**Chapter 61 Aerosol Products**

61.1 General Provisions

61.1.1 Application

61.1.1.1\*

The manufacture, storage, use, handling, and display of aerosol products shall comply with the requirements of Chapter 61, NFPA 30B, and Sections 60.1 through 60.4 of this Code.

61.1.1.2

Where the provisions of Chapter 61 or NFPA 30B conflict with the provisions of Chapter 60, the provisions of Chapter 61 and NFPA 30B shall apply.

61.1.1.3\*

Chapter 61 shall not apply to the storage and display of containers whose contents are comprised entirely of LP-Gas products. [30B:1.1.2]

61.1.1.4

Chapter 61 shall not apply to post-consumer processing of aerosol containers. [30B:1.1.3]

61.1.1.5\*

Chapter 61 shall not apply to containers that do not meet the definition of Aerosol Container (see 3.3.1 of NFPA 30B). [30B:1.1.4]

61.1.1.5.1

Containers that contain a product that meets the definitions in 3.3.2 and 3.3.3 of NFPA 30B, but are larger than the limits specified in 3.3.1 of NFPA 30B, shall not be classified as aerosol products, and Chapter 61 shall not apply to the manufacture, storage, and display of such products. [30B: 1.1.4.1]

61.1.2 Permits

Permits, where required, shall comply with Section 1.12.

61.1.3 Classification of Aerosol Products in Metal Containers of Not More Than 33.8 fl oz (1000 ml) and in Plastic or Glass Containers of Not More Than 4 fl oz (118 ml)

See Annex E of NFPA 30B. [30B:1.7]

61.1.3.1

Aerosol products shall be classified by means of the calculation of their chemical or theoretical heats of combustion and shall be designated Level 1, Level 2, or Level 3 in accordance with 61.1.3.2 through 61.1.3.5.2 and Table 61.1.3.1. [30B:1.7.1]

Table 61.1.3.1 Aerosol Classification

If the chemical heat of combustion is

Aerosol Classification Level

>

≤

0

20 kJ/g (8,600 Btu/lb)

1

20 kJ/g (8,600 Btu/lb)

30 kJ/g (13,000 Btu/lb)

2

30 kJ/g (13,000 Btu/lb)

\_\_

3

[30B:Table 1.7.1]

61.1.3.1.1

In lieu of classification by means of the chemical heats of combustion, aerosol products shall be permitted to be classified by means of data obtained from properly conducted full-scale fire tests that utilize a 12-pallet test array. [30B:1.7.1.1]

Exception: This shall not apply to aerosol cooking spray products. (See

61.1.3.5.) [30B:1.7.1.1]

61.1.3.1.2

The fire tests shall be conducted at an approved testing laboratory. (See Annex C of NFPA 30B for information on the 12-pallet test array.) [30B:1.7.1.2]

61.1.3.2 Level 1 Aerosol Products

Level 1 Aerosol Products shall be defined as those products with a total chemical heat of combustion that is less than or equal to 20 kJ/g (8600 Btu/lb). [30B:1.7.2]

61.1.3.3 Level 2 Aerosol Products

Level 2 Aerosol Products shall be defined as those products with a total chemical heat of combustion that is greater than 20 kJ/g (8600 Btu/lb), but less than or equal to 30 kJ/g (13,000 Btu/lb). [30B:1.7.3]

61.1.3.4 Level 3 Aerosol Products

Level 3 Aerosol Products shall be defined as those products with a total chemical heat of combustion that is greater than 30 kJ/g (13,000 Btu/lb). [30B:1.7.4]

61.1.3.5 Aerosol Cooking Spray Products

Aerosol Cooking Spray Products are those aerosol products designed to deliver a vegetable oil or a solid or nonflammable liquid to reduce sticking on cooking and baking surfaces, or to be applied to food, or both. These products have a chemical heat of combustion that is greater than 20 kJ/g (8600 Btu/lb) and contain not more than 18 percent by weight of flammable propellant. [30B:1.7.5]

61.1.3.5.1

If the aerosol cooking spray product has a chemical heat of combustion that does not exceed 20 kJ/g (8600 Btu/ lb), it shall be considered a Level 1 aerosol product. [30B: 1.7.5.1]

61.1.3.5.2

If the aerosol cooking spray product contains more than 18 percent by weight of flammable propellant, it shall be classified in accordance with its chemical heat of combustion, as set forth in Table 61.1.3.1. [30B:1.7.5.2]

61.1.4 Classification of Aerosol Products in Plastic Containers Larger Than 4 fl oz (118 ml) and Smaller Than 33.8 OZ (1000 ml)

61.1.4.1 Plastic Aerosol 1 Products

Plastic aerosol 1 products shall be defined as those that meet one of the following criteria:

The base product has no fire point when tested in accordance with ASTM D92, Standard Test Method for Rash and Fire Points by Cleveland Open Cup Tester, and the propellant is nonflammable.

The base product does not exhibit sustained combustion when tested in accordance with 49 CFR 173, Appendix H, "Method of Testing for Sustained Combustibility," or the UN Recommendations on the Transport of Dangerous Goods, and the propellant is nonflammable.

The base product contains not more than 20 percent by volume (15.8 percent by weight) of ethanol or propanol, or mixtures thereof in an aqueous mix, and the propellant is nonflammable.

The base product contains not more than 4 percent by weight of an emulsified liquefied flammable gas propellant within an aqueous base, said propellant to remain emulsified for the life of the product. Where such propellant is not permanently emulsified then the propellant shall be nonflammable.

[30B:1.8.1]

61.1.4.2 Plastic Aerosol 3 Products

Plastic Aerosol 3 Products shall be defined as those that meet one of the following criteria:

The base product has no fire point when tested in accordance with ASTM D92, Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester, and there is not more than 10 percent by weight flammable propellant.

The base product does not exhibit sustained combustion when tested in accordance with 49 CFR 173, Appendix H, "Method of Testing for Sustained Combustibility," on the UN Recommendations on the Transport of Dangerous Goods, and there is not more than 10 percent weight flammable propellant.

The base product contains not more than 50 percent by volume of flammable or combustible, water-miscible alcohols in an aqueous mix, and there is not more than 10 percent by weight flammable propellant.

[30B:1.8.2]

61.1.4.3 Plastic Aerosol X Products

Plastic Aerosol X Products shall be defined as those products that do not meet any of the criteria provided in 61.1.4.1 or 61.1.4.2. [30B:1.8.3]

61.1.5 Marking of Packages of Aerosol Products

61.1.5.1

Manufacturers of aerosol products shall ensure that all cartons or packages of aerosol products are identified on at least one exterior side with the classification of the aerosol products contained therein, in accordance with 61.1.3 and 61.1.4. [30B:1.9.1]

61.1.5.2

Cartons or packages containing aerosol products in metal containers or glass and plastic containers 4 fl oz (118 ml) or less shall be clearly marked as follows:

Level \_\_\_\_\_\_ Aerosols

[30B:1.9.2]

61.1.5.3

Cartons or packages containing Aerosol Cooking Spray Products in metal containers shall be clearly marked as follows:

Aerosol Cooking Spray

[30B:1.9.3]

61.1.5.4

Cartons or packages containing aerosol products in plastic containers greater than 4 fl oz (118 ml) shall be clearly marked on the exterior of the carton as follows:

Plastic Aerosol 1, 3 (or X)

[30B:1.9.4]

61.2 Basic Requirements

61.2.1 Building Construction

61.2.1.1

Openings in fire walls or fire barriers shall be kept to a minimum. [30B:4.2.1]

61.2.1.1.1

All openings (i.e., personnel doorways, ductwork, conveyor line, etc.) shall be protected with automatic-closing or self-closing fire doors or dampers. [30B:4.2.1.1]

61.2.1.1.2

Fire doors shall be installed in accordance with NFPA 80. [30B:4.2.1.2]

61.2.1.1.3

Fire dampers shall be installed in accordance with manufacturer's instructions and NFPA 90A. [30B:4.2.1.3]

61.2.1.2 Means of Egress

61.2.1.2.1

Means of egress shall comply with applicable provisions of NFPA 101. [30B:4.2.2.1]

61.2.1.2.2

The design and construction of conveyor lines and other physical obstacles, such as in the flammable propellant charging and pump rooms, shall not allow entrapment of personnel and shall provide for direct access to exits. [30B: 4.2.2.2]

61.2.2 Electrical Installations

61.2.2.1

All electrical equipment and wiring, including heating equipment, shall be installed in accordance with NFPA 70. [30B:4.3.1]

61.2.2.1.1

Electrical equipment and wiring in areas where flammable liquids or flammable gases are handled shall meet the additional requirements of Articles 500 and 501 of NFPA 70. [30B:4.3.1.1]

61.2.2.2

Aerosol product storage and display areas shall be considered unclassified for purposes of electrical installation. [30B:4.3.2]

61.2.3 Heating Equipment

Heating equipment shall be installed in accordance with the applicable requirements of the following:

NFPA 31, Standard for the Installation of Oil-Burning Equipment

NFPA 54, National Fuel Gas Code

NFPA 58, Liquefied Petroleum Gas Code

NFPA 85, Boiler and Combustion Systems Hazards Code

[30B:4.4]

61.2.4 Flammable Liquids and Gases

Areas in which flammable liquids and flammable gases are handled or stored shall meet the applicable requirements of the following:

Chapter 66 and NFPA 30

Chapter 69 and NFPA 58

[30B:4.5]

61.2.5 Fire Protection

61.2.5.1 Automatic Sprinkler Protection

Installations of automatic sprinklers, where required by this Code and NFPA 30B, shall be installed in accordance with Section 13.3 and NFPA 13 and the provisions of NFPA 30B. [30B:4.6.1]

61.2.5.1.1

Where the provisions of Chapter 61 and NFPA 13 differ, the provisions of Chapter 61 shall prevail. [30B:4.6.1.1]

61.2.5.1.2

Where Chapter 61 does not address specific automatic sprinkler protection criteria, the provisions of NFPA 13 shall prevail. [30B:4.6.1.2]

61.2.5.1.3

Production areas that contain base product fillers, button tippers, valve crimpers, test baths, and aerosol product packaging equipment shall be protected by a wet-pipe automatic sprinkler system installed in accordance with NFPA 13. The sprinkler system shall be designed to protect the highest level of storage or production hazard that is present. [30B:5.8.2]

61.2.5.1.3.1

Level 2 and Level 3 Aerosol Products shall be permitted to be stored in production areas, such as staging areas (e.g., awaiting transfer to a warehouse), provided all of the following are met:

They are stacked no more than 5 ft (1.5 m) high.

There is no warehouse storage of aerosol products within

25 ft (7.6 m) of the production line.

[30B:5.8.2.1]

61.2.5.1.3.1.1

All other storage shall be protected in accordance with Table 6.4.2.7(a) through Table 6.4.2.7(1) of NFPA 30B, as applicable. [30B:5.8.2.1.1]

61.2.5.1.3.2

Aerosol products in plastic containers of capacity larger than 4 fl oz (118 ml) shall be permitted to be stored in production areas, such as staging areas (e.g., awaiting transfer to a warehouse), up to a maximum quantity of 1000 lb (454 kg), provided all of the following are met:

The aerosol products are not treated as Class III commodities in accordance with Section 6.5 of NFPA 30B.

They are stacked no more than 5 ft (1.5 m) high.

There is no warehouse storage of aerosol products within 25 ft (7.6 m) of the production line.

[30B:5.8.2.2]

61.2.5.2 Standpipe and Hose System

Installations of standpipe and hose systems, where required by this Code and NFPA 30B, shall be designed and installed in accordance with Section 13.2 and NFPA 14 and with the provisions of NFPA 30B. Only combination or spray hose nozzles shall be used. [30B:4.6.2]

61.2.5.3 Portable Fire Extinguishers

Fire extinguishers shall be provided in accordance with Section 13.6 and NFPA 10. [30B:4.6.3]

61.2.6 Fire Alarms

Fire alarm systems shall be installed, tested, and maintained in accordance with applicable requirements of Section 13.7 and NFPA 72. [30B:4.7]

61.2.7 Sources of Ignition

61.2.7.1

In areas where flammable gases or flammable vapors might be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. [30B:4.8.1]

61.2.7.2

Sources of ignition shall include, but are not limited to, the following:

Open flames

Lightning

Hot surfaces

Radiant heat

Smoking

Cutting and welding

Spontaneous ignition

Frictional heat or sparks

Static electricity

Electrical arcs and sparks

Stray currents

Ovens, furnaces, and other heating equipment

Automotive vehicles

Material-handling equipment [30B:4.8.2]

61.3 Storage in Warehouses and Storage Areas

61.3.1 Basic Requirements

61.3.1.1

The protection criteria in Section 61.3 shall apply to the following:

Level 1 Aerosol Products in metal containers not more than 33.8 fl oz (1000 ml) capacity, in accordance with 61.3.2

Aerosol Cooking Spray Products in metal containers not more than 33.8 fl oz (1000 ml) capacity, in accordance with 61.3.3

Level 2 and Level 3 Aerosol Products in metal containers not more than 33.8 fl oz (1000 ml) capacity, in accordance with Section 6.4 of NFPA 30B

Aerosol products in glass and plastic containers not more than 4 fl oz (118 ml) capacity, in accordance with Section 6.4 of NFPA 30B

Plastic Aerosol 1 Products in plastic containers greater than 4 fl oz (118 ml) capacity and not more than 33.8 fl oz (1000 ml) capacity, in accordance with 61.3.4

Plastic Aerosol 3 Products in plastic containers greater than 4 fl oz (118 ml) capacity and not more than 33.8 fl oz (1000 ml) capacity, in accordance with Section 6.4 of NFPA 30B

[30B:6.1.1]

61.3.1.2

All outer packaging of aerosol products, including cartons, trays, shrouds, or other packaging, shall be identified on at least one side with the classification of the aerosol products in accordance with 61.1.5 and with one of the following, whichever is appropriate:

(a) Level\_\_\_\_Aerosols or (b) Aerosol Cooking Spray or (c)

Plastic Aerosol 1 or (d) Plastic Aerosol 3 or (e) Plastic Aerosol

X

[30B:6.1.2]

61.3.1.3\*

Fire-retardant cartons shall not be considered an acceptable alternative to the protection requirements of Section 61.3. [30B:6.1.3]

61.3.2 Storage of Level 1 Aerosol Products

61.3.2.1

Level 1 Aerosol Products shall be considered equivalent to Class III commodities, as defined in NFPA 13. [30B:6.2.1]

61.3.2.2

In cases where the storage of Level 1 Aerosol Products is required to be protected, such storage shall be protected in accordance with the requirements for Class III commodities set forth in NFPA 13. [30B:6.2.2]

61.3.2.3

Solid shelving that is installed in racks that contain Level 1 Aerosol Products shall be protected in accordance with the provisions of NFPA 13. [30B:6.2.3]

61.3.3 Storage of Aerosol Cooking Spray Products

61.3.3.1 General

61.3.3.1.1

Aerosol Cooking Spray Products shall be permitted to be stored in a general-purpose warehouse. [30B:6.3.1.1]

61.3.3.1.2

Aerosol Cooking Spray Products shall be permitted to be stored mixed with other higher hazard aerosols as long as the provided isolation, storage height restrictions, and protection are based on the highest hazard aerosol product present. [30B:6.3.1.2]

61.3.4 Aerosol Products in Plastic Containers Greater Than 4 fl oz (118 ml) and Not More Than 33.8 fl oz (1000 ml)

61.3.4.1 Fire Protection — Plastic Aerosol 1 Products

61.3.4.1.1

Plastic Aerosol 1 Products shall be permitted to be stored in a general-purpose warehouse without isolation. [30B:6.5.1.1]

61.3.4.1.2\*

Plastic Aerosol 1 Products shall be considered equivalent to Class III commodities, as defined in NFPA 13. [30B:6.5.1.2]

61.3.4.1.3

In cases where the storage of Plastic Aerosol 1 Products is required to be protected, they shall be protected in accordance with the requirements of NFPA 13. [30B:6.5.1.3]

61.3.4.1.4

Solid shelving that is installed in racks that contain Plastic Aerosol 1 Products shall be protected in accordance with the provisions of NFPA 13. [30B:6.5.1.4]

61.3.4.2 Fire Protection — Plastic Aerosol X Products

61.3.4.2.1

Storage of Plastic Aerosol X Products in occupancies other than warehouses or mercantile occupancies, such as in assembly, business, educational, industrial, and institutional occupancies, shall be permitted up to a maximum of 100 lb (45 kg) net weight. [30B:6.5.2.1]

61.3.4.2.2

Solid pile, palletized, or rack storage of Plastic Aerosol X Products shall be permitted in a general-purpose warehouse or an aerosol warehouse regardless of protection level up to a maximum of 250 lb (115 kg). [30B:6.5.2.2]

61.4 Mercantile Occupancies

61.4.1 Plastic Aerosol X Products

Plastic Aerosol X Products shall be permitted to be stored in mercantile occupancies up to a maximum quantity of 100 lb (45 kg) net weight. [30B:7.1]

61.4.2 Sales Display Areas — Aerosol Storage Not Exceeding 8 ft (2.4 m) High

61.4.2.1

Level 1 Aerosol Products and Plastic Aerosol 1 Products in sales display areas shall not be limited in quantity. [30B:7.2.1]

61.4.2.2

When located in sales display areas, Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products shall be removed from combustible cartons or the combustible cartons shall be display-cut, except as provided for in 61.4.2.2.1, 61.4.2.2.2, 61.4.2.2.3, respectively. [30B:7.2.2]

61.4.2.2.1

Cartoned Aerosol Cooking Spray Products shall be permitted in the sales display area, provided that the area is protected in accordance with one of the following:

Table 6.3.2.3(a) or Table 6.3.2.3(b) of NFPA 30B

Paragraph 61.4.2.3.1

[30B:7.2.2.1]

61.4.2.2.1.1

Protection in accordance with Table 6.4.2.7(a) through Table 6.4.2.7(1) of NFPA 30B shall also be permitted for Aerosol Cooking Spray Products. [30B:7.2.2.1.1]

61.4.2.2.2

Cartoned Level 2 and Level 3 Aerosol Products shall be permitted in the sales display area, provided that the area is protected in accordance with one of the following:

Table 6.4.2.7(a) through Table 6.4.2.7(m) of NFPA 30B

Paragraph 61.4.2.3.1

[30B:7.2.2.2]

61.4.2.2.3

Cartoned Plastic Aerosol 3 Products shall be permitted in the sales display area, provided that the area is protected in accordance with one of the following:

Table 6.4.2.7(m) of NFPA 30B

Paragraph 61.4.2.3.1

[30B:7.2.2.3]

61.4.2.3

Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products in sales display areas shall not exceed the maximum quantities given in 61.4.2.3.1 and 61.4.2.3.2 according to the protection provided.

[30B:7.2.3]

61.4.2.3.1

In sales display areas that are nonsprinklered or whose sprinkler system does not meet the requirements of 61.4.2.3.2, the total aggregate quantity of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products shall not exceed 2 lb/ft2 (9.8 kg/m2) of total sales display area, up to the quantities specified in Table 61.4.2.3.1. [30B:7.2.3.1]

Table 61.4.2.3.1 Maximum Quantity per Floor of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products

Floor Maximum Net Weight per Floor

lb

kg

Basement

Not Permitted

Ground

2500

1135

Upper

500

227

[30B:Table 7.2.3.1]

61.4.2.3.1.1

No single 10 ft x 10 ft (3 m x 3 m) section of sales display area shall contain an aggregate quantity of more than 1000 lb (454 kg) net weight of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products. [30B:7.2.3.1.1]

61.4.2.3.2

In sales display areas that are sprinklered in accordance with NFPA 13 for at least ordinary hazard (Group 2) occupancies, the total aggregate quantity of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products shall not exceed 2 lb/ft2 (9.8 kg/m2) of total sales display area. [30B:7.2.3.2]

61.4.2.3.2.1

No single 10 ft x 10 ft (3 m x 3 m) section of sales display area shall contain an aggregate quantity of more than 1000 lb (454 kg) net weight of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products. [30B:7.2.3.2.1]

61.4.2.4

Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products shall be securely stacked to not more than 6 ft (1.8 m) high from base to top of the storage array unless on fixed shelving. [30B:7.2.4]

61.4.2.4.1

Shelving shall be of stable construction, and storage shall not exceed 8 ft (2.4 m) in height. [30B:7.2.4.1]

61.4.3 Sales Display Areas — Aerosol Storage Exceeding 8 ft (2.4 m) High

61.4.3.1

Storage and display of Level 1 Aerosol Products and Plastic Aerosol 1 Products in sales display areas shall not be limited. [30B:7.3.1]

61.4.3.2

Uncartoned or display-cut (case-cut) Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products that are stored for display no more than 6 ft (1.8 m) above the floor shall be permitted where protection is installed in accordance with 7.3.3 of NFPA 30B, based on the highest level of aerosol product in the array and the packaging method of the storage above 6 ft (1.8 m). [30B: 7.3.2]

61.4.4 Back Stock Storage Areas

61.4.4.1

Where back stock areas are separated from sales display areas by construction having a minimum 1-hour fire resistance rating, storage of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products shall meet the requirements of Chapter 6 of NFPA 30B. [30B:7.4.1]

61.4.4.2

Where back stock areas are not separated from sales display areas by construction having a minimum 1-hour fire resistance rating, the quantity of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products in back stock areas shall be included in the total allowable quantities specified in 61.4.2.3 or 7.3.4 of NFPA 30B. [30B:7.4.2]

61.4.4.2.1

Protection shall be provided in accordance with 61.4.3.3. [30B:7.4.2.1]

61.4.4.3

An additional quantity of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products, up to a maximum of 500 lb (227 kg) net weight, shall be permitted in back stock areas where the additional quantities are stored in flammable liquid storage cabinets that meet the requirements of Section 9.5 of NFPA 30. [30B:7.4.3]

61.4.4.4

Storage of Aerosol Cooking Spray Products, Plastic Aerosol 3 Products, and Level 2 and Level 3 Aerosol Products in separate, inside flammable liquids storage rooms shall meet the requirements of 6.4.7 of NFPA 30B. [30B:7.4.4]

61.5 Operations and Maintenance

61.5.1 Means of Egress

Means of egress and exits shall be maintained in accordance with NFPA 101. [30B:8.1]

61.5.2 Powered Industrial Trucks

61.5.2.1

The use and selection of powered industrial trucks shall comply with Section 10.18. [30B:8.2.1]

61.5.2.2

Only trained and authorized operators shall be allowed to operate powered industrial trucks. [30B:8.2.2]

61.5.2.3

Operator training shall be equivalent to that specified by ANSI/ASME B56.1, Safety Standard for Low-Lift and High-Lift Trucks. [30B:8.2.3]

61.5.2.4 Loads

61.5.2.4.1

If the type of load handled presents a hazard of backward falls, the powered industrial truck shall be equipped with a vertical load backrest extension. [30B:8.2.4.1]

61.5.2.4.2

For loads that are elevated above the mast of the truck, the backrest extension shall reach at least halfway into the uppermost pallet load. [30B:8.2.4.2]

61.5.3 Control of Ignition Sources

61.5.3.1 Sources of Ignition

61.5.3.1.1

In areas where flammable gases or flammable vapors might be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. Sources of ignition include, but are not limited to, the following:

Open flames

Lightning

Hot surfaces

Radiant heat

Smoking

Cutting and welding

Spontaneous ignition

Frictional heat or sparks

Static electricity

Electrical arcs and sparks

Stray currents

Ovens, furnaces, and other heating equipment

Automotive vehicles

Material-handling equipment [30B:8.3.1.1]

61.5.3.2

Smoking shall be strictly prohibited, except in designated smoking areas. [30B:8.3.2]

61.5.3.3\*

Welding, cutting, and similar spark-producing operations shall not be permitted in areas that contain aerosol products, until a written permit authorizing the work has been issued. [30B:8.3.3]

61.5.3.3.1

The permit shall be issued by a person in authority following an inspection of the area to assure that proper precautions have been taken and will be followed until completion of the work. [30B:8.3.3.1]

61.5.4 Aisles

Storage in aisles shall be prohibited so as to permit access for fire fighting, salvage, and removal of stored commodities. [30B:8.4]

61.5.5 Waste Disposal

61.5.5.1

Filled or partly filled aerosol containers shall be separated from all other rubbish and trash. [30B:8.5.1]

61.5.5.1.1

Filled or partly filled aerosol containers shall be placed in noncombustible waste containers. [30B:8.5.1.1]

61.5.5.2

Filled or partly filled aerosol containers shall not be disposed of in compactors, balers, or incinerators that crush the container or heat its contents. [30B:8.5.2]

61.5.5.2.1

Equipment and facilities that are specifically designed for the disposal of aerosol containers shall be permitted to dispose of filled or partly filled aerosol containers. [30B:8.5.2.1]

61.5.6 Inspection and Maintenance

61.5.6.1

A written and documented preventive maintenance program shall be developed for equipment, machinery, and processes that are critical to fire-safe operation of the facility. [30B:8.6.1]

61.5.6.2

Critical detection systems and their components, emergency trips and interlocks, alarms, and safety shutdown systems shall be inspected on a regularly scheduled basis, and any deficiencies shall be immediately corrected. [30B:8.6.2]

61.5.6.2.1

Items in this inspection schedule shall include, but are not limited to, the following:

Gas detection systems

Deflagration suppression systems

Deflagration vent systems

Ventilation and local exhaust systems

Propellant charging room door interlocks

Process safety devices

Fire alarm systems

[30B:8.6.2.1]

61.5.6.3 Maintenance

61.5.6.3.1

Vent closure maintenance shall be performed after every act of nature or process upset condition to ensure that the closure has not been physically damaged and there are no obstructions, including but not limited to snow, ice, water, mud, or process material, that could lessen or impair the efficiency of the vent closure. [68:11.10.1]

61.5.6.3.2

An inspection shall be performed in accordance with 11.4.4 of NFPA 68 after every process maintenance turnaround. [68:11.10.2]

61.5.6.3.3

If process material has a tendency to adhere to the vent closure, the vent closure shall be cleaned periodically to maintain vent efficiency. [68:11.10.3]

61.5.6.3.4

Process interlocks, if provided, shall be verified. [68:11.10.4]

61.5.6.3.5

Known potential ignition sources shall be inspected and maintained. [68:11.10.5]

Records shall be kept of any maintenance and repairs performed. [68:11.10.6]

61.5.7\* Static Electricity

All process equipment and piping involved in the transfer of flammable liquids or gases shall be connected to a static-dissipating earth ground system to prevent accumulations of static charge. [30B:8.7]