



Ohio Administrative Code

Rule 1301:7-7-63 Oxidizers, oxidizing gases and oxidizing cryogenic fluids.

Effective: December 15, 2017

(A) Section 6301 General

(1) 6301.1 Scope. The storage and use of oxidizing materials shall be in accordance with this rule and rule 1301:7-7-50 of the Administrative Code. Oxidizing gases shall also comply with rule 1301:7-7-53 of the Administrative Code. Oxidizing cryogenic fluids shall also comply with rule 1301:7-7-55 of the Administrative Code.

Exceptions:

1. Display and storage in Group M and storage in Group S occupancies complying with paragraph (C)(11)(5003.11) of rule 1301:7-7-50 of the Administrative Code.
2. Bulk oxygen systems at industrial and institutional consumer sites shall be in accordance with NFPA 55 as listed in rule 1301:7-7-80 of the Administrative Code.
3. Liquid oxygen stored or used in home health care in Group I-1, I-4 and R occupancies in accordance with paragraph (F)(6306) of this rule.

(2) 6301.2 Permits. Permits shall be required as set forth in rule 1301:7-7-01 of the Administrative Code.

(B) Section 6302 Definitions

(1) 6302.1 Definitions. The following terms are defined in rule 1301:7-7-02 of the Administrative Code.

"Bulk oxygen system."



"Liquid oxygen ambulatory container."

"Liquid oxygen home care container."

"Oxidizer."

"Class 4."

"Class 3."

"Class 2."

"Class 1."

"Oxidizing cryogenic fluid."

"Oxidizing gas."

(C) Section 6303 General requirements

(1) 6303.1 Quantities not exceeding the maximum allowable quantity per control area. The storage and use of oxidizing materials in amounts not exceeding the maximum allowable quantity per control area indicated in paragraph (C)(1)(5003.1) of rule 1301:7-7-50 of the Administrative Code shall be in accordance with paragraphs (A)(5001) and (C)(5003) of rule 1301:7-7-50 of the Administrative Code and paragraphs (A)(6301) and (C)(6303) of this rule. Oxidizing gases shall also comply with rule 1301:7-7-53 of the Administrative Code.

(a) 6303.1.1 Special limitations for indoor storage and use by occupancy. The indoor storage and use of oxidizing materials shall be in accordance with paragraphs (C)(1)(a)(i)(6303.1.1.1) to (C)(1)(a)(iii)(6303.1.1.3) of this rule.

(i) 6303.1.1.1 Class 4 liquid and solid oxidizers. The storage and use of Class 4 liquid and solid oxidizers shall comply with paragraphs (C)(1)(a)(i)(a)(6303.1.1.1.1) to (C)(1)(a)(i)(d)(6303.1.1.1.4)



of this rule.

(a) 6303.1.1.1.1 Group A, E, I or U occupancies. In Group A, E, I or U occupancies, any amount of Class 4 liquid and solid oxidizers shall be stored in accordance with the following:

(i) Class 4 liquid and solid oxidizers shall be stored in hazardous materials storage cabinets complying with paragraph (C)(8)(g)(5003.8.7) of rule 1301:7-7-50 of the Administrative Code.

(ii) The hazardous materials storage cabinets shall not contain other storage.

(b) 6303.1.1.1.2 Group R occupancies. Class 4 liquid and solid oxidizers shall not be stored or used within Group R occupancies.

(c) 6303.1.1.1.3 Offices, and retail sales areas. Class 4 liquid and solid oxidizers shall not be stored or used in offices or retail sales areas of Group B, F, M or S occupancies.

(d) 6303.1.1.1.4 Classrooms. In classrooms of Group B, F or M occupancies, any amount of Class 4 liquid and solid oxidizers shall be stored in accordance with the following:

(i) Class 4 liquid and solid oxidizers shall be stored in hazardous materials storage cabinets complying with paragraph (C)(8)(g)(5003.8.7) of rule 1301:7-7-50 of the Administrative Code.

(ii) Hazardous materials storage cabinets shall not contain other storage.

(ii) 6303.1.1.2 Class 3 liquid and solid oxidizers. Not more than 200 pounds (91 kg) of solid or 20 gallons (76 L) of liquid Class 3 oxidizer is allowed in storage and use where such materials are necessary for maintenance purposes or operation of equipment. The oxidizers shall be stored in approved containers and in an approved manner.

(iii) 6303.1.1.3 Oxidizing gases. Except for cylinders of nonliquefied compressed gases not exceeding a capacity of 250 cubic feet (7 m³) or liquefied compressed gases not exceeding a capacity of 46 pounds (21kg) each used for maintenance purposes, patient care or operation of equipment, oxidizing gases shall not be stored or used in Group A, E, I, or R occupancies or in



offices in Group B occupancies.

The aggregate quantities of gases used for maintenance purposes and operation of equipment shall not exceed the maximum allowable quantity per control area listed in Table 5003.1.1(1) of rule 1301:7-7-50 of the Administrative Code.

Medical gas systems and medical gas supply cylinders shall also be in accordance with paragraph (F)(5306) of rule 1301:7-7-53 of the Administrative Code.

(b) 6303.1.2 Emergency shutoff. Compressed gas systems conveying oxidizer 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) 6303.1.2.1 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 where the source of supply is limited to unmanifolded cylinder sources.

(ii) 6303.1.2.2 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.

(c) 6303.1.3 Ignition source control. Ignition sources in areas containing oxidizing gases shall be controlled in accordance with paragraph (C)(7)(5003.7) of rule 1301:7-7-50 of the Administrative Code.

(2) 6303.2 Class I oxidizer storage configuration. The storage configuration of Class I liquid and solid oxidizers shall be as set forth in Table 6303.2 of this rule.

Storage configuration	Limits (feet)
Piles	
Maximum width	24
Maximum height	20



Maximum distance to aisle	12
Minimum distance to next pile ^a	4
Minimum distance to walls ^b	2
Maximum quantity per pile	200 tons
Maximum quantity per building	No limit

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 ton = 0.907185 metric ton.

a. The minimum aisle width shall be equal to the pile height, but not less than 4 feet and not greater than 8 feet.

b. There shall be no minimum distance from the pile to a wall for amounts less than 9,000 pounds.

(D) Section 6304 Storage

(1) 6304.1 Indoor storage. Indoor storage of oxidizing materials in amounts exceeding the maximum allowable quantity per control area indicated in Table 5003.1.1(1) of rule 1301:7-7-50 of the Administrative Code shall be in accordance with paragraphs (A)(5001), (C)(5003) and (D)(5004) of rule 1301:7-7-50 of the Administrative Code and this rule.

(a) 6304.1.1 Explosion control. Indoor storage rooms, areas and buildings containing Class 4 liquid or solid oxidizers shall be provided with explosion control in accordance with paragraph (K)(911) of rule 1301:7-7-09 of the Administrative Code.

(b) 6304.1.2 Automatic sprinkler system. The automatic sprinkler system shall be designed in accordance with NFPA 400 as listed in rule 1301:7-7-80 of the Administrative Code.

(c) 6304.1.3 Liquid-tight floor. In addition to paragraph (D)(12)(5004.12) of rule 1301:7-7-50 of the Administrative Code, floors of storage areas for liquid and solid oxidizers shall be of liquid-tight construction.

(d) 6304.1.4 Smoke detection. An approved supervise smoke detection system in accordance with paragraph (G)(907) of rule 1301:7-7-09 of the Administrative Code shall be installed in liquid and



solid oxidizer storage areas. Activation of the smoke detection system shall sound a local alarm.

Exception: Detached storage buildings protected by an approved automatic fire-extinguishing system.

(e) 6304.1.5 Storage conditions. The maximum quantity of oxidizers per building in storage buildings shall not exceed those quantities set forth in Tables 6304.1.5(1) to 6304.1.5(3) of this rule.

The storage configuration for liquid and solid oxidizers shall be as set forth in Table 6303.2 and Tables 6304.1.5(1) to 6304.1.5(3) of this rule.

Class 2 oxidizers shall not be stored in basements except when such storage is in stationary tanks.

Class 3 and 4 oxidizers in amounts exceeding the maximum allowable quantity per control area set forth in paragraph (C)(1)(5003.1) of rule 1301:7-7-50 of the Administrative Code shall be stored on the ground floor only.

	Limits	Storage configuration	Control area storage
Group H occupancy storage	Detached storage	Piles	
		Maximum width	16 feet
25 feet	25 feet	Maximum height	Note a
Note a	Note a	Maximum distance to aisle	8 feet
12 feet	12 feet	Minimum distance to next pile	Note b
Note b	Note b	Minimum distance to walls	2 feet
2 feet ^c	2 feet ^c	Maximum quantity per pile	MAQ
100 tons	100 tons	Maximum quantity per building	MAQ

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 ton = 0.907185 metric ton.

a. Maximum storage height in nonsprinklered buildings is limited to 6 feet. In sprinklered buildings



see NFPA 400 as listed in rule 1301:7-7-80 of the Administrative Code for storage heights based on ceiling sprinkler protection.

b. The minimum aisle width shall be equal to the pile height, but not less than 4 feet and not greater than 8 feet.

c. For protection level and detached storage under 4,500 pounds, there shall be no minimum separation distance between the pile and any wall.

	Limits	Storage configuration	Control area storage
Group H occupancy storage	Detached storage	Piles	
		Maximum width	12 feet
16 feet	20 feet	Maximum height	Note a
Note a	Note a	Maximum distance to aisle	8 feet
10 feet	10 feet	Minimum distance to next pile	Note b
Note b	Note b	Minimum distance to walls	4 feet
4 feet ^c	4 feet ^c	Maximum quantity per pile	NA
30 tons	100 tons	Maximum quantity per building	MAQ

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 ton = 0.907185 metric ton.

a. Maximum storage height in nonsprinklered buildings is limited to 6 feet. In sprinklered buildings see NFPA 400 as listed in rule 1301:7-7-80 of the Administrative Code for storage heights based on ceiling sprinkler protection.

b. The minimum aisle width shall be equal to the pile height, but not less than 4 feet and not greater than 8 feet.

c. For protection level and detached storage under 2,300 pounds, there shall be no minimum separation distance between the pile and any wall.



Storage configuration	Limits (feet)
Piles	
Maximum length	10
Maximum width	4
Maximum height	8
Minimum distance to next pile	8
Maximum quantity per building	No limit

For SI: 1 foot = 304.8 mm.

(f) 6304.1.6 Separation of Class 4 oxidizers from other materials. In addition to the requirements in paragraph (C)(9)(h)(5003.9.8) of rule 1301:7-7-50 of the Administrative Code, Class 4 oxidizer liquids and solids shall be separated from other hazardous materials by not less than a 1-hour fire barrier or stored in hazardous materials storage cabinets.

(g) 6304.1.7 Contamination. Liquid and solid oxidizers shall not be stored on or against combustible surfaces. Liquid and solid oxidizers shall be stored in a manner to prevent contamination.

(h) 6304.1.8 Detached storage. Storage of liquid and solid oxidizers shall be in detached buildings where required by paragraph (C)(8)(b)(5003.8.2) of rule 1301:7-7-50 of the Administrative Code.

(i) 6304.1.8.1 Separation distance. Detached storage buildings for Class 4 oxidizer liquids and solids shall be located not less than 50 feet (15 240 mm) from other hazardous materials storage.

(2) 6304.2 Outdoor storage. Outdoor storage of oxidizing materials in amounts exceeding the maximum allowable quantities per control area set forth in Table 5003.1.1(3) of rule 1301:7-7-50 of the Administrative Code shall be in accordance with paragraphs (A)(5001), (C)(5003) and (D)(5004) of rule 1301:7-7-50 of the Administrative Code and this rule. Oxidizing gases shall also comply with rule 1301:7-7-53 of the Administrative Code.

(a) 6304.2.1 Distance from storage to exposures for oxidizing gases. Outdoor storage areas for oxidizing gases shall be located in accordance with Table 6304.2.2 of this rule.



(i) 6304.2.1.1 Oxidizing cryogenic fluids. Outdoor storage areas for oxidizing cryogenic fluids shall be located in accordance with rule 1301:7-7-55 of the Administrative Code.

(b) 6304.2.2 Storage configuration for liquid and solid oxidizers. Storage configuration for liquid and solid oxidizers shall be in accordance with Table 6303.2 and Tables 6304.1.5(1) to 6304.1.5(3) of this rule.

Quantity of gas stored (cubic feet at NTP)	Distance to a building not associated with the manufacture or distribution of oxidizing gases or public way or lot line that can be built upon (feet)	Distance between storage areas (feet)
0-50,000	5	5
50,001 - 100,000	10	10
100,001 or greater	15	10

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

a. The minimum required distances shall not apply where 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.

(c) 6404.2.3 Storage configuration for oxidizing gases. Storage configuration for oxidizing gases shall be in accordance with Table 6304.2.2 of this rule.

(E) Section 6305 Use

(1) 6305.1 Scope. The use of oxidizers in amounts exceeding the maximum allowable quantity per control area indicated in Table 5003.1.1(1) or 5003.1.1(3) of rule 1301:7-7-50 of the Administrative Code shall be in accordance with paragraphs (A)(5001), (C)(5003) and (E)(5005) of rule 1301:7-7-50 of the Administrative Code and this rule. Oxidizing gases shall also comply with rule 1301:7-7-53 of the Administrative Code.



(F) Section 6306 Liquid oxygen in home health care

(1) 6306.1 General. The storage and use of liquid oxygen (LOX) in home health care in Groups I-1, I-4 and R occupancies shall comply with paragraphs (F)(2)(6306.2) to (F)(6)(6306.6) of this rule, or shall be stored and used in accordance with rule 1301:7-7-50 of the Administrative Code.

(2) 6306.2 Information and instructions to be provided. The seller of liquid oxygen shall provide the user with information in written form that includes, but is not limited to, the following:

(a) Manufacturer's instructions and labeling for safe storage and use of the containers.

(b) Locating containers away from ignition sources, exits, electrical hazards and high temperature devices in accordance with paragraph (F)(3)(c)(6306.3.3) of this rule.

(c) Restraint of containers to prevent falling in accordance with paragraph (F)(3)(d)(6306.3.4) of this rule.

(d) Requirements for handling containers in accordance with paragraph (F)(3)(e)(6306.3.5) of this rule.

(e) Safeguards for refilling containers in accordance with paragraph (F)(3)(f)(6306.3.6) of this rule.

(f) Signage requirements in accordance with paragraph (F)(6)(6306.6) of this rule.

(3) 6306.3 Liquid oxygen home care containers. Containers of liquid oxygen in home health care shall be in accordance with paragraphs (F)(3)(a)(6306.3.1) to (F)(3)(f)(6306.3.6) of this rule.

(a) 6306.3.1 Maximum individual container capacity. Liquid oxygen home care containers shall not exceed an individual capacity of 15.8 gallons (60 liters) in Group I-1, I-4 and R occupancies. Liquid oxygen ambulatory containers are allowed in Group I-1, I-4 and R occupancies. Containers of liquid oxygen in home health care shall also be stored, used and filled in accordance with paragraph (F)(6306) of this rule and paragraphs (C)(1)(5503.1) and (C)(2)(5503.2) of rule 1301:7-7-55 of the Administrative Code.



(b) 6306.3.2 Manufacturer's instructions and labeling. Containers shall be stored, used and operated in accordance with the manufacturer's instructions and labeling.

(c) 6306.3.2 Locating containers. Containers shall not be located in areas where any of the following conditions exist:

(i) They can be overturned due to operation of a door.

(ii) They are in the direct path of egress.

(iii) They are subject to falling objects.

(iv) They can become part of an electrical circuit.

(v) Open flames and high temperature devices can cause a hazard.

(d) 6306.3.4 Restraining containers. Liquid oxygen home care containers shall be restrained while in storage or use to prevent falling caused by contact, vibration or seismic activity. Containers shall be restrained by one of the following methods:

(i) Restraining containers to a fixed object with one or more restraints.

(ii) Restraining containers within a framework, stand or assembly designed to secure the container.

(iii) Restraining containers by locating a container against two points of contact such as the walls of a corner of a room or a wall and a secure furnishing or object such as a desk.

(e) 6306.3.5 Container handling. Containers shall be handled by use of a cart or hand truck designed for such use.

Exceptions:



1. Liquid oxygen home care containers equipped with a roller base.

2. Liquid oxygen ambulatory containers are allowed to be hand carried.

(f) 6306.3.6 Filling of containers. The filling of containers shall be in accordance with paragraphs (F)(3)(f)(i)(6306.3.6.1) to (F)(3)(f)(iii)(6306.3.6.3) of this rule.

(i) 6306.3.6.1 Filling location. Liquid oxygen home care containers and ambulatory containers shall be filled outdoors.

Exception: Liquid oxygen ambulatory containers are allowed to be filled indoors where the supply container is specifically designed for filling such containers and written instructions are provided by the container manufacturer.

(ii) 6306.3.6.2 Incompatible surfaces. A drip pan compatible with liquid oxygen shall be provided under home care container fill and vent connections during the filling process in order to protect against liquid oxygen spillage from coming into contact with combustible surfaces, including asphalt.

(iii) 6306.3.6.3 Open flames and high temperature devices. The use of open flames and high temperature devices shall be in accordance with paragraph (C)(7)(b)(5003.7.2) of rule 1301:7-7-50 of the Administrative Code.

(4) 6306.4 Maximum aggregate quantity. The maximum aggregate quantity of liquid oxygen allowed in storage and in use in each dwelling unit shall be 31.6 gallons (120 L).

Exceptions:

1. The maximum aggregate quantity of liquid oxygen allowed in Group I-4 occupancies shall be limited by the maximum allowable quantity set forth in Table 5003.1.1(1) of rule 1301:7-7-50 of the Administrative Code.

2. Where individual sleeping rooms are separated from the remainder of the dwelling unit by fire



barriers constructed in accordance with section 707 of the building code as listed in rule 1301:7-7-80 of the Administrative Code and horizontal assemblies constructed in accordance with section 711 of the building code as listed in rule 1301:7-7-80 of the Administrative Code, or both, having a minimum fire-resistance rating of 1 hour, the maximum aggregate quantity per dwelling unit shall be increased to allow not more than 31.6 gallons (120 L) of liquid oxygen per sleeping room.

(5) 6306.5 Smoking prohibited. Smoking shall be prohibited in rooms or areas where liquid oxygen is in use.

(6) 6306.6 Signs. Warning signs for occupancies using home health care liquid oxygen shall be in accordance with paragraphs (F)(6)(a)(6306.6.1) and (F)(6)(b)(6306.6.2) of this rule.

(a) 6306.6.1 No smoking sign. A sign stating "OXYGEN-NO SMOKING" shall be posted in each room or area where liquid oxygen containers are stored, used or filled.

(b) 6306.6.2 Premises signage. Where required by the fire code official, each dwelling unit or sleeping unit shall have an approved sign indicating that the unit contains liquid oxygen home care containers.

(7) 6306.7 Fire department notification. Where required by the fire code official, the liquid oxygen seller shall notify the fire department of the locations of liquid oxygen home care containers.