



CITY OF BLAINE
SAFETY SERVICES
10801 Town Square Drive,
Blaine MN 55449
Business Phone 763-785-6187
Fax 763-717-2634



AEROSOL PRODUCTS

General. An operational fire permit is required to manufacture, store or handle an aggregate quantity of Level 2 or Level 3 aerosol products in excess of 500 pounds **net** weight. Aerosol storage in excess of 500 pounds net weight shall comply with the requirements of Minnesota State Fire Code (MSFC), Chapter 28, Chapter 27 and NFPA 30B. The classification of aerosol, Level 1, 2 or 3, will be printed on the product manufacturer's packaging.

Level 1 Aerosol products are those with a total chemical heat of combustion of up to 8600 Btu/lb.

Level 2 Aerosol products are those with a total chemical heat of combustion that is greater than 8600 Btu/lb. but less than or equal to 13,000 Btu/lb.

Level 3 Aerosol products are those with a total heat of combustion that is greater than 13,000 Btu/lb.

Inside Storage of Level 2 and 3 aerosol products shall comply with the requirements of MSFC Sec. 2804.2 through 2804.7 and NFPA 30B. Level 1 aerosol products are considered a Class III commodity and shall comply with NFPA 231 and 231C.

Occupancy Groups A, B, E, F, I and R shall limit the quantity of storage of Level 2 and 3 aerosols to the following quantities: 1.) Net weight of 1,000 pounds of Level 2 aerosol products, 2.) Net weight 500 pounds of Level 3 aerosol products, 3.) Combined net weight of 1,000 pounds of Level 2 and 3 aerosol products.

**Aerosol storage in excess of these amounts shall be stored in approved flammable liquid storage rooms.*

Storage in a General Purpose Warehouse involving mixed commodities shall comply with MSFC Sec. 2804.3.1 for "non-segregated" storage **or** MSFC Sec. 2804.3.2 for "segregated" storage.

Non-segregated storage consisting of solid pile, palletized or rack storage of Level 2 and 3 aerosol products not segregated into areas utilized only for storage of aerosols shall comply with Table 2804.3.1.

Segregated storage of Level 2 and 3 aerosol products segregated into areas utilized exclusively for the storage of aerosols shall comply with MSFC Table 2804.3.2 and MSFC Sections 2804.3.2.1 (fencing) and 2804.3.2.2 (aisles).

Chain-link fence enclosures shall comply with the following:

1. The fence shall not be less than No. 9 gage steel wire, woven into a maximum 2-inch diamond mesh.
2. The fence shall be installed from the floor to the underside of the roof or ceiling above.
3. Class III, IV and high-hazard commodities shall be stored outside of the aerosol storage area and a minimum of 8 feet (2438 mm) from the fence.
4. Access openings in the fence shall be provided with either self-closing or automatic-closing devices or a labyrinth opening arrangement preventing aerosol containers from rocketing through the access openings.
5. Not less than two means of egress shall be provided from the fenced enclosure.

Aisle requirements for segregated storage in general purpose warehouses shall comply with Table 2804.3.2.2.

Outside Storage of Level 2 and 3 aerosol products shall, including temporary storage in trailers, shall be separated from exposures in accordance with MSFC Table 2805.1.

Retail Display of aerosol products in retail sales areas shall not exceed quantities needed for display and normal merchandising and shall not exceed the quantities in MSFC Table 2806.2.1

Manufacturing facilities producing aerosol products shall be in accordance with NFPA 30B.

**TABLE 2804.3.2.2
SEGREGATED STORAGE AISLE WIDTHS AND DISTANCE TO AISLES IN GENERAL PURPOSE WAREHOUSES**

STORAGE CONDITION	MINIMUM AISLE WIDTH (feet)	MAXIMUM DISTANCE FROM STORAGE TO AISLE (feet)
Solid pile or palletized ^a	4 feet between piles	25
Racks with ESFR sprinklers ^a	4 feet between racks and adjacent Level 2 and 3 aerosol product storage	25
Racks without ESFR sprinklers ^a	8 feet between racks and adjacent Level 2 and 3 aerosol product storage	25

For SI: 1 foot = 304.8 mm.

a. Sprinklers shall comply with NFPA 30B.

**TABLE 2803.1
CLASSIFICATION OF AEROSOL PRODUCTS**

CHEMICAL HEAT OF COMBUSTION		AEROSOL CLASSIFICATION
Greater than (Btu/lb)	Less than or equal to (Btu/lb)	
0	8,600	1
8,600	13,000	2
13,000	—	3

For SI: 1 British thermal unit per pound = 0.002326 KJ/g.

**TABLE 2804.3.2
SEGREGATED STORAGE OF LEVEL 2 AND 3 AEROSOL PRODUCTS IN GENERAL PURPOSE WAREHOUSES**

STORAGE SEPARATION	MAXIMUM SEGREGATED STORAGE AREA ^a		SPRINKLER REQUIREMENTS
	Percentage of building area (percent)	Area limitation (square feet)	
Separation area ^{a, f}	15	20,000	Notes b, c
Chain-link fence enclosure ^d	20	20,000	Notes b, c
1-hour fire-resistance-rated interior walls	20	30,000	Note b
2-hour fire-resistance-rated interior walls	25	40,000	Note b
3-hour fire-resistance-rated interior walls	30	50,000	Note b

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m².

- The maximum segregated storage area shall be limited to the smaller of the two areas resulting from the percentage of building area limitation and the area limitation.
- Automatic sprinkler system protection in aerosol product storage areas shall comply with NFPA 30B and be approved. Building areas not containing aerosol product storage shall be equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1.
- Automatic sprinkler system protection in aerosol product storage areas shall comply with NFPA 30B and be approved. Sprinkler system protection shall extend a minimum 20 feet beyond the aerosol storage area.
- Chain-link fence enclosures shall comply with Section 2804.3.2.1.
- A separation area shall be defined as an area extending outward from the periphery of the segregated aerosol product storage area as follows:
 - The limits of the aerosol product storage shall be clearly marked on the floor.
 - The separation distance shall be a minimum of 25 feet and maintained clear of all materials with a commodity classification greater than Class III in accordance with Section 903.3.1.1.
- Separation areas shall only be permitted where approved.

**TABLE 2804.7
MAXIMUM QUANTITIES OF LEVEL 2 AND 3 AEROSOL PRODUCTS IN RETAIL STORAGE AREAS**

Floor	MAXIMUM NET WEIGHT PER FLOOR (pounds)		
	Nonsegregated storage ^{a, b}	Segregated storage	
		Storage cabinets ^b	Separated from retail area ^c
Basement	Not permitted	Not permitted	Not permitted
Ground floor	2,500	5,000	Note ^d
Upper floors	500	1,000	Note ^d

For SI: 1 pound = 0.454 kg, 1 square foot = 0.0929 m².

- The total aggregate quantity on display and in storage shall not exceed the maximum retail display quantity indicated in Section 2806.3.
- Storage quantities indicated are the maximum permitted in any 50,000-square-foot area.
- The storage area shall be separated from the retail area with a 1-hour fire-resistance-rated assembly.
- See Table 2804.3.2.

**TABLE 2805.1
DISTANCE TO EXPOSURES FOR OUTSIDE STORAGE OF
LEVEL 2 AND 3 AEROSOL PRODUCTS**

EXPOSURE	MINIMUM DISTANCE FROM AEROSOL STORAGE (feet) ^a
Alleys, public ways, streets	20
Buildings	50
Exit discharge to a public way	50
Lot lines	20
Other outside storage	50

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. The minimum separation distance indicated is not required where exterior walls having a 2-hour fire-resistance rating without penetrations separate the storage from the exposure. The walls shall extend not less than 30 inches above and to the sides of Level 2 and 3 aerosol products.

**TABLE 2806.2.1
MAXIMUM QUANTITIES OF LEVEL 2 AND
3 AEROSOL PRODUCTS IN RETAIL DISPLAY AREAS**

MAXIMUM NET WEIGHT PER FLOOR (pounds) ^b			
Floor	Unprotected ^a	Protected in accordance with Section 2806.2 ^{a,c}	Protected in accordance with Section 2806.3 ^c
Basement	Not allowed	500	500
Ground	2,500	10,000	10,000
Upper	500	2,000	Not allowed

For SI: 1 pound = 0.454 kg, 1 square foot = 0.0929 m².

- a. The total quantity shall not exceed 1,000 pounds net weight in any one 100-square-foot retail display area.
 b. Per 25,000-square-foot retail display area.
 c. Minimum Ordinary Hazard Group 2 wet-pipe automatic sprinkler system throughout the retail sales occupancy.

**TABLE 2806.4
MAXIMUM STORAGE QUANTITIES FOR STORAGE AREAS ADJACENT TO RETAIL
DISPLAY OF LEVEL 2 AND 3 AEROSOLS**

MAXIMUM NET WEIGHT PER FLOOR (POUNDS)			
Floor	Unseparated ^{a,b}	Separated	
		Storage Cabinets ^b	1-hour Occupancy Separation
Basement	Not Allowed	Not Allowed	Not Allowed
Ground	2,500	5,000	In accordance with Sections 6.3.4.3 and 6.3.4.4 of NFPA 30B
Upper	500	1,000	In accordance with Sections 6.3.4.3 and 6.3.4.4 of NFPA 30B

For SI: 1 pound = 0.454 kg, 1 square foot = 0.0929 m².

- a. The aggregate quantity in storage and retail display shall not exceed the quantity limits for retail display.
 b. In any 50,000-square-foot area.