effective 9/20/94; WSR 91-24-017 (Order 91-07), § 296-24-33009, filed 11/22/91, effective 12/24/91. Statutory Authority: RCW 49.17.040 and 49.17.050. WSR 85-10-004 (Order 85-09), § 296-24-33009, filed 4/19/85; Order 76-6, § 296-24-33009, filed 3/1/76; Order 74-27, § 296-24-33009, filed 5/7/74; Order 73-5, § 296-24-33009, filed 5/9/73 and Order 73-4, § 296-24-33009, filed 5/7/73.]