

# CHAPTER 44

## WATER-REACTIVE SOLIDS AND LIQUIDS

### SECTION 4401 GENERAL

**4401.1 Scope.** The storage and use of water-reactive solids and liquids shall be in accordance with this chapter.

**Exceptions:**

1. Display and storage in Group M and storage in Group S occupancies complying with Section 2703.11.
2. Detonable water-reactive solids and liquids shall be stored in accordance with Chapter 33.

**4401.2 Permits.** Permits shall be required as set forth in Section 105.6.

### SECTION 4402 DEFINITIONS

**4402.1 Definition.** The following word and term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning shown herein.

**WATER-REACTIVE MATERIAL.** A material that explodes; violently reacts; produces flammable, toxic or other hazardous gases; or evolves enough heat to cause autoignition or ignition of combustibles upon exposure to water or moisture. Water-reactive materials are subdivided as follows:

**Class 3.** Materials that react explosively with water without requiring heat or confinement.

**Class 2.** Materials that react violently with water or have the ability to boil water. Materials that produce flammable, toxic or other hazardous gases, or evolve enough heat to cause autoignition or ignition of combustibles upon exposure to water or moisture.

**Class 1.** Materials that react with water with some release of energy, but not violently.

### SECTION 4403 GENERAL REQUIREMENTS

**4403.1 Quantities not exceeding the maximum allowable quantity per control area.** The storage and use of water-reactive solids and liquids in amounts not exceeding the *maximum allowable quantity per control area* indicated in Section 2703.1 shall be in accordance with Sections 2701, 2703, 4401 and 4403.

**4403.2 Quantities exceeding the maximum allowable quantity per control area.** The storage and use of water-reactive solids and liquids in amounts exceeding the *maximum allowable quantity per control area* indicated in Section 2703.1 shall be in accordance with Chapter 27 and this chapter.

### SECTION 4404 STORAGE

**4404.1 Indoor storage.** Indoor storage of water-reactive solids and liquids in amounts exceeding the *maximum allowable quantity per control area* indicated in Table 2703.1.1(1), shall be in accordance with Sections 2701, 2703, 2704 and this chapter.

**4404.1.1 Detached storage.** Storage of water-reactive solids and liquids shall be in detached buildings when required by Section 2703.8.2.

**4404.1.2 Liquid-tight floor.** In addition to the provisions of Section 2704.12, floors in storage areas for water-reactive solids and liquids shall be of liquid-tight construction.

**4404.1.3 Waterproof room.** Rooms or areas used for the storage of water-reactive solids and liquids shall be constructed in a manner which resists the penetration of water through the use of waterproof materials. Piping carrying water for other than *approved automatic sprinkler systems* shall not be within such rooms or areas.

**4404.1.4 Water-tight containers.** When Class 3 water-reactive solids and liquids are stored in areas equipped with an *automatic sprinkler system*, the materials shall be stored in closed water-tight containers.

**4404.1.5 Storage configuration.** Water-reactive solids and liquids stored in quantities greater than 500 cubic feet (14 m<sup>3</sup>) shall be separated into piles, each not larger than 500 cubic feet (14 m<sup>3</sup>). Aisle widths between piles shall not be less than the height of the pile or 4 feet (1219 mm), whichever is greater.

**Exception:** Water-reactive solids and liquids stored in tanks.

Class 2 water-reactive solids and liquids shall not be stored in *basements* unless such materials are stored in closed water-tight containers or tanks.

Class 3 water-reactive solids and liquids shall not be stored in *basements*.

Class 2 or 3 water-reactive solids and liquids shall not be stored with flammable liquids.

**4404.1.6 Explosion control.** Indoor storage rooms, areas and buildings containing Class 2 or 3 water-reactive solids and liquids shall be provided with explosion control in accordance with Section 911.

**4404.2 Outdoor storage.** Outdoor storage of water-reactive solids and liquids in quantities exceeding the *maximum allowable quantity per control area* indicated in Table 2703.1.1(3) shall be in accordance with Sections 2701, 2703, 2704 and this chapter.

**4404.2.1 General.** Outdoor storage of water-reactive solids and liquids shall be within tanks or closed water-tight con-

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tainers and shall be in accordance with Sections 4404.2.2 through 4404.2.5.

**4404.2.2 Class 3 distance to exposures.** Outdoor storage of Class 3 water-reactive solids and liquids shall not be within 75 feet (22 860 mm) of buildings, *lot lines*, public streets, public alleys, *public ways* or *means of egress*.

**4404.2.3 Class 2 distance to exposures.** Outdoor storage of Class 2 water-reactive solids and liquids shall not be within 20 feet (6096 mm) of buildings, *lot lines*, public streets, public alleys, *public ways* or *means of egress*. A 2-hour *fire barrier* wall without openings or penetrations, and extending not less than 30 inches (762 mm) above and to the sides of the storage area, is allowed in lieu of such distance. The wall shall either be an independent structure, or the exterior wall of the building adjacent to the storage area.

**4404.2.4 Storage conditions.** Class 3 water-reactive solids and liquids shall be limited to piles not greater than 500 cubic feet (14 m<sup>3</sup>).

Class 2 water-reactive solids and liquids shall be limited to piles not greater than 1,000 cubic feet (28 m<sup>3</sup>).

Aisle widths between piles shall not be less than one-half the height of the pile or 10 feet (3048 mm), whichever is greater.

**4404.2.5 Containment.** Secondary containment shall be provided in accordance with the provisions of Section 2704.2.2.

## SECTION 4405 USE

**4405.1 General.** The use of water-reactive solids and liquids in amounts exceeding the *maximum allowable quantity per control area* indicated in Table 2703.1.1(1) or 2703.1.1(3) shall be in accordance with Sections 2701, 2703, 2705 and this chapter.