

Seattle Fire Department

Permit Conditions

8002

Laboratory (Haz Mat quantities not exceeding MAQ per control area)

This permit shall be kept on the premises designated herein at all times and shall be readily available for inspection by the fire code official. [SFC 105.3.5]

1. Material safety data sheets shall be readily available on the premises for hazardous materials regulated by this permit. MSDS' that are electronically available through an offsite vendor are acceptable for meeting this requirement. (SFC 2703.4)
2. Control area boundary descriptions shall be provided upon request from the Fire Marshal's Office. (SFC 105.3)
3. A Hazardous Material Inventory Statement and summary by control area shall be made available upon request by the Fire Marshal's Office. (SFC 2701.5.2)
4. A responsible official shall be designated to ensure that minimum amounts of hazardous materials necessary for demonstration, treatment or lab work are maintained and maximum allowable quantities of hazardous materials per control area are not exceeded. (SFC 105.3)
5. Unless otherwise approved, visible hazard identification signs as specified in NFPA 704 shall be placed at entrances to locations where hazardous materials are stored, dispensed, used or handled in quantities requiring a permit. (SFC 2703.5)
6. Individual containers, cartons or packages shall be conspicuously marked or labeled in an approved manner. (SFC 2703.5.1)
7. Rooms or cabinets containing compressed gases shall be conspicuously labeled: COMPRESSED GAS. (SFC 2703.5.1)
8. Empty containers previously used for the storage of hazardous materials shall be free from residual material and vapor as defined by DOT, R.C.R.A. or other regulating authority or maintained as specified for storage of hazardous material. (SFC 2703.2.5)
9. Equipment, machinery and required detection and alarm systems associated with hazardous materials shall be maintained as specified by the manufacturer and in an operable condition. (SFC 2703.2.6)
10. Defective containers, cylinders and tanks shall be removed from service and repaired or replaced. (SFC 2703.2.6)
11. Smoking shall be prohibited and "NO SMOKING" signs shall be provided within 25 feet of outdoor storage, dispensing or use areas. (SFC 2703.7.1)
12. Signs shall be of a durable material with red lettering on a white background and letters shall be not less than 3 inches in height and 1/2 inch in stroke. (SFC 310)
13. Open flames and high-temperature devices shall not be used in a manner that creates a hazardous condition and shall be listed for use with the hazardous materials stored or used. (SFC 2703.7.2)
14. Powered industrial trucks used in areas designated as hazardous (classified) locations in accordance with the Electrical Code shall be listed and labeled for use in the environment intended in accordance with NFPA 505. (SFC 2703.7.3)
15. The maximum allowable quantity of hazardous materials stored and used in indoor control areas shall not exceed the amounts allowed by Tables 2703.1.1(1) and (2) and Table 2703.8.3.2 (attached).
16. Where storage cabinets are used to increase maximum allowable quantities per control area, such cabinets shall comply with the following:
 - Cabinets shall be of steel having a thickness of not less than 0.0478 inch (1.2 mm) (No. 18 gage). The cabinet, including the door, shall be doubled walled with a 1.5-inch (38 mm) airspace between the walls. Joints shall be riveted or welded and shall be tight fitting. Doors shall be well fitted, self-closing and equipped with a self-latching device.

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- The bottoms of cabinets utilized for the storage of liquids shall be liquid tight to a minimum height of 2 inches (51mm). (SFC 2703.8.7.1)
17. Electrical equipment and devices within cabinets used for the storage of hazardous gases or liquids shall be in accordance with the Electrical Code. (SFC 2703.8.7.1)
 18. Hazardous materials storage cabinets shall be clearly identified in an approved manner with red letters or a contrasting background to read: HAZARDOUS - KEEP FIRE AWAY. (SFC 2703.9)
 19. Persons responsible for the operation of the laboratory shall be familiar with the chemical nature of the materials and the appropriate mitigation actions necessary in the event of fire, leak or spill. (SFC 2703.9.1)
 20. Laboratories shall be secured against unauthorized entry and safeguarded in a manner approved by the fire code official. (SFC 2703.9.2)
 21. Electrical wiring and equipment shall be installed in accordance with the Seattle Electrical Code. (SFC 2703.9.4)
 22. When processes or conditions exist where a flammable mixture could be ignited by static electricity, means shall be provide to prevent the accumulation of a static charge. (SFC 2703.9.5)
 23. Materials that are sensitive to light shall be stored in containers designed to protect them from such exposure. (SFC 2703.9.6)
 24. Materials that are shock sensitive shall be padded, suspended or otherwise protected against accidental dislodgement and dislodgement during seismic activity. (SFC 2703.9.7)
 25. Fire extinguishers shall be selected, installed and maintained in accordance with SFC Section 906 and NFPA 10. (SFC 906.2)
 26. Means of egress shall not be obstructed in any manner and shall remain free of any material or matter where its presence would obstruct or render the means of egress hazardous. Storage in prohibited under exit stairways. (SFC 314.3, 804.2, 1003.6)
 27. Storage of combustible materials shall be orderly. Storage shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur. (SFC 315.2)
 28. Incompatible hazardous materials in storage and storage of materials that are incompatible with materials in use shall be separated when the stored materials are in containers having a capacity of more than 5 pounds (2 kg) or 0.5 gallons (2 L). Separation shall be accomplished by:
 - Segregating incompatible materials in storage by a distance of not less than 20 feet (6096 mm).
 - Isolating incompatible materials in storage by a noncombustible partition extending not less than 18 inches above and to the sides of the stored material.
 - Storing liquid and solid materials in hazardous materials storage cabinets.
 - Storing compressed gases in gas cabinets or exhausted enclosures in accordance with SFC Sections 2703.8.5 and 2703.8.6.
 29. Materials that are incompatible shall not be stored within the same cabinet or exhausted enclosure. (SFC 2703.9.8)
 30. Fume hoods and exhausted enclosures shall be designed, installed and maintained in accordance with SFD Administrative Rule 27.03.05. (SFC 105.3)
 31. Shelving shall be of substantial construction, and shall be braced and anchored in accordance with the seismic design requirements of the Seattle Building Code. (SFC 2703.9.9)

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32. Shelving shall be treated, coated or constructed of materials that are compatible with the hazardous materials stored. (SFC 2703.9.9)
33. Shelves shall be provided with a lip or guard when used for the storage of individual containers. (SFC 2703.9.9)
Exceptions: 1) Storage in hazardous materials storage cabinets or laboratory furniture specifically designed for such use.
2) Storage of hazardous materials in amounts not requiring a permit in accordance with Section 2701.5.
34. Shelf storage of hazardous materials shall be maintained in an orderly manner. (SFC 2703.9.9)
35. Hazardous material gas containers, cylinders and tanks in transit shall have their protective caps in place. (SFC 2703.10)
36. Containers, cylinders and tanks of highly toxic or toxic compressed gases in transit shall have their relief valve outlet capped or plugged with an approved closure device in accordance with Chapter 30. (SFC 2703.10)
37. Liquids in containers exceeding 5 gallons (19 L) in a corridor or exit enclosure shall be transported on a cart or truck in accordance with SFC 2703.10.3. Containers of hazardous materials having a hazard ranking of 3 or 4 in accordance with NFPA 704 and transported within corridors or exit enclosures, shall be on a cart or truck in accordance with SFC 2703.10.3.
Exceptions: 1) Two hazardous material liquid containers, which are hand carried in acceptable safety carriers.
2) Not more than 4 drums not exceeding 55 gallons (208 L) each, which are transported by suitable drum trucks.
3) Containers and cylinders of compressed gases, which are transported by approved hand trucks, and containers and cylinders not exceeding 25 pounds which are hand carried.
4) Solid hazardous materials not exceeding 100 pounds, which are transported by approved hand trucks, and a single container not exceeding 50 pounds, which is hand carried. (SFC 2703.10.2)
38. Carts and trucks used to transport materials shall not obstruct or be left unattended within any part of a means of egress. (SFC 2703.10.3.5)
39. Incompatible materials shall not be transported on the same cart or truck. (SFC 2703.10.3.6)
40. The fire code official shall be immediately notified when hazardous materials are released in quantities reportable under state, federal or local regulations, or when any spill or accidental release, inside or outside of a building, could present a fire or life safety hazard. (SFC 2703.3.1)
41. Provisions shall be made for controlling and mitigating unauthorized releases. (SFC 2703.3.1.2)
42. When an unauthorized discharge caused by primary container failure is discovered, the involved primary container shall be repaired or removed from service. (SFC 2703.3.1.3)
43. The person, firm or corporation responsible for an unauthorized discharge shall institute and complete all actions necessary to remedy the effects of such unauthorized discharge, whether sudden or gradual, at no cost to the jurisdiction. When deemed necessary by the fire code official, cleanup may be initiated by the fire department or by an authorized individual or firm. Costs associated with such cleanup shall be borne by the owner, operator or other persons responsible for the unauthorized discharge. (SFC 2703.3.1.4)
44. Class I, II or III liquids shall not be stored near exit doorways, stairways, or in location that would impede egress. (SFC 3404.3.3.3)
45. Class I liquids shall not be stored in basements unless stored in accordance with Administrative Rule 34.03.07, *Flammable Liquid Storage and Use in Basement Level Laboratories*. (SFC 3404.3.5.1)

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For Flammable Liquid Storage and Use in Basement Level Laboratories add:

- 46. Basement level lab units shall be separated from other lab units by a minimum one-hour fire barrier. (SFD Admin Rule 34.03.07 Item 1)
- 47. Storage and/or use of Class I liquids in basements shall only be allowed in buildings protected throughout by an approved automatic sprinkler system. (SFD Admin Rule 34.03.07 Item 2)
- 48. The mechanical ventilation system shall operate continuously and shall include exhaust taken from a point within 12 inches of the floor. (SFD Admin Rule 34.03.07 Item 3)
- 49. Maximum container sizes and types for flammable liquids in basement level laboratories shall be in accordance with the following: (SFD Admin Rule 34.03.07 Item 5)

| Container Type | Class I-A | Class I-B | Class I-C |
|----------------------------------|-----------|------------|------------|
| Glass ¹ | 1 pt. | 1 qt. | 1 gal. |
| Metal or listed approved plastic | 1 gal. | 1 gal. | 1 gal. |
| Safety cans | 1 gal. | 1 gal. | 1 gal. |
| Polyethylene ² | NA | Footnote 2 | Footnote 2 |

¹ Class I-A and I-B liquids are allowed to be stored in glass containers of not more than 4 liters capacity if the required liquid purity, such as American Chemical Society analytical reagent grade or higher, would be affected by storage in metal containers or if the liquid would cause excessive corrosion of a metal container.

² Polyethylene containers in accordance with nationally recognized standards.

- 50. Quantities of flammable liquids within individual lab units and basement levels shall not exceed the following maximum quantities: (SFD Admin Rule 34.03.07 Item 6)

| Class of Liquid | Maximum Allowable Quantity per Laboratory Unit (gallons) | Maximum Allowable Quantity per Basement Level ¹ (gallons) |
|---------------------------------------|--|--|
| Class I-A | 2 | 10 |
| Class I-B | 30 | 60 |
| Class I-C | 45 | 90 |
| Combination of Class I-A, I-B and I-C | 60 ¹ | 120 ¹ |

¹Containing not more than the maximum allowable quantity of each individual class.

- 51. Flammable liquids in excess of 10 gallons per lab unit, regardless of class of liquid or container size, shall be stored in approved flammable liquid storage cabinets. (SFD Admin Rule 34.03.07 Item 7)

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52. Flammable liquid storage cabinets shall be exhausted in accordance with NFPA 30 to maintain a negative pressure. Cabinet exhaust shall discharge to a safe location outside the building. (SFD Admin Rule 34.03.07 Item 9)
53. Flammable liquid storage cabinets shall be seismically braced in accordance with the Building Code. (SFD Admin Rule 34.03.07 Item 10)
54. Fire suppression shall be provided in non-metallic ducts serving fume hoods in basement level labs where Class I flammable liquids are used in accordance with SMC Section 510.7. (SFD Admin Rule 34.03.07 Item 11)
55. An approved fire suppression system shall be provided in fume hoods in basement level labs where Class I flammable liquids are used. (SFD Admin Rule 34.03.07 Item 12)
56. Shelving shall be of substantial construction, adequately braced and anchored, of sufficient depth and provided with a lip or guard to prevent individual containers from being easily displaced. (SFD Admin Rule 34.03.07 Item 13)
Exception: Shelves in storage cabinets or on laboratory furniture specifically designed for such use.
57. One or more portable fire extinguisher having a minimum rating of not less than 20-B shall be located not less than 10 feet or more than 50 feet from any Class I flammable liquid storage area. (SFD Admin Rule 34.03.07 Item 14)
58. Uses or operations that have the potential to increase volatilization of flammable liquids (such as warming and stirring), shall be performed in an exhausted enclosure or provided with equivalent ventilation control approved by the fire code official. (SFD Admin Rule 34.03.07 Item 15)
59. Containers of flammable liquids shall be delivered to and stored at their end-use locations. Centralized distribution and storage rooms/areas, and centralized dispensing are not allowed in basements. (SFD Admin Rule 34.03.07 Item 16)
60. The permit holder shall be responsible for monitoring and tracking inventories in each basement to ensure compliance with the above-noted provisions. (SFD Admin Rule 34.03.07 Item 17)
61. Basements shall be considered a part of, or a separate control area. Quantities of flammable liquids allowed in a basement shall be limited to maximum allowable quantities per control area (MAQ) without increases for sprinklers or cabinets, even though they are provided. If a control area includes a basement and other floors, then the other floors may utilize the increases, but the quantity in the basement portion shall not exceed the MAQ without increases. For example, if a basement and first floor are a single control area and all flammable liquids are stored in cabinets, the maximum aggregate quantity of Class I-B liquids allowed by SFC Table 2703.1.1(1) is 480 gallons (120 gallons x 2 for sprinklers x 2 for cabinets) – however the maximum quantity allowed in the basement portion is limited to 60 gallons. So, the balance (420 gallons) could be stored on the first floor. Regardless of whether part of, or a separate control area, the maximum quantity allowed in a basement shall not exceed maximum allowable quantities per control area WITHOUT INCREASES. (SFD Admin Rule 34.03.07 Item 18)