

tity per control area is based on the material state (solid, liquid or gas) and the material storage or use conditions.

NORMAL TEMPERATURE AND PRESSURE (NTP). A temperature of 70°F (21°C) and a pressure of 1 atmosphere [14.7 psia (101 kPa)].

OUTDOOR CONTROL AREA. An outdoor area that contains hazardous materials in amounts not exceeding the maximum allowable quantities of Table 2703.1.1(3) or 2703.1.1(4).

PERMISSIBLE EXPOSURE LIMIT (PEL). The maximum permitted 8-hour time-weighted-average concentration of an air-borne contaminant. The exposure limits to be utilized are those published in DOL 29 CFR Part 1910.1000. The Recommended Exposure Limit (REL) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), Threshold Limit Value-Time Weighted Average (TLV-TWA) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), Workplace Environmental Exposure Level (WEEL) Guides published by the American Industrial Hygiene Association (AIHA), and other approved, consistent measures are allowed as surrogates for hazardous substances not listed in DOL 29 CFR Part 1910.1000.

PESTICIDE. A substance or mixture of substances, including fungicides, intended for preventing, destroying, repelling or mitigating pests and substances or a mixture of substances intended for use as a plant regulator, defoliant or desiccant. Products defined as drugs in the Federal Food, Drug and Cosmetic Act are not pesticides.

PHYSICAL HAZARD. A chemical for which there is evidence that it is a combustible liquid, compressed gas, cryogenic, explosive, flammable gas, flammable liquid, flammable solid, organic peroxide, oxidizer, pyrophoric or unstable (reactive) or water-reactive material.

PRESSURE VESSEL. A closed vessel designed to operate at pressures above 15 psig (103 kPa).

SAFETY CAN. An approved container of not more than 5-gallon (19 L) capacity having a spring-closing lid and spout cover so designed that it will relieve internal pressure when subjected to fire exposure.

SECONDARY CONTAINMENT. That level of containment that is external to and separate from primary containment.

SEGREGATED. Storage in the same room or inside area, but physically separated by distance from incompatible materials.

SOLID. A material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C).

STORAGE, HAZARDOUS MATERIALS. The keeping, retention or leaving of hazardous materials in closed containers, tanks, cylinders, or similar vessels; or vessels supplying operations through closed connections to the vessel.

■ **SYSTEM.** An assembly of equipment consisting of a tank, container or containers, appurtenances, pumps, compressors and connecting piping.

TANK, ATMOSPHERIC. A storage tank designed to operate at pressures from atmospheric through 1.0 pound per square

inch gauge (760 mm Hg through 812 mm Hg) measured at the top of the tank.

TANK, PORTABLE. A packaging of more than 60-gallon (227 L) capacity and designed primarily to be loaded into or on or temporarily attached to a transport vehicle or ship and equipped with skids, mountings or accessories to facilitate handling of the tank by mechanical means. It does not include any cylinder having less than a 1,000-pound (454 kg) water capacity, cargo tank, tank car tank or trailers carrying cylinders of more than 1,000-pound (454 kg) water capacity.

TANK, STATIONARY. Packaging designed primarily for stationary installations not intended for loading, unloading or attachment to a transport vehicle as part of its normal operation in the process of use. It does not include cylinders having less than a 1,000-pound (454 kg) water capacity.

TANK VEHICLE. A vehicle other than a railroad tank car or boat, with a cargo tank mounted thereon or built as an integral part thereof, used for the transportation of flammable or combustible liquids, LP-gas or hazardous chemicals. Tank vehicles include self-propelled vehicles and full trailers and semitrailers, with or without motive power, and carrying part or all of the load.

UNAUTHORIZED DISCHARGE. A release or emission of materials in a manner which does not conform to the provisions of this code or applicable public health and safety regulations.

USE (MATERIAL). Placing a material into action, including solids, liquids and gases.

VAPOR PRESSURE. The pressure exerted by a volatile fluid as determined in accordance with ASTM D 323.

SECTION 2703 GENERAL REQUIREMENTS

2703.1 Scope. The storage, use and handling of all hazardous materials shall be in accordance with this section.

2703.1.1 Maximum allowable quantity per control area. The maximum allowable quantity per control area shall be as specified in Tables 2703.1.1(1) through 2703.1.1(4).

For retail and wholesale storage and display in Group M occupancies and Group S storage, see Section 2703.11.

2703.1.2 Conversion. Where quantities are indicated in pounds and when the weight per gallon of the liquid is not provided to the fire code official, a conversion factor of 10 pounds per gallon (1.2 kg/L) shall be used.

2703.1.3 Quantities not exceeding the maximum allowable quantity per control area. The storage, use and handling of hazardous materials in quantities not exceeding the maximum allowable quantity per control area indicated in Tables 2703.1.1(1) through 2703.1.1(4) shall be in accordance with Sections 2701 and 2703.

2703.1.4 Quantities exceeding the maximum allowable quantity per control area. The storage and use of hazardous materials in quantities exceeding the maximum allowable quantity per control area indicated in Tables 2703.1.1(1) through 2703.1.1(4) shall be in accordance with this chapter.

TABLE 2703.1.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, l, m, n, p}

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible liquid ^{c, i}	II	H-2 or H-3	Not Applicable	120 ^{d, e}	Not Applicable	Not Applicable	120 ^d	Not Applicable	Not Applicable	30 ^d
	IIIA	H-2 or H-3	Not Applicable	330 ^{d, e}	Not Applicable	Not Applicable	330 ^d	Not Applicable	Not Applicable	80 ^d
	IIIB	Not Applicable	Not Applicable	13,200 ^{e, f}	Not Applicable	Not Applicable	13,200 ^f	Not Applicable	Not Applicable	3,300 ^f
Combustible fiber	Loose Baled ^o	H-3	(100) (1,000)	Not Applicable	Not Applicable	(100) (1,000)	Not Applicable	Not Applicable	(20) (200)	Not Applicable
Cryogenic Flammable	Not Applicable	H-2	Not Applicable	45 ^d	Not Applicable	Not Applicable	45 ^d	Not Applicable	Not Applicable	10 ^d
Consumer fireworks (Class C Common)	1.4G	H-3	125 ^{d, e, l}	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cryogenic Oxidizing	Not Applicable	H-3	Not Applicable	45 ^d	Not Applicable	Not Applicable	45 ^d	Not Applicable	Not Applicable	10 ^d
Explosives	Division 1.1	H-1	1 ^{e, g}	(1) ^{e, g}	Not Applicable	0.25 ^g	(0.25) ^g	Not Applicable	0.25 ^g	(0.25) ^g
	Division 1.2	H-1	1 ^{e, g}	(1) ^{e, g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
	Division 1.3	H-1 or H-2	5 ^{e, g}	(5) ^{e, g}		1 ^f	(1) ^f		1 ^f	(1) ^f
	Division 1.4	H-3	50 ^{e, g}	(50) ^{e, g}		50 ^f	(50) ^f		Not Applicable	Not Applicable
	Division 1.4G	H-3	125 ^{d, e, l}	Not Applicable		Not Applicable	Not Applicable		Not Applicable	Not Applicable
	Division 1.5	H-1	1 ^{e, g}	(1) ^{e, g}		0.25 ^g	(0.25) ^g		Not Applicable	Not Applicable
	Division 1.6	H-1	1 ^{d, e, g}	Not Applicable		Not Applicable	Not Applicable		Not Applicable	Not Applicable
Flammable gas	Gaseous	H-2	Not Applicable	Not Applicable	1,000 ^{d, e}	Not Applicable	Not Applicable	1,000 ^{d, e}	Not Applicable	Not Applicable
	Liquefied									
Flammable liquids ^c	IA	H-2 or H-3	Not Applicable	30 ^{d, e}	Not Applicable	Not Applicable	30 ^d	Not Applicable	Not Applicable	10 ^d
	IB and IC	H-3	Not Applicable	120 ^{d, e}	Not Applicable	Not Applicable	120 ^d	Not Applicable	Not Applicable	30 ^d
Combination Flammable liquid (IA, IB, IC)	Not Applicable	H-2 or H-3	Not Applicable	120 ^{d, e, h}	Not Applicable	Not Applicable	120 ^{d, h}	Not Applicable	Not Applicable	30 ^{d, h}
Flammable solid	Not Applicable	H-3	125 ^{d, e}	Not Applicable	Not Applicable	125 ^d	Not Applicable	Not Applicable	25 ^d	Not Applicable
Organic peroxide	UD	H-1	1 ^{e, g}	(1) ^{e, g}	Not Applicable	0.25 ^g	(0.25) ^g	Not Applicable	0.25 ^g	(0.25) ^g
	I	H-2	5 ^{d, e}	(5) ^{d, e}		1 ^d	(1) ^d		1 ^d	(1) ^d
	II	H-3	50 ^{d, e}	(50) ^{d, e}		50 ^d	(50) ^d		10 ^d	(10) ^d
	III	H-3	125 ^{d, e}	(125) ^{d, e}		125 ^d	(125) ^d		25 ^d	(25) ^d
	IV	Not Applicable	Not Limited	Not Limited		Not Limited	Not Limited		Not Limited	Not Limited
V	Not Applicable	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited			

(continued)

TABLE 2703.1.1(1)—(continued)
 MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, l, m, n, p}

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)
Oxidizer	4	H-1	1 ^g	(1) ^{c, g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
	3 ^k	H-2 or H-3	10 ^{d, e}	(10) ^{d, e}	Not	2 ^d	(2) ^d	Not	2 ^d	(2) ^d
	2	H-3	250 ^{d, e}	(250) ^{d, e}	Applicable	250 ^d	(250) ^d	Applicable	50 ^d	(50) ^d
	1	Not Applicable	4,000 ^{c, f}	(4,000) ^{e, f}		4,000 ^f	(4,000) ^f		1,000 ^f	(1,000) ^f
Oxidizing gas	Gaseous Liquefied	H-3	Not Applicable	Not Applicable 15 ^{d, e}	1,500 ^{d, e}	Not Applicable	Not Applicable 15 ^{d, e}	1,500 ^{d, e}	Not Applicable	Not Applicable
					Not Applicable			Not Applicable		
Pyrophoric	Not Applicable	H-2	4 ^{c, g}	(4) ^{c, g}	50 ^{c, g}	1 ^g	(1) ^g	10 ^{c, g}	0	0
Unstable (reactive)	4	H-1	1 ^{e, g}	(1) ^{c, g}	10 ^{c, g}	0.25 ^g	(0.25) ^g	2 ^{c, g}	0.25 ^g	(0.25) ^g
	3	H-1 or H-2	5 ^{d, e}	(5) ^{d, e}	50 ^{d, e}	1 ^d	(1) ^d	10 ^{d, e}	1 ^d	(1) ^d
	2	H-3	50 ^{d, e}	(50) ^{d, e}	250 ^{d, e}	50 ^d	(50) ^d	250 ^{d, e}	10 ^d	(10) ^d
	1	Not Applicable	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited
Water reactive	3	H-2	5 ^{d, e}	(5) ^{d, e}	Not Applicable	5 ^d	(5) ^d	Not Applicable	1 ^d	(1) ^d
	2	H-3	50 ^{d, e}	(50) ^{d, e}		50 ^d	(50) ^d		10 ^d	(10) ^d
	1	Not Applicable	Not Limited	Not Limited		Not Limited	Not Limited		Not Limited	Not Limited

For SI: 1 cubic foot = 0.02832 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

a. For use of control areas, see Section 2703.8.3.

b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

c. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited providing the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs, consumer or industrial products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

d. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note c also applies, the increase for both notes shall be applied cumulatively.

e. Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, day boxes, gas cabinets, exhausted enclosures or safety cans. Where Note d also applies, the increase for both notes shall be applied cumulatively.

f. Quantities shall not be limited in a building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

g. Allowed only in buildings equipped throughout with an approved automatic sprinkler system.

h. Containing not more than the maximum allowable quantity per control area of Class IA, Class IB or Class IC flammable liquids.

i. Inside a building, the maximum capacity of a combustible liquid storage system that is connected to a fuel-oil piping system shall be 660 gallons provided such system complies with this code.

j. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.

k. A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers is allowed when such materials are necessary for maintenance purposes, operation or sanitation of equipment when the storage containers and the manner of storage are approved.

l. Net weight of pyrotechnic composition of the fireworks. Where the net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks including packaging shall be used.

m. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 2703.1.2.

n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 2703.11, see Table 2703.11.1.

o. Densely-packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.

p. The following shall not be included in determining the maximum allowable quantities:

1. Liquid or gaseous fuel in fuel tanks on vehicles.
2. Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with this code.
3. Gaseous fuels in piping systems and fixed appliances regulated by the *International Fuel Gas Code*.
4. Liquid fuels in piping systems and fixed appliances, regulated by the *International Mechanical Code*.

TABLE 2703.1.1(2)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD^{a,b,c,j}

MATERIAL	STORAGE ^d			USE-CLOSED SYSTEMS ^d			USE-OPEN SYSTEMS ^d	
	Solid pounds ^{e, f}	Liquid gallons (pounds) ^{e, f}	Gas cubic feet at NTP ^e	Solid pounds ^e	Liquid gallons (pounds) ^e	Gas cubic feet at NTP ^e	Solid pounds ^e	Liquid gallons (pounds) ^e
Corrosive	5,000	500	810 ^{f, g}	5,000	500	810 ^{f, g}	1,000	100
Highly toxic	10	(10) ⁱ	20 ^h	10	(10) ⁱ	20 ^h	3	(3) ⁱ
Toxic	500	(500) ⁱ	810 ^f	500	(500) ⁱ	810 ^f	125	(125) ⁱ

For SI: 1 cubic foot = 0.02832 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

- a. For use of control areas, see Section 2703.8.3.
- b. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs consumer or industrial products, and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.
- c. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 2703.11, see Table 2703.11.1.
- d. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
- e. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note f also applies, the increase for both notes shall be applied cumulatively.
- f. Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, gas cabinets, or exhausted enclosures. Where Note e also applies, the increase for both notes shall be applied cumulatively.
- g. A single cylinder containing 150 pounds or less of anhydrous ammonia in a single control area in a nonsprinklered building shall be considered a maximum allowable quantity. Two cylinders, each containing 150 pounds or less in a single control area shall be considered a maximum allowable quantity provided the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- h. Allowed only when stored in approved exhausted gas cabinets or exhausted enclosures.
- i. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.
- j. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 2703.1.2.

TABLE 2703.1.1(3)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD IN AN OUTDOOR CONTROL AREA^{a, b, c}

MATERIAL	CLASS	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
		Solid pounds	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds	Liquid gallons (pounds)
Flammable gas	Gaseous Liquefied	Not Applicable	Not Applicable 30	3,000 Not Applicable	Not Applicable	Not Applicable 15	1,500 Not Applicable	Not Applicable	Not Applicable
Flammable solid	Not Applicable	500	Not Applicable	Not Applicable	250	Not Applicable	Not Applicable	50	Not Applicable
Organic peroxide	Unclassified Detonable	1	(1)	Not Applicable	0.25	(0.25) ^d	Not Applicable	0.25	(0.25) ^d
Organic peroxide	I	20	(20) ^d	Not Applicable	10	(10) ^d	Not Applicable	2	(2) ^d
	II	200	(200) ^d		100	(100) ^d		20	(20) ^d
	III	500	(500) ^d		250	(250) ^d		50	(50) ^d
	IV	1,000	(1,000) ^d		500	(500) ^d		100	(100) ^d
	V	Not Limited	Not Limited		Not Limited	Not Limited		Not Limited	Not Limited
Oxidizer	4	2	(2) ^d	Not Applicable	1	(1) ^d	Not Applicable	0.25	(0.25) ^d
	3	40	(40) ^d		20	(20) ^d		4	(4) ^d
	2	1,000	(1,000) ^d		500	(500) ^d		100	(100) ^d
	1	Not Limited	Not Limited		Not Limited	Not Limited		Not Limited	Not Limited
Oxidizing gas	Gaseous Liquefied	Not Applicable	Not Applicable 60	6,000 Not Applicable	Not Applicable	Not Applicable 30	3,000 Not Applicable	Not Applicable	Not Applicable
Pyrophoric materials	Not Applicable	8	(8) ^d	100	4	(4) ^d	10	0	0
Unstable (reactive)	4	2	(2) ^d	20	1	(1) ^d	2	0.25	(0.25) ^d
	3	20	(20) ^d	200	10	(10) ^d	10	1	1
	2	200	(200) ^d	1,000	100	(100) ^d	250	10	10
	1	Not Limited	Not Limited	1,500	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited
Water reactive	3	20	(20) ^d	Not Applicable	10	(10) ^d	Not Applicable	1	(1) ^d
	2	200	(200) ^d		100	(100) ^d		10	(10) ^d
	1	Not Limited	Not Limited		Not Limited	Not Limited		Not Limited	Not Limited

For SI: 1 pound = 0.454 kg, 1 gallon = 3.785 L, 1 cubic foot = 0.02832 m³.

a. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 2703.1.2.

b. The aggregate quantities in storage and use shall not exceed the quantity listed for storage.

c. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials allowed in outdoor storage per single property under the same ownership or control used for retail or wholesale sales is allowed to exceed the maximum allowable quantity per control area when such storage is in accordance with Section 2703.11.

d. Quantities in parentheses indicate quantity units in parentheses at the head of each column.

TABLE 2703.1.1(4)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A HEALTH HAZARD IN AN OUTDOOR CONTROL AREA^{a,b,c}

MATERIAL	STORAGE			USE-CLOSED SYSTEMS			USE-OPEN SYSTEMS	
	Solid pounds	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds	Liquid gallons (pounds)
Corrosives	20,000	2,000	1,620 ^b	10,000	1,000	810 ^b	1,000	100
Highly toxics	20	(20) ^f	40 ^d	10	(10) ^f	20 ^d	3	(3) ^f
Toxics	1,000	(1,000) ^{e,f}	1,620	500	50 ^e	810	25	(25) ^{e,f}

For SI: 1 cubic foot = 0.02832 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L, 1 pound per square inch absolute = 6.895 kPa. °C = [(°F)-32]/1.8].

- a. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 2703.1.2.
- b. The aggregate quantities in storage and use shall not exceed the quantity listed for storage.
- c. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials allowed in outdoor storage per single property under the same ownership or control used for retail or wholesale sales is allowed to exceed the maximum allowable quantity per control area when such storage is in accordance with Section 2703.11.
- d. Allowed only when used in approved exhausted gas cabinets, exhausted enclosures or under fume hoods.
- e. The maximum allowable quantity per control area for toxic liquids with vapor pressures in excess of 1 psia at 77°F shall be the maximum allowable quantity per control area listed for highly toxic liquids.
- f. Quantities in parentheses indicate quantity units in parentheses at the head of each column.
- g. Two cylinders, each cylinder containing 150 pounds or less of anhydrous ammonia, shall be considered a maximum allowable quantity in an outdoor control area.