FIRE DEPARTMENT • CITY OF NEW YORK

STUDY MATERIAL FOR THE EXAMINATION

FOR CERTIFICATE OF FITNESS
FOR

Supervision of Storage, Handling and Use of Aerosol A-49

Supervision of Storage, Handling and Use of Aerosol at Construction Site only. (Citywide) W-49

All applicants are required to apply and pay for an exam online before arriving at the FDNY. It can take about 30 minutes to complete.

Simplified instructions for online application and payment can be found here:

http://www1.nyc.gov/assets/fdny/downloads/pdf/business/fdny-business-cof-individuals-short.pdf

Create an Account and Log in to:

http://fires.fdnycloud.org/CitizenAccess

This book is provided to the public for free by the FDNY.

ALSO INCLUDED IN THIS BOOKLET YOU WILL FIND THE FOLLOWING: NOTICE OF EXAMINATION (NOE)

This book is provided to the public for free by the FDNY.

EXAM SPECIFIC INFORMATION FOR A-49/W-49 CERTIFICATE OF FITNESS

Save time and submit application online!

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REQUIREMENTS FOR CERTIFICATE OF FITNESS APPLICATION

General requirements:
Review the General Notice of Exam:
http://www1.nyc.gov/assets/fdny/downloads/pdf/business/general-notice-of-exam-cof.pdf

Special requirements for the A-49/W-49 Certificate of Fitness:

- W-49 C of F only valid for construction site use. It is NOT valid for pharmacies, hardware stores, etc. The W-49 C of F applicant must submit a recommendation letter with construction company letterhead.
- A-49 C of F holder can pay $25 to obtain W-49 C of F with a construction company letterhead without taking a test.

Application fee (Cash is NO LONGER ACCEPTED):
Pay the **$25** application fee online or in person by one of the following methods:

- Credit card (*American Express, Discover, MasterCard, or Visa*)
- Debit card (*MasterCard or Visa*)
- In person: Personal or company check or money order (*made payable to the New York City Fire Department)*

A convenience fee of 2% will be applied to all credit card payments.

For fee waivers submit: ***(Only government employees who will use their COF for their work- related responsibilities are eligible for fee waivers.)***

- A letter requesting fee waiver on the Agency's official letterhead stating applicant full name, exam type and address of premises; ***AND***
- Copy of identification card issued by the agency

REQUIREMENTS FOR ALTERNATIVE ISSUANCE PROCEDURE (AIP)

The A-49 Certificate of Fitness can be obtained by the alternative issuance procedure. Qualified applicants should review and complete the A-49 Certificate of Fitness Alternative Issuance Procedure Application Affirmation Form:

http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-a49-aip.pdf

The AIP applicants must submit the application, required documents and payment on **FDNY Business**:

http://fires.fdnycloud.org/

EXAM INFORMATION

The **A-49** exam will consist of **20** multiple-choice questions, administered on a "touch screen" computer monitor. It is a time-limit exam. Based on the amount of the questions and reference material provided, you will have **35** minutes to complete the test. A passing score of at least 70% is required in order to secure a Certificate of Fitness.

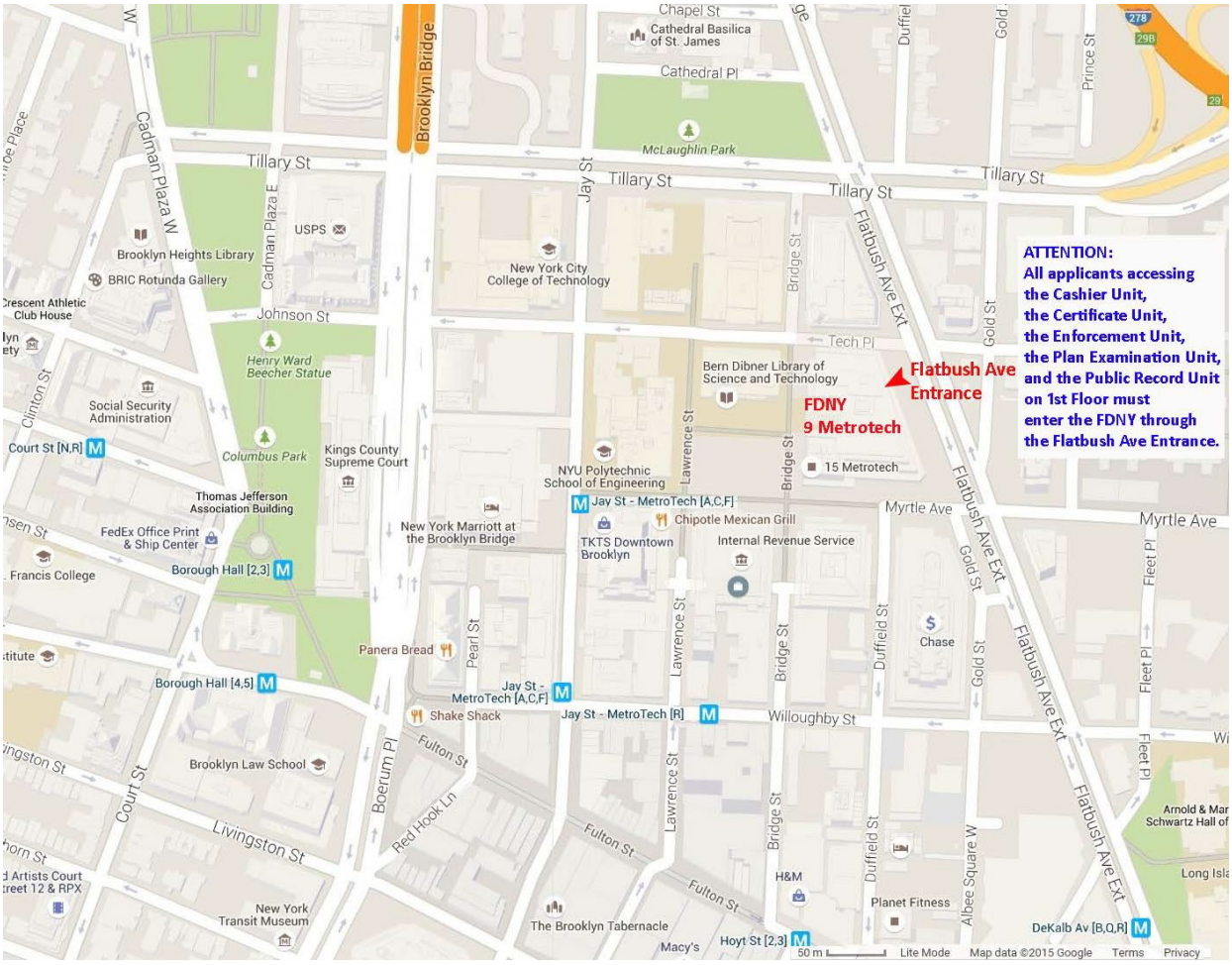
Call (718) 999-1988 for additional information and forms.

Special material provided during the exam: *The tables which appear in the booklet will be provided to you as a reference material when you take the exam at MetroTech, however, the booklet will not provide to you during the exam.*

Please always check for the latest revised booklet at FDNY website before you take the exam.

http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-a49-noe-study-materials.pdf

EXAM SITE: FDNY Headquarters, 9 MetroTech Center, Brooklyn, NY. Enter through the **Flatbush Avenue entrance (between Myrtle Avenue and Tech Place)**.



RENEWAL REQUIREMENTS

General renewal requirements:
Review the General Notice of Exam:
https://www1.nyc.gov/assets/fdny/downloads/pdf/business/general-notice-of-exam-cof.pdf

Special renewal requirements. A-49/W-49 Certificate of Fitness: None

QUESTIONS?

FDNY Business Support Team: For questions, call 311 and ask for the FDNY Customer Service Center or send an email to FDNY.BusinessSupport@fdny.nyc.gov

Contents

About the Study Material

These study materials will help you prepare for the written examination for the Certificate of Fitness for Supervision of Aerosol. The study materials include information taken from the New York City Fire Code (FC) and Fire Department Rules. The study material does not contain all the information you need to know in order to perform the responsibilities of supervising the storage and display of aerosols. It is your responsibility to become familiar with all applicable laws, rules and regulations of the federal, state and city agencies having jurisdiction, even though such requirements are not included in this study material. You need to be familiar with the Fire Code Chapter 28 and Fire Rule Section 2801-01 for storage, handling, and use of aerosol products and NFPA 30B (2007 Edition) Section 7.1, 7.2, 7.3, and Chapter 8 in order to adequately prepare for the exam. It is critical that you read and understand this booklet to help increase your chance of passing this exam.

About the Test

You must pass a multiple choice test to qualify for the Certificate of Fitness. A score of 70% correct is required in order to pass the test. All questions have four answer options. Only one answer is correct for each question. If you do not answer a question, or if you mark more than one answer to a single question, your answer to that question will be scored as incorrect.
Read each question carefully before marking your answer. There is no penalty for guessing.

Sample Questions

The following questions represent the "format" of the exam questions, not the content of the real exam.

1. **Which of the following are allowed to be used/displayed while taking a Certificate of Fitness examination at 9 Metro Tech Center?**
   I. cellular phone
   II. study material booklet
   III. reference material provided by the FDNY
   IV. mp3 player

A. III only
B. I, II, and III
C. II and IV
D. I only

Only reference material provided by the FDNY is allowed to be used during Certificate of Fitness examinations. Therefore, the correct answer would be A. You would touch "A" on the computer terminal screen.

2. **If you do not know the answer to a question while taking an examination, who should you ask for help?**

A. the person next to you
B. the firefighters
C. the examiner in the testing room
D. you should not ask about test questions since FDNY staff cannot assist applicants

You should not ask about examination questions or answers since FDNY staff cannot assist applicants with their tests. Therefore, the correct answer would be D. You would touch "D" on the computer terminal screen.

3. **If the screen on your computer terminal freezes during your examination, who should you ask for help?**

A. the person next to you
B. the firefighters
C. the examiner in the testing room
D. the computer help desk

If you have a computer related question, you should ask the examiner in the testing room. Therefore, the correct answer would be C. You would touch “C” on the computer terminal screen.

1 INTRODUCTION

This document outlines FDNY regulations for storing and retail displaying of aerosol products. Aerosols make use of propellants which allow for the dispensing of a variety of products. They contain propellants and chemicals which can be flammable and hazardous, especially under certain temperature and pressure conditions.

AEROSOLS

Aerosols are classified into 3 levels: Level 1, 2, and 3. Aerosol products in cartons that are not identified shall be classified as **LEVEL 3**.

1.1. Permit and C of F Requirements

A FDNY permit is required to store, handle or use an aggregate quantity of Level 1, 2 or 3 aerosol products in excess of **100 pounds net weight**.

The aerosol product is stored in the containers, which, typically, labeled in net weight quantity. However, occasionally, you may find the aerosol containers to be labeled in net volume quantity (fluid ounces).

The chart below shows the number of aerosol containers, by container capacity in net weight (oz), requiring a permit and personal supervision by a certificate of fitness holder.

Permit and C of F Calculations	
One Can Net Weight	**Number of Cans**
6 oz	267
7 oz	229
8 oz	201
10 oz	161
12 oz	134
14 oz	115
16 oz	101
20 oz	81
24 oz	67

As stated above, there may be a few occasions where aerosol product may be packed in the containers that labeled in net volume quantity (fluid ounces). A conversion factor of 10 pounds per gallon shall be used to determine the net weight of each gallon of liquid.

100 pounds (lbs) = 10 gallons of aerosol product.

10 gallon of aerosol product = 1280 fluid ounces (fl oz)

$$\frac{1280\ fl\ oz}{fl\ oz.in\ can} = \#\ of\ cans\ (requiring\ permit\ (100\ lbs))$$

Using 4 fl oz aerosol cans as an example:

$$\frac{1280\ fl\ oz}{4\ fl\ oz.in\ can} = 320\ cans\ (requiring\ permit)$$

The chart on the following page shows the number of aerosol containers, by container capacity in **volume (fl oz.),** requiring a permit and personal supervision by a certificate of fitness holder.

Permit and C of F Calculations	
One Can Net Volume	**Number of Cans**
6 fl oz	214
7 fl oz	183
8 fl oz	160
10 fl oz	128
12 fl oz	107
14 fl oz	92
16 fl oz	80
20 fl oz	64
24 fl oz	54
Example of combination:	
(fl oz. × #of cans) **+** (fl oz. × #of cans) **=** combined amount 8 fl oz × 65 = **520 ;** 19 fl oz × 40 = **760** ***520 + 760 = 1280***	
8 fl oz and 19 fl oz	65 and 40, respectively

Such a permit authorizes the permit holder to store, handle and use aerosols at a specific premises or location. **The permit shall be posted in a conspicuous location on the premises designated therein at all times and shall be readily available for inspection by any representative of the FDNY**(FC105.3.5). A site-specific permit may be a permanent permit or a temporary permit. Permanent permits are usually valid for 12 months only. Every permit or renewal shall require an inspection and usually will expire after twelve months. Temporary permits may be valid from one day to 12 months depending on the construction/operation needed. For example, a 3-month temporary permit may be issued to a construction site.

The handling and use of aerosols in quantities requiring a permit (i.e. for any establishment with an amount of more than 100 pounds of combined aerosol products) shall be performed under the personal supervision of a person holding a Certificate of Fitness. **Personal supervision** means that the Certificate of Fitness holder must be **on the premises** at the time of **handling (e.g. upon the aerosols' delivery) and use of aerosols**. The storage of aerosols in quantities requiring a permit shall be under the general supervision of a person holding a Certificate of Fitness. General supervision means that the Certificate of Fitness holder supervises storage and does not have to be on the premises at all times. It does, however, require the COF holder to be responsible for ensuring compliance with A-49 regulations at his/her location at all times.

Locations such as Group M occupancies (Mercantile, retail stores) may certify numerous individuals to ensure that there is supervision of handling and use of aerosols at the location at all times.

Where FDNY permits are required, Certificates of Fitness are necessary. Inspections are arranged by contacting the District Office at the Bureau of Fire Prevention. The FDNY permits are only issued to those locations meeting the requirements of the NYC Fire Code and Rules.

Permits are not transferable and any change in occupancy, operation, tenancy or ownership must require that a new permit be issued. The Certificate of Fitness holder is responsible for making sure that all fire safety regulations and procedures are obeyed on the premises. Permits and Certificates of Fitness shall be readily available on the premises for inspection by Fire Department representatives. Failure to meet all requirements will subject the location and COF holders to fines, and criminal penalties or both.

Denial, Non-Renewal, Suspension and Revocation of Certificates

Certificate of Fitness holders should be aware that they may be required to demonstrate their knowledge and proficiency in their duties related to their certificate at the time of original, renewal application, and at any time Fire Department representatives are conducting an inspection of the premises. The Fire Department can deny, not renew, suspend or revoke a certificate for misconduct, which could include the failure of the certificate holder to properly fulfill his or her duties for any reason.

In addition to any other penalties provided by law, misconduct on the part of an applicant or holder of a certificate of fitness shall be grounds for non- renewal, suspension or revocation of a certificate, and denial of an application for a certificate or the opportunity to take a certificate examination. Such misconduct includes, but is not limited to:

- the failure of certificate holders to properly fulfill their duties
- any false and fraudulent conduct in connection with an application for a certificate or the duties of a certificate holder, including:
  - false or fraudulent statements or submissions
  - unauthorized changes to or use of a certificate or possession of a fraudulent certificate
  - cheating on an examination
  - impersonating another person or allowing oneself to be impersonated
- the failure to promptly notify the Fire Department of any change in the applicant's or certificate holder's residence address, or work location

- any other conduct that decreases the integrity or reliability of an applicant or certificate holder
- compromising the integrity or confidentiality of a Fire Department examination

1.2. Limitations and Prohibitions

It is unlawful to manufacture ANY Level aerosol product in New York City. It shall be unlawful to store, handle or use Level 1, 2 or 3 aerosol products **in metal cans** exceeding **33.8 fluid ounces**, or **in glass or plastic bottles** exceeding **4 fluid ounces**.
Exceptions:

1. **Level 3** aerosol products shall be stored, handled and used in containers with a maximum capacity of **24 fluid ounces**.
2. Pressurized **ether** shall be stored, handled or used only in **metal** containers with a maximum capacity of **8 fluid ounces**.
3. Level 1, 2 and 3 **oven-cleaning aerosol products** shall be stored, handled or used in containers with a maximum capacity of **16 fluid ounces**.

1.3. Safety Data Sheet (SDS)

Safety Data Sheet (SDS) information must be readily available. The safety data sheet (SDS) contains specific information about the health and physical hazards of the material used, as well as safe work practices and required protective equipment. It may also describe the material's physical characteristics and procedures that should be followed in case of an emergency. For example, the SDS may list appropriate and inappropriate extinguishing agents, the level of the aerosol and health hazards associated with the material.

The Certificate of Fitness holder must refer to the SDS when questions arise about how to handle, use, or store hazardous chemicals or materials. The SDS may also be requested by health care personnel to facilitate proper medical care in the event of chemical exposure. ***(Sample in Appendix B)***

2 DEFINITIONS

AEROSOLS: Product that is dispensed by way of propellants, classified as follows:

- **Level 1:** Products with a total chemical heat of combustion that is **greater than 0 and less than or equal to 8,600** British thermal units per pound (Btu/lb).

  Typical Level 1 aerosol products include shaving cream, window cleaners, starch, rug shampoos, alkaline oven cleaners, etc.

  Level 1 products are predominately **water-based**. Some examples are:

	
Shaving Gel	Whipped Cream

- **Level 2:** Products with a total chemical heat of combustion that is greater than 8,600 but less than or equal to 13,000 Btu/lb.
  Typical Level 2 aerosol products include hair sprays, deodorants, antiseptics, some furniture polishes, windshield deicers, etc.

  Level 2 products are often alcohol formulated based. Some examples are:

		
Hair Sprays	Sunscreen	Insect Repellents

- **Level 3:** Products with a total chemical heat of combustion **greater than 13,000** Btu/lb.
  Typical Level 3 aerosol products include paint, lacquer, lubricants, some furniture polishes, engine cleaners, some insecticides, oil-based antiperspirants, etc.

  Examples of **Level 3** products are **hydrocarbon formulated based**:

Carburetor Cleaner	Petroleum-based Aerosols

Special Note:
Aerosol level **cannot** be determined by product. Some products can be categorized at multiple levels depending on BTU/lb, such as:

Some Air Fresheners

Aerosol products in cartons must be sorted and labeled. On at least one side of the carton the following words must appear:

LEVEL AEROSOL

Aerosol products in cartons that are not identified or labeled shall be classified as <u>LEVEL 3</u>.

AEROSOL CONTAINER: A metal can, or a glass or plastic bottle designed to dispense an aerosol.

AEROSOL WAREHOUSE: A Group H or S occupancy used exclusively for the non-retail storage of aerosol products.

ARRAY: Each separate storage configuration, taking into consideration the type of packaging, flue spaces, height of storage and compactness of storage.

CERTIFICATE OF FITNESS (C of F): A written statement issued by the NYC Fire Department certifying that the person to whom it is issued has passed an examination as to his or her qualifications or is otherwise deemed qualified to use or supervise the storage, handling and use of a material, conduct or supervise an operation, or supervise a facility for which such certificate is required by this code or the rules. It is valid for 3 years. It is required to produce the C of F when asked by an FDNY representative or Site Safety Manager or the Site Safety Coordinator.

CLASS III COMMODITIES: Class III commodities are commodities of wood, paper, natural fiber cloth, or Group C plastics or products thereof, with or without pallets. Level 1 Aerosol is categorized as a Class III commodity.

GENERAL PURPOSE WAREHOUSE: General purpose warehouses utilize only for warehousing-type operations involving mixed commodities.

GENERAL SUPERVISION: Except as otherwise provided in Fire Code, supervision by the holder of any department certificate who is responsible for performing the duties set forth in Fire Code 113.2 but need not be personally present on the premises at all times.

LIQUID STORAGE WAREHOUSE: A building classified as a Group H-2 or H-3 occupancy used for the storage of flammable or combustible liquids in closed containers.

SAFETY DATA SHEET (SDS): A document prepared in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1200 or a federally approved state OSHA plan which sets forth information concerning a hazardous material.

OCCUPANCY: The purpose or activity for which a building or space is used or designed to be used. References to occupancy classification shall be deemed to include the equivalent occupancy classifications under the 1968 Building Code and all prior Building Codes or other applicable laws, rules and regulations.

-as defined by Building Codes Section 303-312

Group A: An assembly occupancy Group B: A business occupancy
Group E: An educational occupancy
Group F: A factory and industrial occupancy
Group H: A high-hazard occupancy

Group I: An institutional occupancy
Group M: A mercantile occupancy (retail stores)
Group R: A residential occupancy
Group S: A storage occupancy
Group U: A utility and miscellaneous occupancy

PALLETIZED STORAGE: Storage of commodities on pallets or other storage aids that form horizontal spaces between tiers of storage.

PERSONAL SUPERVISION: Supervision by the holder of any Fire Department Certificate of Fitness who is required to be personally present on the premises, or other proximate location acceptable to the department, while performing the duties for which the certificate is required.

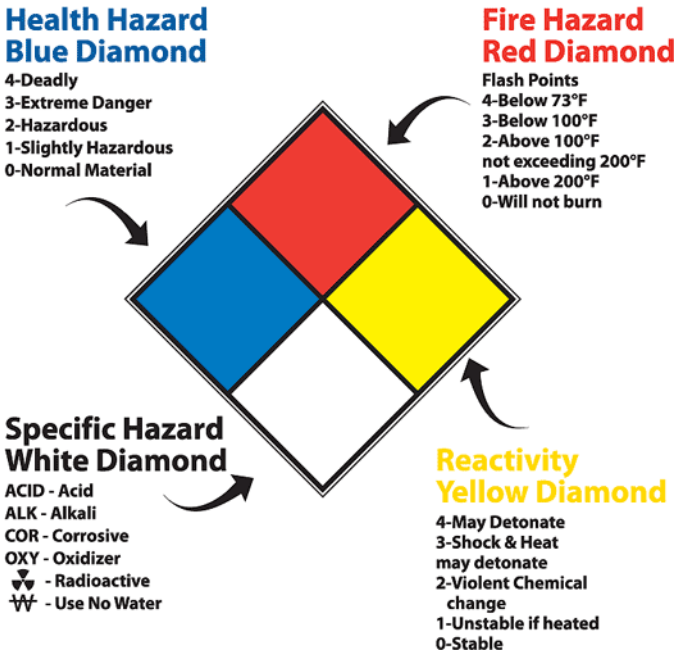
PROPELLANT: A gas which is liquefied or compressed in an aerosol container and works to expel the product in the container when the valve is actuated. A propellant is considered flammable if it mixes with air to form a flammable mixture or if a flame is created when mixed with air.

RACK: Any combination of vertical, horizontal, and diagonal members that supports stored materials. Shelving in some rack structures use shelves that can be solid, slatted, or open. Racks can be fixed, portable, or movable.

RACK STORAGE. Any storage system, except shelf storage.

RETAIL DISPLAY AREA: An open area used for the purpose of viewing and purchasing merchandise. Individuals are generally free to roam around this area, which has items for sale on racks, shelves, or the floor.

3 NFPA HAZARD 704 DIAMOND SIGN EXPLANATION



The basis of the system is a diamond-shaped sign that is divided into color- coded quadrants. The left-most quadrant is colored blue and represents the *health* hazard posed by the material. The upper quadrant is red in color and indicates the relative *fire* hazard. The right-most quadrant is yellow and conveys the relative potential for *reactivity* (instability) of the material. The last quadrant, at the bottom, is white in color and serves to convey *"special" or "specific"* information.

The numbering system that is used to convey the hazards of a material uses a scale of 0 through 4 for each of the three hazard types (health, fire and reactivity). A number is placed in each box, specific to the material at hand. In each quadrant, a "0" represents the least concern and "4" represents the highest degree of hazard posed by a material. For instance, a "0" in the upper quadrant indicates a material that will not burn, while a "4" in the same quadrant indicates a gaseous material that will burn very readily. Intermediate numbers represent increasing levels of hazard in all categories, such as the "3" that is present in the "health" quadrant. This is indicative of a material that can cause permanent or serious injury upon exposure.

4 COMMON AEROSOLS

4.1. Level 1

Whipped Cream
(Hazard Signal:
Nitrous Oxide- propellant: 2 Health 0 Flammability 0 Reactivity OX
Specific Hazard)

At room temperature it is a colorless gas with a slightly sweet odor and taste.

Handling and Storage

- **Handling Precautions:**
  Food and propellant filled cans should be shipped and stored under refrigerated conditions of 35°-40°F.

- **Storage:**
  Keep it refrigerated, and once opened, use within a few days

Health Hazards

There are no specific health hazards under correct and normal usage. When abused and inhaled at high concentrations – breathing and pulse rate increased and coordination slightly affected.

Deliberate concentration and inhalation of propellant (nitrous oxide) may be harmful by creating symptoms of excitation, euphoria, dizziness with slurred speech and dulling of senses. Acute hazards are associated with inhaling oxygen-deficient atmospheres when product use is abused. Chronic repeated over-exposure may result in injury to the nervous system such as numbness and tingling of the extremities.

4.2. Level 2

Deodorant
(Hazard signal: 2 Health 2 Flammability 1 Instability)

Aerosol deodorant is a clear to yellowish solution with various scents.

Handling and Storage

- **Handling Precautions:**

Pressurized Container. Protect from sunlight and do not expose to temperatures exceeding 120°F. (~50° C). Keep from extreme cold. Do not pierce or burn, even after use. Do not spray on

naked flame or any incandescent material. Avoid heat, sparks, flame or smoking during use. Shake can before use.

- **Storage:**

Large quantities (as in a warehouse) should be in a cool area, away from ignition sources.

Fire Hazards

Keep away from heat and sources of ignition. Containers may rocket or explode in the heat of a fire.

Fire extinguishers:

- water fog
- foam
- dry chemical
- carbon dioxide

Health Hazards

- **Inhalation:** No adverse effects anticipated from normal use. If vapors are deliberately concentrated and inhaled (abuse), the following symptoms may occur: respiratory irritation, dizziness, drowsiness, headache, nausea, unconsciousness, cardiac sensitization, coma and death.
- **Ingestion:** No adverse effects anticipated from normal use. For formulations containing alcohol, ingestion of large amounts may induce alcoholic intoxication.
- **Skin:** No adverse effects anticipated from normal use.
- **Eye:** Contact Irritation may occur.

4.3. Level 3

Spray Paint

(Hazard signal: 2 Health 4 Flammability 0 Instability)

Spray paint is a mist-like liquid that is heavier than air and has a solvent like odor.

Handling and Storage

- **Handling Precautions:**

Wash hands thoroughly after handling. Wash hands before eating. Use only in a well-ventilated area. Follow all SDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or list.

- **Storage:**

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Do not store above 120° F. Store large quantities

in buildings designed and protected for storage of NFPA Class I flammable liquids. Contents under pressure. Do not expose to heat or store above 120°F.

Fire Hazards

Keep away from heat and sources of ignition. Containers may rocket or explode in the heat of a fire.

Fire extinguishers:

- water fog
- alcohol foam
- dry chemical
- carbon dioxide
- foam

Health Hazards

- **Inhalation:** Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs.
- **Ingestion:** Substance may be harmful if swallowed. Aspiration hazard if swallowed; can enter lungs and cause damage
- **Skin:** May be absorbed through the skin in harmful amounts. Substance may cause slight skin irritation. Prolonged or repeated contact may cause skin irritation.
- **Eye:** Causes eye irritation.
- **Chronic Hazards:** Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage. IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Contains Titanium Dioxide. Titanium Dioxide is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC. Significant exposure is not anticipated during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of Titanium Dioxide in the formula. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

5 RETAIL DISPLAY

(This section applies to Level 2 and 3 Aerosol Products only)

Examples of proper aerosol retail display

In general, aerosol containers shall **not be stacked more than 6 feet high** from the base of the aerosol array to the top of the aerosol array unless the containers are placed on fixed shelving or otherwise secured in an approved manner. When storage or retail display is **on shelves**, the height of such storage or retail display to the top of aerosol containers shall **not exceed 8 feet** from the floor.

Exception: if protected according to the Section 5.2 of this booklet.

Aerosol products located in retail display areas shall be removed from combustible cartons.

Exception 1: Retail displays which make use of combustible cartons are allowed if only the bottom panel is left with a maximum of 2 inches of the side panels.

Exception 2: When the display area is protected in accordance with Table 6.3.2.7 (a) through 6.3.2.7 (l) of NFPA 30B (2007 Ed) storage of aerosol product in combustible cartons is allowed.

Display Cut Carton

The length of the carton side panel on display shall be a maximum of 2 inches.

Correct length

When a sprinkler system is required for the protected retail display of aerosol products, the wet-pipe sprinkler system must be approved by the Fire Department and the Buildings Department. The approved wet-pipe sprinkler system shall be provided throughout the retail display area.

5.1. Retail aerosol product displays *NOT* exceeding 8 feet in height

SHALL:

- **not** be stacked **more than 6 feet high** from the base of the aerosol array unless containers are placed on fixed shelving or an otherwise approved manner;
- be **removed** from combustible cartons;
- be protected by a wet-pipe sprinkler system and
- be stored for sale in retail display areas and the total quantity of such aerosol products shall **not** exceed the amounts in the table below:

Maximum quantities of Level 2 and 3 Aerosol Products in Retail Display Areas *(exceeding and not exceeding 8 feet)*

Maximum Net Weight Per Floor (pounds)[b]			
Floor	Unprotected[a]	Protected [a,c,d]	Additional Protection[c,e]
Basement, cellar or other area below grade	Not allowed	500	500
Ground	2,500	10,000	10,000
Upper	500	2,000	Not Allowed

Note: Only aerosols being used for display purposes shall be stored for sale in retail display areas and the total quantity shall not exceed amounts above.

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 sprinkler system throughout the retail sales occupancy.
d. less than 8ft:removed from combustible carton, protected by wet-pipe sprinkler.
e. more than 8ft: protected by sprinkler and by fire separation (distance, noncombustible partition, or other special fire protection).

5.2. Retail aerosols displays EXCEEDING 8 feet in height

SHALL:

- be protected by a sprinkler system in accordance to NFPA 30B based on the height of the display and:
  - uncartoned and display cut cartoned Level 2 and 3 aerosols may not be displayed more than 6 feet above finished floor
  - Level 2 and Level 3 shall have a sprinkler system designed to extend coverage to an area not less than 20 feet in all directions beyond

the display area
- noncombustible curtains shall be installed between areas then ordinary and high-temperature ceiling sprinklers systems are next to each other.

Fire separation:

Level 2 and 3 aerosols shall be
- separated from each other by not less than 25 feet
- separated from flammable and combustible liquids storage
- and display areas by one or more of the following:
  - horizontal distance of not less than 25 feet
  - noncombustible partition extending not less than 18 inches above merchandise.
    - when merchandise is 25 feet from flammable or combustible liquids the noncombustible partition shall be liquid tight at floor level

Special Fire Protection *is required for Level 2 and 3 aerosols adjacent to flammable and combustible liquids in double-row racks:*
- displayed more than 8 feet above finished floor the aerosols shall be in cartons
- shelving in racks is limited to wire mesh shelving having uniform openings not more than 6 inches apart with openings making up 50% of the overall shelf
- aisles maintained no less than 7 ½ feet between rows of racks and adjacent solid pile or palletized merchandise.
- Flue Spaces
  - transverse flue spaces- 3 inch transverse flue spaces shall be maintained between merchandise and rack uprights.
  - longitudinal flue spaces- 6 inch longitudinal flue spaces shall be maintained.
- when in rack sprinklers are installed, horizontal barriers constructed of a minimum of 3/8 inch think plywood or a minimum of 0.034 inch sheet metal shall be provided.

- Class I, II, III, IV and plastic commodities located adjacent to retail Level 2 and 3 aerosol displays shall be protected according to NFPA 13.
- Class I, II, IIIA, and IIIB liquids shall be allowed to be adjacent to Level 2 and 3 aerosols only when the following conditions are met:
  - limited to 1.06 gallon (4L) metal-relieving and non- relieving style containers and 5.3 gallon metal relieving style container.
  - Automatic sprinkler protection for Class I, II, IIIA and IIIB liquids provided for flammable and combustible liquids.

6 STORAGE

All aerosol products shall be safely stored in a safe manner which abides by the New York City Fire Code. Storage facilities for aerosol products include general purpose warehouses, aerosol warehouses, liquid storage rooms, liquid warehouses, outdoor storage and retail display.

This section addresses the special regulations for the indoor and outdoor storage of Level 2 and 3 aerosol products. Level 1 aerosol products shall be considered equivalent to a Class III commodity and the design and construction of palletized or rack storage shall comply with the requirements set forth in NFPA 13 (2007 Eds).

6.1. RETAIL STORAGE

Level 2 and 3 aerosols are to be stored in storage areas directly next to the retail displays of the products. These shall be limited as follows:

Maximum Net Weight per floor (pounds)			
Floor	**Nonsegregated storage [a,b]**	**Segregated storage**	
		Storage cabinets [b]	**Separated from retail area [c]**
Basement or area below ground level	Not permitted	Not permitted	Not permitted
Ground Floor	2,500	5,000	Note d
Upper Floors	500	1,000	Note d

a. The total aggregate quantity on display and in storage shall not exceed the maximum retail display quantity indicated in FC2806.3.
b. Storage quantities indicated are the maximum allowed in any 50,000-square-foot area.
c. The storage area shall be separated from the retail area with a 1-hour fire-resistance-rated assembly.
d. See Segregated Storage in General Purpose Warehouse chart

6.2. INDOOR STORAGE (for areas other than retail display)

6.2.1 Maximum allowable quantity

There are different quantity limitations for the Level 2 and Level 3 aerosol product storing in (1) Group A, B, E, F, I and R occupancies (refer to Definition for the detailed description of different occupancies); (2) Flammable liquid storage rooms; and (3) Non-segregated areas in general purpose warehouses. The quantities of Level 2 and Level 3 aerosol products shall not exceed the maximum allowable quantity listed in the table below:

Maximum Allowable Quantity of Level 2 and Level 3 aerosol products

Aerosol Level	Groups A, B, E, F, I and R occupancies[a]		Flammable liquid storage rooms	
	No Cabinet/ flammable liquid storage room(lb)	With storage cabinet(lb)	500 ft² or less	more than 500 ft²
2	1,000	2,000	1,000	2,500
3	500	1,000	500	1,000
Combined of 2 & 3	1,000	2,000	1,000	2,500[b]

a. The description of different group occupancies could be referred to Definition.
b. The maximum aggregate storage quantity of Level 2 and 3 aerosol products allowed in separate indoor storage rooms protected by a sprinkler system in accordance with NFPA 30B shall be 5,000 pounds

6.2.2 *General purpose warehouses*

General purpose warehouses utilized only for warehousing-type operations involving mixed commodities.

A. Non-segregated storage

Storage consisting of solid pile, palletized or rack storage of Level 2 and 3 aerosol products not segregated into areas utilized exclusively for the storage of aerosols shall comply with the requirements of the following table:

Aerosol Levels	Maximum net weight per floor (lb)[a]			
	Palletized or Solid-pile storage		Rack Storage	
	Unprotected	Protected[b]	Unprotected	Protected[b]
2	2,500	12,000	2,500	24,000
3	1,000	12,000	1,000	24,000
2 and 3	2,500	12,000	2,500	24,000

a. Storage quantities indicated are the maximum allowed in any 50,000-square-foot area.
b. Sprinkler system protection and storage arrangements shall comply with the requirements of NFPA 30B.

B. Segregated storage

Storage of Level 2 and 3 aerosol products segregated into areas utilized exclusively for the storage of aerosols shall be in accordance with the following:

Storage Separation	Maximum Separated Storage Area		Sprinkler Requirements
	Percentage of Building area (percent)	Area Limitations (square feet)	
Separation Area[e,f]	15	20,000	Notes b,c
Chain-link fence enclosure[d]	20	20,000	Notes b,c
1-hour fire-resistance rated walls	20	30,000	Note b
2-hour fire-resistance rated walls	25	40,000	Note b
3-hour fire-resistance rated walls	30	50,000	Note b

a. 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.
b. Sprinkler system protection in aerosol product storage areas shall comply with the requirements of NFPA 30B and be approved. Other building areas not containing aerosol product storage shall be protected throughout by a sprinkler system in accordance with the construction codes, including the Building Code.
c. Sprinkler system protection in aerosol product storage areas shall comply with the requirements of NFPA 30B and be approved. Sprinkler system protection shall extend a minimum 20 feet beyond the aerosol storage area.
d. Chain-link fence enclosures shall comply with the requirements of FC2804.3.2.1.
e. A separation area shall be defined as an area extending outward from the periphery of the segregated aerosol product storage area as follows.
   1. The limits of the aerosol product storage shall be clearly marked on the floor.
   2. The separation distance shall be a minimum of 25 feet and maintained clear of all materials with a commodity classification greater than Class Ill in accordance with NFPA 13, as modified by FC Appendix B.
f. Separation areas shall be allowed when approved.

6.2.2.1 *Fences (in General Purpose Warehouses)*

Chain-link fences shall be used to enclose storage areas used for aerosol products ONLY. To ensure the proper strength and type of chain-link fence, these requirements shall be followed:

1. Minimum No. 9 gage steel wire fence woven into a maximum **two (2) inch** diamond mesh.
2. Fence shall run from the floor to the ceiling of the enclosed area.
3. Other combustible products shall be stored outside the area, at least **eight (8) feet** from the fence.
   Exception: Combustible liquids may be stored in 1-quart metal containers or smaller.
4. There must be at least two (2) exits from the fenced area.
5. Access openings must have a self-closing device so that aerosol products cannot rocket through openings at any given moment.

6.2.3 Aerosol warehouses

The total quantity of Level 2 and 3 aerosol products in an aerosol warehouse shall not be restricted provided such a warehouse complies with the requirements below:

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

6.2.4 Liquid warehouses

Storage of level 2 and 3 aerosol products in liquid warehouses must have:

- **Containment**: spill control or drainage shall be provided to prevent the flow of liquid within 8 feet of the segregated storage area.
- **Sprinkler design:** sprinkler protection shall be designed based on the highest level of aerosol product present
- **Open protection into segregated storage areas:** Fire doors or gates opening in the segregated storage area shall either be self-closing or provided with automatic-closing devices activated be sprinkler water flow or an approved fire detection system.

6.3. OUTDOOR STORAGE

The outdoor storage of Level 2 and 3 aerosols products, including storage in temporary storage trailers, shall be separated from exposures according to the table below:

Distance to Exposures for Outdoor Storage of Level 2 and 3 Aerosol Products

Exposure	Minimum distance from Aerosol Storage (feet) [a]
Public streets or private roads	20
Buildings	50
Exit discharge to a public street or private road	50
Lot lines	20
Other outdoor hazardous material storage	50

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.

7 Lithium-ion safety

Lithium-ion batteries are rechargeable batteries found in electric bikes, scooters, cars, laptops, tablets, phones, and many other common household devices.

Lithium-ion battery fires have caused deaths, serious injuries, and devastating damage to property around the city. It's important to follow rules for safe storage, charging, and disposal for these types of batteries.

If you own a lithium-ion powered device or plan to buy one, the FDNY has important safety tips that you should follow. These tips apply to all devices powered by lithium-ion batteries, including phones, tablets, laptops, e-cigarettes, toys, high-tech luggage, and even robotic vacuum cleaners.

Immediately stop using or charging battery and call 911 if you notice:

- **Fire or Smoke**
- **Overheating**
- **Change in color or shape**
- **Odd noises**
- **Leaking**
- **Strange smell**

ALWAYS:	**NEVER:**

• purchase and use devices certified by a Nationally Recognized Testing Laboratory (NRTL).
• follow the manufacturer's instructions for:
  ◦ charging and storage.
  ◦ correct battery, cord, and power adapter
• keep exit path clear at all times.
• plug directly into a wall electrical outlet for charging.
• keep batteries and devices at room temperature.
• store and/or charge batteries away from anything flammable.
• keep away from heat sources.
• bring batteries to a **NYC Battery Recycling Center.** Visit nyc.gov/batteries for more information.
	• use aftermarket batteries or chargers.
	• use damaged or altered batteries
	• plug into a power strip or overload an outlet.
	• overcharge or leave battery charging overnight.
	• charge a battery or device under your pillow, on your bed, or near a couch.
	• leave e-bikes or e-scooters unattended while charging.
	• block your primary way in or out of a room/space with e-bikes, e-scooters, wheelchairs, etc.
	• place batteries in Trash or Recycling bin. **It is ILLEGAL.** Visit nyc.gov/batteries for disposal locations and information.

In the event of a Fire,
Leave and CLOSE the door.
Call 911 once you are in a safe location.

Charging Lithium Ion

Lithium-ion batteries do not have to be fully charged; partial charge is the most suitable.
When **charging more than five (5)** personal mobility devices or their removable batteries, it must be in a **dedicated room with ventilation** and a self-closing door.
For a total battery capacity of 20 kilowatt-hours (kWh), a 2-foot separation between charging batteries is required. For a total battery capacity up to 50 kWh, a 3-foot separation is needed.

Chargers must only be used with a compatible battery pack. The original equipment manufacturer (OEM) charger interplays with the battery pack using the battery management system (BMS). The wrong battery/charger combination may not work safely. For example, the 100% cutoff to prevent overcharging, which damages batteries, may not work which can easily create hazardous conditions such as fires, explosions and/or injuries.

Always check with the manufacturer or retailer of the personal mobility device, an authorized repair shop or a testing laboratory such as Underwrites Laboratories (UL) to see if replacement is recommended or listed and safe for use with that device. Using unauthorized parts, including batteries and/or chargers, may cause damage, fire and possibly void your warranty.

Extinguishing Lithium-ion

Water may not prevent a battery from burning and spreading. Battery cells are known to explode and quickly spread to another battery. It can spread to another devices.

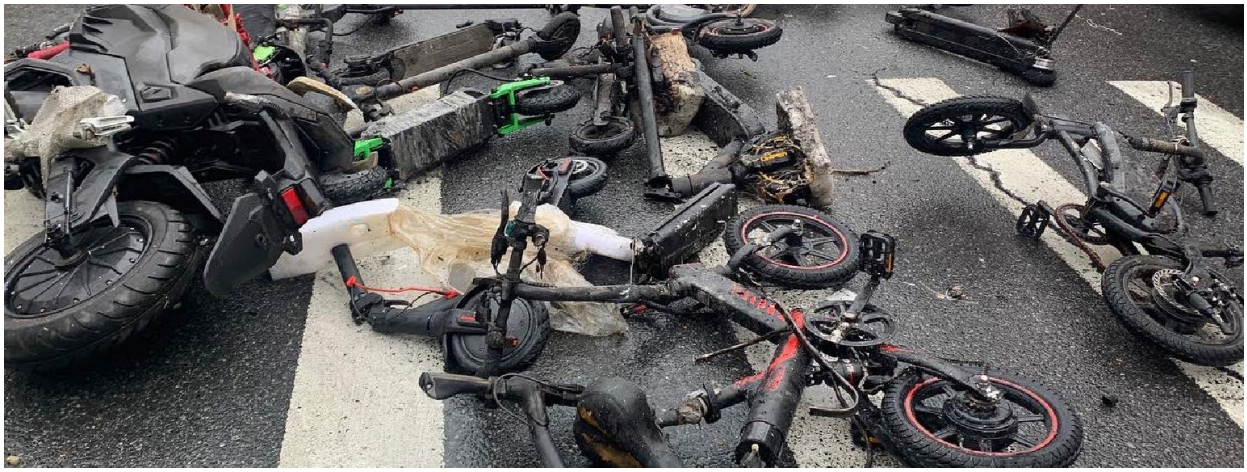
Fire Extinguishers
do not work
on lithium-ion batteries fires.

Unexpected Re-ignition.

Reignition is common. Lithium-Ion Batteries are known to unexpectedly re-ignite (without warning) minutes, hours and even days after all visible fire has been put out.

Lithium-ion batteries can enter an uncontrollable, self-heating state. This can result in the release of gas, cause fire and possible explosion.

These batteries may continue to generate heat even when there is no visible sign of fire. Once heat reaches a certain level fire may reignite on the battery and surrounding area.



8 FIRE EXTINGUISHERS AND EMERGENCY NOTIFICATIONS

8.1 Fire Extinguishers

At least one portable fire extinguisher having a minimum 10-B: C rating shall be provided in the storage area. Portable fire extinguishers shall be located in conspicuous locations, along normal travel paths, within a 30 foot travel distance, where they will be readily accessible and immediately available for use.

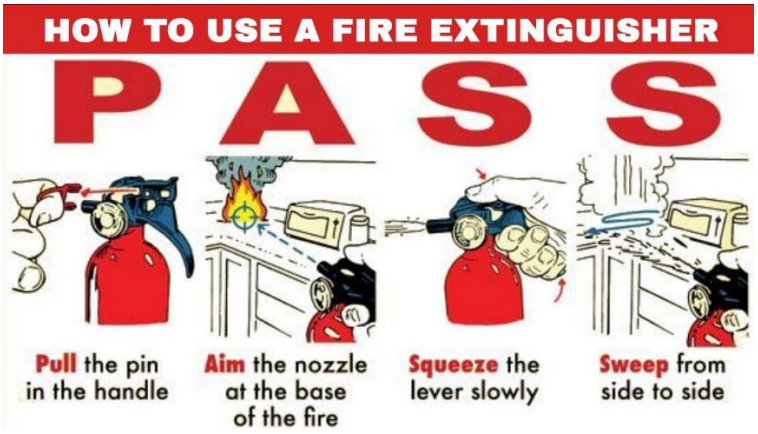
Travel Distance is the actual walking distance from any point to the nearest fire extinguisher.

According to the National Fire Protection Association (NFPA) and Fire Department Rule, fire extinguishers are categorized according to their compatibility with the fuel they are expected to extinguish, or the danger of energized electrical equipment. Fuels include four basic groups: wood, liquids, metals, and animal fats; and the hazard of electrical conductivity. Further, extinguishers are designated by alphabetical letters and symbols as shown in the table below:

CLASSES OF FIRES	TYPES OF FIRES	PICTURE SYMBOL
A	Wood, paper, cloth, trash & other ordinary materials.	
B	Gasoline, oil, paint and other flammable liquids.	
C	May be used on fires involving live electrical equipment without danger to the operator.	
D	Combustible metals and combustible metal alloys.	
K	Cooking media (Vegetable or Animal Oils and Fats)	

In case of any fire, immediately call 911.

Fire extinguishers must be used in accordance with the instructions painted on the side of the extinguisher. They clearly describe how to use the extinguisher in case of an emergency. The Certificate of Fitness holder should be familiar with the use of portable fire extinguishers. When it comes to using a fire- extinguisher just remember the acronym P.A.S.S. to help make sure you use it properly. P.A.S.S. stands for Pull, Aim, Squeeze, Sweep. An example of these instructions is depicted in the picture below.



8.2 Portable Fire Extinguisher Tags

Installed portable fire extinguishers must have an FDNY standard PFE tag affixed. This tag will have important information about the extinguisher. By November 15, 2019, all portable fire extinguishers must have the new PFE tags. The FDNY will only recognize new PFE tags and will be issuing violations to business that have PFE installed without a proper tag.

The color of the fire extinguishers may be changed by the FDNY every few years. The FDNY recommends two ways to verify the tag's legitimacy:

1. Hologram:

A real hologram strip shown on the tag is 3 inches long by ¼ inch wide. Counterfeit tags will NOT have a high-quality silver hologram. The hologram on a counterfeit tag will NOT change color as it is moved against the light.

2. QR code

If you scan the QR code, it should direct you to the updated FDNY approved fire extinguisher company list. You can use the company list to verify if the company printed on the list is currently approved by the FDNY.

If your PFE tags cannot be verified via these two methods, contact your supervisor. If you suspect your PFE is a counterfeit, contact FDNY immediately by e-mail: Tags.Decal@fdny.nyc.gov

PFE tag (This tag is released for 2021-2023)

8.3 Portable Fire Extinguisher Inspections

MONTHLY

The portable fire extinguishers are required to be checked monthly. The owner of the business is responsible to select a person to do a monthly inspection. This monthly inspection is called a "quick check".

The **QUICK CHECK** should check if:

- the fire extinguisher is fully charged;
- it is in its designated place;
- it has not been actuated or tampered with;
- there is no obvious or physical damage or condition to prevent its operation.

The information of the monthly inspection record must include the date of the inspection, the name/initials of the person who did the inspection. This monthly quick check is documented on the back of the PFE tag or by an approved electronic method that provides a permanent record.

ANNUALLY

At least annually all Portable Fire Extinguishers must be checked by a W-96 Certificate of Fitness holder from FDNY approved company. After each annual inspection W-96 COF holder will replace the PFE tag. The information of the annual inspection record must be indicated on the new PFE tag.

8.4 Notifications:

The person responsible for the supervision of storage and retail display of aerosol products should notify the site safety manager if an unsafe condition has been created. Any person who becomes aware of a fire or explosion or any other emergency shall immediately report such emergency to the Fire Department (Call 911). No owner or other person shall issue any directive or take any action to prevent or delay the reporting of a fire or other emergency to the Fire Department. After calling the Fire Department, the supervisor or the site safety manager or other designated person should also be notified.

The Certificate of Fitness holder must know the locations of and how to operate all fire extinguishing devices, control devices, and fire alarm stations installed at the facility. In case of a fire, explosion, major spill or emergency, the Certificate of Fitness (C of F) holder must notify the Fire Department by calling 911 immediately.

After notification by phone, the local fire alarm must be sounded. In some cases, the activation of the fire alarm will transmit a signal to the Fire Department via a FDNY approved central station company. The C of F holder shall initiate an orderly evacuation when necessary, following a hazardous incident, and take reasonable steps to isolate the hazard until the Fire Department arrives. The Certificate of Fitness holder must answer any questions asked by Firefighters and officers when they arrive. For example, he or she must indicate the location of the fire, describe the type of fire protection devices available, and describe the materials stored on the fire floor. The Bureau of Fire Prevention must be notified as soon as possible after an explosion or fire has occurred. The Bureau of Fire Prevention may require a detailed report on the causes and the consequences of the explosion or fire. Generally, this report must be filed within ten days after the incident.

APPENDIX A. SAMPLE RETAIL QUICK DAILY CHECK

COF Holder's Name:		**Date:**
COF Number:		
General Responsibilities:	*Check if yes, if no use note section*	**Notes:**
Is there a FDNY permit for the handling, use and storage of aerosol products posted?	☐	
Are the SDS for each product on file?	☐	
Good Housekeeping:		
Is the stock room organized and free of clutter?	☐	
Are products on retail display shelves organized and clutter free?	☐	
Are the bottom panels of combustible cartons cut down to 2 inches?	☐	
Are all exits free and clear of obstruction?	☐	
Fire Safety:		
Is there a fire extinguisher within 30 feet of aerosol products?	☐	
Is the fire extinguisher easily accessible and properly mounted?	☐	
Are sprinklers free and clear of obstruction?	☐	

APPENDIX B. SAMPLE MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet

I Product:	COMBINATION CARPET SPOT & STAIN REMOVER (AEROSOL)	
Description:	WHITE FOAM WITH FLORAL FRAGRANCE	
Other Designations	Distributor	Emergency Telephone Nos.
	PCPC Sales Company 1234 Cleanview Cleanville, NY 12345	For Medical Emergencies call: (800) 555-5555 For Transportation Emergencies (800) 444-4444

II Health Hazard Data

Eye contact or prolonged or repeated skin contact may cause minor irritation. Inhalation of large amounts of the propane/butane propellant in an enclosed area may induce anesthetic, asphyxiant effects and CNS depression.

FIRST AID:

EYES-Rinse with water for at least 15 minutes.

IF SWALLOWED - Drink a glassful of water. Call a physician.

SKIN - Rinse with water.

INHALATION: - remove affected individual to fresh air and call a physician.

No medical conditions are known to be aggravated by exposure to this product. When used as directed, no adverse health effects are expected from the use of this product.

KEEP OUT OF REACH OF CHILDREN

III Hazardous Ingredients

Ingredient	Concentration	Worker Exposure Limit
Propane/butane Propellant Mixture (Liquefied Petroleum Gas) CAS # 74-98-6 #106-97-8	2-5%	800-1000 ppm* TLV-TWA
Anionic Surfactants CAS # 25155-30-0 Hydrotrope #1300-72-7	1-5%	None

*TLV-TWA = ACGIH Threshold Limit Value - Time Weighted Average

None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen lists at above 0.1%.

IV Special Protection and Precautions

No special protection or precautions have been identified for use of this product when used as directed. The following are recommended practices for conditions where there is increased potential for accidental large-scale, or prolonged exposure.

Hygienic Practices: Wear safety glasses and gloves.

Engineering Controls: Use general ventilation to minimize exposure to vapor or mist.

Work Practices: Avoid eye and skin contact. Do not inhale fumes. Do not ingest.

V Transportation and Regulatory Data

U.S. DOT Hazard Class: ORM-D
DOT Proper shipping name: Consumer Commodity
IMDG classification: Dangerous Goods in Ltd Qty of class 2.2

EPA - SARA Title III/CERCLA
Packaged product is not reportable under Sections 311/312. Bulk product requires notification under Sections 311/312. There are no Section 313 materials in this product.

TSCA Status: All components of this product are on the TSCA Inventory.

VI Spill Procedures/Waste Disposal

Spill Procedures: Absorb and containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.

Waste Disposal: Dispose of in accordance with all applicable federal, state and local regulations.

VII Reactivity Data

Stability: Stable under normal use and storage conditions.
Conditions to avoid: Temperatures over 120°F.
Incompatibility: Strong oxidizing agents
Hazardous Polymerization: Will not occur.

VIII Fire and Explosion Data

Flashpoint.....-156
Extinguishing Media.....All Types
Special Procedures.....None

Unusual Fire/Explosion Hazards Contents under pressure. Temperatures greater than 120°F may cause cans to rupture. Propane/isobutane propellant may present a flammability and/or an explosion hazard if allowed to accumulate at high concentrations in an enclosed area. Do not puncture or burn. Keep aerosols from fire or sparks. Store in accordance with NFPA 30B for Level 1 aerosols.

IX Physical Data

Specific Gravity.....1.03 g/c
pH.....9.85.0

DATA SUPPLIED IS FOR USE ONLY IN CONNECTION WITH OCCUPATIONAL SAFETY AND HEALTH DATE PREPARED 09/14

APPENDIX C. WORST CASE SCENARIOS

1982: Kmart warehouse fire in Falls Township, Pennsylvania

The fast developing fire started in a picking area containing 40 to 50 pallets of 14 ounce aerosol containers of carburetor cleaner and sent the cans – which were dripping burning flammable liquids - rocketing through openings in the firewalls. Because sufficient heat had not yet reached the fusible links when the aerosols flew through, the fire doors were not activated, the sprinklers were overwhelmed and roof collapse ensued. Although the fire was declared controlled after nine hours, hot spots continued to flare up and final fire extinguishment did not occur until eight days later.

1999: Aerosol Container Warehouse Saint Egreve, France

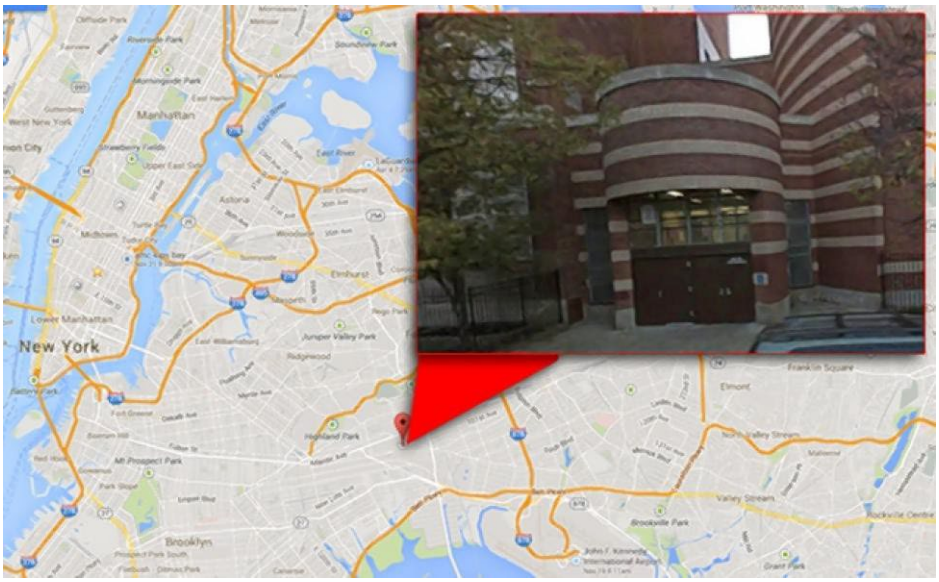
On the 2nd basement level of a factory in an urban area mixing and packaging aerosols, a stock of boxed supplies stored on pallets ignited. A forklift driver, who sustained slight burns during the incident, noticed a flame ignite under his vehicle (perhaps because of a dropped and crushed aerosol canister, leading to possible gas ignition before the fire inflamed the atmosphere and quickly spread on the premises. Aerosol canisters returned by customers subsequent to a seal break might have caused this accident.

2001: "Father's Day Fire" Astoria, NY

Dangerous and flammable chemicals including chemical containers, aerosol cans, paint cans and propane canisters were being illegally stored in the store. The fire started when two boys went looking for spray paint cans, which the store carried, and began rummaging in a storage area in the back of the store.

A 15-year-old found a can and painted his tag on a nearby church, then left to get a sandwich. His accomplice, a 13-year-old, poked deeper into the storage area and moved some large barrels of propane, on top of which was a plastic bottle of gasoline. This bottle, which investigators believe was open, was knocked off the barrels and rolled down a little ramp at the bottom of which was a security door. The gasoline proceeded to leak underneath the door, which was made of heavy iron and steel. That door led to the store's basement, where both a hot water heater and a boiler were in operation. The hot water heater's flame is believed to have been the igniting agent that started the disaster. The 13-year-old told investigators that a flame shot out from under the basement door as he was trying to clean up the spilled gasoline. At this point, the 15-year-old arrived back on the scene and the two boys attempted, unsuccessfully, to put out the fire with some containers of rainwater that were in the yard.

2013: PS 64 School, Ozone Park, NY



Someone left an aerosol can of computer cleaner on a radiator and it burst injuring six young students. About 32 students were evaluated but only six sent to the hospital with minor injuries.

2014: Mississaugua Warehouse fire (near) Toronto, Canada

The warehouse was a storage facility for imported goods that included butane lighters and aerosol cans of insect spray, which appear to be the cause of the explosion (although the cause of the fire remains unknown). The responding fire crews were not aware that the building contained explosive materials. The explosion also blew out the windows of a fire truck and the heat melted parts of its exterior. Police were concerned that the air quality was a major concern following the Mississauga, Ont., fire because of the potential nature of the substances stored in the building.

“Aerossault”

The pictures above are of a pressurized can that exploded in a person’s vehicle and imbedded itself in the back seat of the car and through a back window. The temperature outside of the closed up vehicle was about 100 degrees F.

The incident pictured above happened at a refinery in Beaumont. A deodorant spray can was left in the back of the vehicle that was parked in an open space in the middle of a hot, sunny day.

Lessons Learned:

- Do **NOT** leave pressurized containers (of any kind) in your vehicle where they can be exposed to sunlight!
- You should always read and follow the manufacturer’s safety recommendations that come with the can.
- Reporting incidents such as this can help inform personnel of possible risks and dangers both inside and outside the workplace!