1. Revise Section 5.15 to read as follows:

5.15 Aerosol Product Laboratories.

5.15.1 Design of Aerosol Product Laboratories.

5.15.1.1* Aerosol product laboratories that handle flammable gases shall meet the requirements for Class A laboratory units and, as set forth in NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, and shall meet the requirements of Section 5.15. Aerosol product laboratories that do not handle flammable gases shall meet the appropriate requirements of NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, and shall meet the requirements of Section 5.15.

5.15.1.2* Ventilation systems and ventilation hoods shall meet the requirements of NFPA 45.

5.15.1.3* Gas detection systems, where installed, shall be designed to sound alarms or otherwise notify personnel that levels of potentially flammable or combustible compounds are nearing dangerous or hazardous conditions. Components of the system shall be compatible with materials present.

5.15.1.4 Laboratory units shall be provided with fire protection that is appropriate for the fire hazards present, as specified in NFPA 45.

5.15.1.5* Except as provided for in 5.15.1.5.1, laboratory work areas, laboratory units, and the interior of laboratory hoods shall be considered as unclassified for purposes of electrical area classification and with respect to Chapter 5 of NFPA 70, National Electrical Code.

5.15.1.5.1 Where flammable liquefied gas propellants are transferred or vented inside a laboratory hood or where flammable propellant vapors are present under normal operating conditions, the interior of the laboratory hood shall be classified as Class 1 Division 1.

5.15.2 Storage and Handling of Flammable Gases and Liquids.

5.15.2.1 Storage and handling of flammable and combustible liquids in aerosol product laboratories shall meet the requirements of Chapter 10, Flammable and Combustible Liquids, of NFPA 45.

5.15.2.2 Propellant cylinders shall be stored and handled in accordance with 5.15.2.2.1 through 5.15.2.2.7.
5.15.2.2.1 Flammable liquefied gas propellant cylinders and compressed gas propellant cylinders shall be handled only by trained personnel.

5.15.2.2.2 Flammable liquefied gas propellant cylinders used inside aerosol product laboratories shall be limited to a maximum size of 5 gal (19 L) nominal capacity (typical 20 lb. propane capacity).

5.15.2.2.3 Flammable liquefied gas propellant cylinders used inside aerosol product laboratories shall be limited to not more than 5 cylinders each of 5 gal (19 L) nominal capacity.

5.15.2.2.4 The quantity of flammable liquefied gas propellant used inside aerosol product laboratories shall be limited to a maximum of 5 gallons per 100 ft² (2 L per m²) of laboratory floor area.

5.15.2.2.5 Transfer of propellant from flammable liquefied gas propellant cylinders shall be performed in a laboratory hood that meets the requirements of NFPA 45.

5.15.2.2.6 Propellant cylinders that are not “in use” shall not be stored in the laboratory unit.

5.15.2.2.7 Where practical, flammable propellant cylinders of larger capacity shall be stored outside in a secure, well-ventilated area and piped directly into the aerosol product laboratory hood for use.

5.15.2.2.7.1 Piping shall meet the requirements of NFPA 58, Liquefied Petroleum Gas Code.

5.15.3 Specialized Testing.

5.15.3.1 Tests for total discharge, rate of spray, spray pattern, and net weight shall be conducted with proper ventilation.

5.15.3.2 When the entire contents of an aerosol container must be used to perform a test or the contents of the container must be removed for internal examination of the container, the following precautions shall be taken:

1. The container shall be placed in a laboratory hood.
2. The container shall be grounded.
3. The container shall be pierced with a nonsparking device.
4. Only one container at a time shall be punctured or sprayed.
5. When more than one container is to be evacuated at a time, the operation shall be conducted in the propellant charging room, outdoors, or within equipment or facilities specifically designed for this purpose.

5.15.3.3 Other specialized tests, such as foam flammability tests, flame extension and distance to ignition tests, enclosed space ignition test (drum test), flash point tests, etc. shall be carried out under special conditions, in a protected and ventilated location, using special equipment designed for the conditions of the test.

5.15.3.4 Cold-filling of flammable propellant shall be prohibited for standard or routine evaluations.

5.15.3.5 Cold-filling of small numbers of samples used for special testing shall be permitted where alternative filling methods cannot be used.

5.15.3.6 Manual filling of aerosol product containers using flammable propellant in an aerosol laboratory shall be conducted inside a well-ventilated laboratory hood.

5.15.4 Pilot Laboratories. Where propellant-filling equipment is similar to that utilized within production operations, the laboratory shall be considered to be a pilot plant and shall meet the construction and ventilation requirements of Chapter 5 of this code.

2. Add the following new annex items to read as follows:

A.5.15.1.1 The design, installation and operation of aerosol product laboratories should consider the following:
(1) ventilation
(2) gas detection
(3) fire protection
(4) electrical area classification
(5) storage and handling of flammable gases and liquids
(6) specialized testing

Where practical, aerosol product laboratories should be located such that they have at least one outside wall.

A.5.15.1.2 Ventilation is the best general precaution to control the accumulation of flammable vapors that may result in a deflagration.

A.5.15.1.3 For example, HFC-152a could corrode certain types of monitors that were designed only for hydrocarbons. Systems should also be set to alarm at levels that provide time for action to prevent additional rise in levels of potentially hazardous compounds.

A.5.15.1.5 Under some conditions of hazard, it might be necessary to classify a laboratory work area, or a part thereof, as a hazardous location for the purpose of designating the electrical installation.


**Issue Date:** March 14, 2014

**Effective Date:** March 29, 2014

(Note: For further information on NFPA Codes and Standards, please see [www.nfpa.org/codelist](http://www.nfpa.org/codelist))

Copyright © 2014 All Rights Reserved

NATIONAL FIRE PROTECTION ASSOCIATION