

CHAPTER 39 ORGANIC PEROXIDES

SECTION FC 3901 GENERAL

3901.1 Scope. This chapter shall govern the manufacture, storage, handling and use of organic peroxides.

3901.2 Permits. Permits shall be required for organic peroxides as set forth in FC105.6.

3901.3 General. Organic peroxides shall be manufactured, stored, handled and used in accordance with this chapter and FC Chapter 27.

3901.4 Prohibited manufacture, storage, handling and use. It shall be unlawful to manufacture, store, handle and/or use unclassified detonable organic peroxides except as specifically authorized by FC Chapter 33.

3901.5 Supervision. The handling and use of organic peroxides in quantities requiring a permit shall be under the personal supervision of a certificate of fitness holder. The storage of organic peroxides in quantities requiring a permit shall be under the general supervision of a certificate of fitness holder.

SECTION FC 3902 DEFINITIONS

3902.1 Definition. The following term shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ORGANIC PEROXIDE. An organic compound having a double oxygen or peroxy (-O-O-) in its chemical structure. Organic peroxides can present an explosion hazard (detonation or deflagration), can be shock sensitive, can be susceptible to decomposition into various unstable compounds over an extended period of time and are classified as follows based upon their hazardous properties:

Class I. Organic peroxides that are capable of deflagration but not detonation.

Class II. Organic peroxides that burn very rapidly and that pose a moderate reactivity hazard.

Class III. Organic peroxides that burn rapidly and that pose a moderate reactivity hazard.

Class IV. Organic peroxides that burn in the same manner as ordinary combustibles and that pose a minimal reactivity hazard.

Class V. Organic peroxides that burn with less intensity than ordinary combustibles or do not sustain combustion and that pose no reactivity hazard.

Unclassified detonable. Organic peroxides that are capable of detonation and pose an extremely high-explosion hazard through rapid explosive decomposition.

SECTION FC 3903 GENERAL REQUIREMENTS

3903.1 Quantities not exceeding the maximum allowable quantity per control area. The storage, handling and use of organic peroxides in amounts not exceeding the maximum allowable quantity per control area indicated in FC2703.1 shall be in accordance with FC 2701, 2703, 3901, 3903 and 3906.

3903.1.1 Prohibited indoor storage, handling and use by occupancy. It shall be unlawful to store, handle or use Class I organic peroxides:

1. in Group A, E, I, R or U occupancies.
2. in offices in Group B, F, M or S occupancies, and any areas of such occupancies that are accessible to the public.

3903.2 Quantities exceeding the maximum allowable quantity per control area. The storage, handling and use of organic peroxides in amounts exceeding the maximum allowable quantity per control area indicated in FC2703.1 shall be in accordance with FC Chapter 27 and this chapter.

3903.3 Multiple hazard sign. Where more than one class of organic peroxide formulations is stored in immediate proximity to one another, such area shall be provided with hazard identification signs pursuant to FC Chapter 27 for the most severe class present.

3903.4 Multiple class storage. Except as otherwise specifically provided in this code, where more than one class of organic peroxide is stored in the same control area, the maximum quantity allowed of each organic peroxide shall be limited as follows: the maximum quantity shall be reduced by multiplying the maximum allowable quantity for each such material by the proportional amount that such material bears to the total quantity of organic peroxide stored in the control area. The total of the proportional amounts shall not exceed 100 percent.

3903.5 Temperature-sensitive material. Where the required storage temperature range, as specified by the manufacturer, extends beyond normal ambient temperatures, high or low temperature limit switches, as applicable, shall be provided in addition to normal temperature controls. These limit switches shall actuate an alarm in a supervised area to ensure reporting to the fire department.

SECTION FC 3904 STORAGE

3904.1 Indoor storage. Indoor storage of organic peroxides in amounts exceeding the maximum allowable quantity per control area indicated in FC Table 2703.1.1(1) shall be in accordance with FC 2701, 2703, 2704 and this chapter.

3904.1.1 Detached storage. Storage of organic peroxides shall be in a detached building when required by FC2703.8.2.

3904.1.2 Distance from detached storage buildings to exposures. In addition to the requirements of the Building Code, detached storage buildings shall be located in accordance with FC Table 3904.1.2.

**FC TABLE 3904.1.2
ORGANIC PEROXIDES—DISTANCE FROM DETACHED STORAGE BUILDINGS OR OUTDOOR STORAGE AREAS TO EXPOSURES**

ORGANIC PEROXIDE CLASS	MAXIMUM STORAGE QUANTITY (POUNDS) AT MINIMUM SEPARATION DISTANCE					
	Distance to buildings, lot lines, public streets, private roads or means of egress			Distance between individual detached storage buildings or individual outdoor storage areas		
	50 feet	100 feet	150 feet	20 feet	75 feet	100 feet
I	2,000	20,000	175,000	2,000	20,000	175,000
II	100,000	200,000	No Limit	100,000 ^a	No Limit	No Limit
III	200,000	No Limit	No Limit	200,000 ^a	No Limit	No Limit
IV	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit
V	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

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

a. When the amount of organic peroxide stored exceeds this amount, the minimum separation shall be 50 feet.

3904.1.3 Liquid-tight floor. In addition to the requirements of FC2704.12, floors of storage areas shall be of liquid-tight construction.

3904.1.4 Electrical wiring and equipment. In addition to the requirements of FC2703.9.4, electrical wiring and equipment in storage areas for Class I or II organic peroxides shall comply with the requirements of the Electrical Code for electrical Class I, Division 2 locations.

3904.1.5 Smoke detection. An approved supervised smoke detection system in accordance with the construction codes, including the Building Code, shall be provided in rooms or areas where Class I, II or III organic peroxides are stored. Activation of the smoke detection system shall sound a local alarm.

Exception: A smoke detection system shall not be required in detached storage buildings equipped throughout with a fire extinguishing system.

3904.1.6 Maximum quantities. Maximum allowable quantities per building in a mixed occupancy building shall not exceed the amounts set forth in FC Table 2703.8.2. Maximum allowable quantities per building in a detached storage building shall not exceed the amounts specified in FC Table 3904.1.2.

3904.1.7 Storage arrangement. Storage arrangements for organic peroxides shall be in accordance with FC Table 3904.2.4 and shall comply with the following requirements:

1. Containers and packages in storage areas shall be closed.
2. Bulk storage shall not be in piles or bins.
3. A minimum 2-foot (610 mm) clear space shall be maintained between storage and uninsulated metal walls.
4. Fifty-five-gallon (208 L) drums shall not be stored more than one drum high.

3904.1.8 Location in building. Class I or II organic peroxides shall be stored on the ground floor. Class III organic peroxides shall not be stored in basements or other areas below grade.

3904.1.9 Contamination. Organic peroxides shall be stored in their original DOTn shipping containers. Organic peroxides shall be stored in a manner to prevent contamination.

3904.1.10 Explosion control. Indoor storage rooms, areas and buildings containing Class I organic peroxides shall be provided with explosion control in accordance with FC911 and the construction codes, including the Building Code.

3904.1.11 Emergency power. Emergency power in accordance with the construction codes, including the Building Code and Electrical Code, shall be provided for storage areas of Class I organic peroxides.

3904.1.12 Smoke and heat venting. Storage areas for Class I organic peroxides shall be provided with smoke and heat venting in accordance with FC910 and the construction codes, including the Building Code.

3904.2 Outdoor storage. Outdoor storage of organic peroxides in amounts exceeding the maximum allowable quantities per control area indicated in FC Table 2703.1.1(3) shall be in accordance with FC 2701, 2703, 2704 and this chapter.

3904.2.1 Distance from storage to exposures. Outdoor storage areas for organic peroxides shall be located in accordance with FC Table 3904.1.2.

3904.2.2 Electrical wiring and equipment. In addition to the requirements of FC2703.9.4, electrical wiring and equipment in outdoor storage areas containing Class I or II organic peroxides shall comply with the requirements of the Electrical Code for electrical Class I, Division 2 locations.

3904.2.3 Maximum quantities. Maximum allowable quantities of organic peroxides in outdoor storage shall be in accordance with FC Table 3904.1.2.

3904.2.4 Storage arrangement. Storage arrangements shall be in accordance with FC Table 3904.2.4.

3904.2.5 Separation. In addition to the requirements of FC2703.9.8, outdoor storage areas for organic peroxides in amounts exceeding those specified in FC Table 2703.8.2 shall be located a minimum distance of 50 feet (15 240 mm) from other hazardous material storage.

**FC TABLE 3904.2.4
STORAGE REQUIREMENTS FOR ORGANIC PEROXIDES**

ORGANIC PEROXIDE CLASS	PILE CONFIGURATION				MAXIMUM QUANTITY PER BUILDING
	Maximum width (feet)	Maximum height (feet)	Minimum distance to next pile (feet)	Minimum distance to walls (feet)	
I	6	8	4 ^a	4 ^b	Note c
II	10	8	4 ^a	4 ^b	Note c
III	10	8	4 ^a	4 ^b	Note c
IV	16	10	3 ^{a,d}	4 ^b	No Requirement
V	No Requirement	No Requirement	No Requirement	No Requirement	No Requirement

For SI: 1 foot = 304.8 mm.

- a. At least one main aisle with a minimum width of 8 feet shall divide the storage area.
- b. Distance to noncombustible walls is allowed to be reduced to 2 feet.
- c. For detached storage buildings or outdoor storage areas, see FC Table 3904.1.2 for maximum quantities. For indoor storage, see FC Table 2703.8.2 for maximum quantities.
- d. The distance shall not be less than one-half the pile height.

SECTION FC 3905 HANDLING AND USE

3905.1 General. Organic peroxides in amounts exceeding the maximum allowable quantity per control area indicated in FC Table 2703.1.1(1) or 2703.1.1(3) shall be handled and used in accordance with FC 2701, 2703, 2705 and this chapter.

SECTION FC 3906 MANUFACTURING RESTRICTIONS

3906.1 Organic peroxides classified as a Class IV material. Organic peroxides classified as a Class IV material as defined in Section 42-272 of the Zoning Resolution may be utilized in manufacturing processes or other production in manufacturing districts only when authorized by a special permit pursuant to Section 42-276 of the Zoning Resolution.

3906.1.1 Manufacture of organic peroxides classified as a Class IV material. It shall be unlawful to manufacture organic peroxides classified as a Class IV material as defined in Section 42-272 of the Zoning Resolution.

3906.1.2 Storage of organic peroxides classified as a Class IV material. It shall be unlawful to store organic peroxides classified as a Class IV material as defined in Section 42-272 of the Zoning Resolution, except that accessory storage authorized by a special permit pursuant to Section 42-276 of the Zoning Resolution shall be allowed.