

OHIO ADMINISTRATIVE CODE 1301:7-7-35

FLAMMABLE GASES

(A) SECTION 3501 GENERAL

(1) **3501.1 Scope.** The storage and use of flammable gases shall be in accordance with this *rule*. Compressed gases shall also comply with *rule 1301:7-7-30 of the Administrative Code* and gaseous hydrogen systems shall also comply with NFPA 55 as listed in *rule 1301:7-7-45 of the Administrative Code*.

Exceptions:

1. Gases used as refrigerants in refrigeration systems (see *paragraph (F)(606) of rule 1301:7-7-06 of the Administrative Code*).
2. Liquefied petroleum gases and natural gases regulated by *rule 1301:7-7-38 of the Administrative Code*.
3. Fuel gas systems and appliances regulated under the *International Fuel Gas Code as listed in rule 1301:7-7-45 of the Administrative Code*.
4. Hydrogen motor fuel-dispensing stations designed and constructed in accordance with *rule 1301:7-7-22 of the Administrative Code*.
5. Pyrophoric gases in accordance with *rule 1301:7-7-41 of the Administrative Code*.

(2) **3501.2 Permits.** Permits shall be required as set forth in *rule 1301:7-7-01 of the Administrative Code*.

(B) SECTION 3502 DEFINITIONS

(1) **3502.1 Definitions.** The following words and terms shall, for the purposes of this rule and as used elsewhere in this code, have the meanings shown herein.

“Flammable gas.” A material which is a gas at 68°F (20°C) or less at 14.7 pounds per square inch atmosphere (psia) (101 kPa) of pressure [a material that has a boiling point of 68°F (20°C) or less at 14.7 psia (101 kPa)] which:

1. Is ignitable at 14.7 psia (101 kPa) when in a mixture of 13 per cent or less by volume with air; or
2. Has a flammable range at 14.7 psia (101 kPa) with air of at least 12 per cent, regardless of the lower limit.

The limits specified shall be determined at 14.7 psi (101 kPa) of pressure and a temperature of 68°F (20°C) in accordance with ASTM E 681 as listed in *rule 1301:7-7-45 of the Administrative Code*.

“Flammable liquefied gas.” A liquefied compressed gas which, under a charged pressure, is partially liquid at a temperature of 68°F (20°C) and which is flammable.

(C) SECTION 3503 GENERAL REQUIREMENTS

(1) **3503.1 Quantities not exceeding the maximum allowable quantity per control area.** The storage and use of flammable gases in amounts not exceeding the maximum allowable quantity per control area indicated in *paragraph (C)(1)(2703.1) of rule 1301:7-7-27 of the Administrative Code* shall be in accordance with *paragraphs (A)(2701) and (C)(2703) of rule 1301:7-7-27 of the Administrative Code*, and *paragraphs (A)(3501) and (C)(3503) of this rule*.

(a) **3503.1.1 Special limitations for indoor storage and use.** Flammable gases shall not be stored or used in Group A, B, E, I, or R occupancies.

Exceptions:

1. Cylinders not exceeding a capacity of 250 cubic feet (7.08 m³) each at normal temperature and pressure (NTP) used for maintenance purposes, patient care or operation of equipment.
2. Food service operations in accordance with *paragraph (C)(2)(a)(vii)(3803.2.1.7) of rule 1301:7-7-38 of the Administrative Code*.

(i) **3503.1.1.1 Medical gases.** Medical gas system supply cylinders shall be located in medical gas storage rooms or gas cabinets as set forth in *paragraph (F)(3006) of rule 1301:7-7-30 of the Administrative Code*.

(ii) **3503.1.1.2 Aggregate quantity.** The aggregate quantities of flammable gases used for maintenance purposes and operation of equipment shall not exceed the maximum allowable quantity per control area indicated in *Table 2703.1.1(1) of rule 1301:7-7-27 of the Administrative Code*.

(b) **3503.1.2 Storage containers.** Cylinders and pressure vessels for flammable gases shall be designed, constructed, installed, tested and maintained in accordance with *rule 1301:7-7-30 of the Administrative Code*.

(c) **3503.1.3 Emergency shutoff.** Compressed gas systems conveying flammable gases shall be provided with approved manual or automatic emergency shutoff valves that can be activated at each point of use and at each source.

(i) **3503.1.3.1 Shutoff at source.** A manual or automatic fail-safe emergency shutoff valve shall be installed on supply piping at the cylinder or bulk source. Manual or automatic cylinder valves are allowed to be used as the required emergency shutoff valve when the source of supply is limited to unmanifolded cylinder sources.

(ii) **3503.1.3.2 Shutoff at point of use.** A manual or automatic emergency shutoff valve shall be installed on the supply piping at the point of use or at a point where the equipment using the gas is connected to the supply system.

(d) **3503.1.4 Ignition source control.** Ignition sources in areas containing flammable gases in storage or in use shall be controlled in accordance with *paragraph (C)(7)(2703.7) of rule 1301:7-7-27 of the Administrative Code.*

Exception: Fuel gas systems connected to building service utilities in accordance with the *International Fuel Gas Code as listed in rule 1301:7-7-45 of the Administrative Code.*

(i) **3503.1.4.1 Static producing equipment.** Static-producing equipment located in flammable gas storage areas shall be grounded.

(ii) **3503.1.4.2 Signs.** “No Smoking” signs shall be posted at entrances to rooms and in areas containing flammable gases in accordance with *paragraph (C)(7)(a)(2703.7.1) of rule 1301:7-7-27 of the Administrative Code.*

(e) **3503.1.5 Electrical.** Electrical wiring and equipment shall be installed and maintained in accordance with the *building code and NFPA 70 as listed in rule 1301:7-7-45 of the Administrative Code.*

(i) **3503.1.5.1 Bonding of electrically conductive materials and equipment.** Exposed noncurrent-carrying metal parts, including metal gas piping systems, that are part of flammable gas supply systems located in a hazardous (electrically classified) location shall be bonded to a grounded conductor in accordance with the provisions of the *building code and NFPA 70 as listed in rule 1301:7-7-45 of the Administrative Code.*

(ii) **3503.1.5.2 Static-producing equipment.** Static-producing equipment located in flammable gas storage or use areas shall be grounded.

(2) **3503.2 Quantities exceeding the maximum allowable quantity per control area.** The storage and use of flammable gases in amounts exceeding the maximum allowable quantity per control area indicated in *paragraph (C)(1)(2703.1) of rule 1301:7-7-27 of the Administrative Code* shall be in accordance with *rule 1301:7-7-27 of the Administrative Code* and this rule.

(D) SECTION 3504 STORAGE

(1) **3504.1 Indoor storage.** Indoor storage of flammable gases in amounts exceeding the maximum allowable quantity per control area indicated in Table 2703.1.1(1) of *rule 1301:7-7-27 of the Administrative Code*, shall be in accordance with *paragraphs (A)(2701), (C)(2703) and (D)(2704) of rule 1301:7-7-27 of the Administrative Code*, and this rule.

(a) **3504.1.1 Explosion control.** Buildings or portions thereof containing flammable gases shall be provided with explosion control in accordance with *paragraph (K)(911) of rule 1301:7-7-09 of the Administrative Code.*

(2) **3504.2 Outdoor storage.** Outdoor storage of flammable gases in amounts exceeding the maximum allowable quantity per control area indicated in Table 2703.1.1(3) of *rule 1301:7-7-27 of the Administrative Code* shall be in accordance with *paragraphs (A)(2701), (C)(2703) and (D)(2704) of rule 1301:7-7-27 of the Administrative Code*, and this rule.

(a) **3504.2.1 Distance limitation to exposures.** Outdoor storage or use of flammable compressed gases shall be located from a lot line, public street, public alley, public way, or building not associated with the manufacture or distribution of such gases in accordance with Table 3504.2.1 of this rule.

(E) SECTION 3505 USE

(1) **3505.1 General.** The use of flammable gases in amounts exceeding the maximum allowable quantity per control area indicated in Table 2703.1.1(1) or 2703.1.1(3) of *rule 1301:7-7-27 of the Administrative Code* shall be in accordance with *paragraphs (A)(2701), (C)(2703) and (E)(2705) of rule 1301:7-7-27 of the Administrative Code*, and this rule.

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**TABLE 3504.2.1
FLAMMABLE GASES-DISTANCE FROM STORAGE TO EXPOSURES**

MAXIMUM AMOUNT PER STORAGE AREA (cubic feet)	MINIMUM DISTANCE BETWEEN STORAGE AREAS (feet)	MINIMUM DISTANCE TO LOT LINES OF PROPERTY THAT CAN BE BUILT UPON (feet) ^a	MINIMUM DISTANCE TO PUBLIC STREETS, PUBLIC ALLEYS OR PUBLIC WAYS (feet) ^a	MINIMUM DISTANCE TO BUILDINGS ON THE SAME PROPERTY		
				Nonrated construction or openings within 25 feet	2-hour construction and no openings within 25 feet	4-hour construction and no openings within 25 feet
0 - 4,225	5	5	5	5	0	0
4,226 - 21,125	10	10	10	10	5	0
21,126 - 50,700	10	15	15	20	5	0
50,701 - 84,500	10	20	20	20	5	0
84,501 or greater	20	25	25	20	5	0

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m³.

a. The minimum required distances shall not apply when fire barriers without openings or penetrations having a minimum fire-resistance rating of 2 hours interrupt the line of sight between the storage and the exposure. The configuration of the fire barrier shall be designed to allow natural ventilation to prevent the accumulation of hazardous gas concentrations.