



Venting Flammable Liquid Storage Cabinets

Introduction

Flammable storage cabinets come with capped bung openings that allow ventilation. While cabinet manufacturers may provide the bungs for venting, ventilation for flammable storage cabinets is **NOT** required or recommended by the National Fire Protection Association (NFPA) or the California Fire Code (CFC).

Do Not Vent a Flammable Storage Cabinet Unless You Have To

According to NFPA 30, *Flammable and Combustible Liquids Code Handbook*, venting a flammable storage cabinet is not necessary for fire protection purposes. Flammable and combustible liquid storage cabinets are designed to protect the internal contents from a fire outside the cabinet. An improperly vented cabinet could compromise the ability of the cabinet to protect its contents from a fire.

According to NFPA 30, 6.3.4, "The cabinet is not required to be vented for fire protection purposes. However, the following shall apply:

- (a) If vented for whatever reasons, the cabinet shall be vented outdoors or to the fume hood exhaust duct in such a manner that will not compromise the specific performance of the cabinet.
- (b) If the cabinet is not vented, the vent openings shall be sealed with the bungs supplied or with bungs specified by the manufacturer."

When Should a Flammable Storage Cabinet Be Vented?

If excessive levels of chemical vapors are building up in the cabinet, it doesn't necessarily mean the cabinet must be vented. Before venting a cabinet to lower vapor levels, consider the following options:

1. Place cabinets in a cool, dry location out of direct sunlight and away from any possible heat or ignition source. Temperature fluctuation may increase harmful vapors emitted.
2. Always maintain continuous and adequate room ventilation. Many accidents occur when ventilation is turned off for the weekend or an extended period of time.
3. Maintain an accurate inventory of chemicals and their properties to prevent dangerous conditions resulting from incompatible chemical storage.

4. Store chemicals only in containers that are chemically compatible with the contents so that leakage/damage will not occur. Consult the MSDS or manufacturer for their recommendations. Frequently inspect containers for signs of damage and aging.
5. Always make sure that caps are replaced tightly on containers, and that the outside of containers are clean and free from residual liquids.
6. Regularly inspect inside the cabinet for spills, and clean up spills immediately.
7. Regularly inspect cabinets and any metal items in the surrounding area for signs of rust, corrosion or other visual indications that the vapor levels are excessive and mechanical ventilation would be needed.
8. Dispose of any aging chemicals that could become unstable.
9. Use of vapor absorbent inside the cabinet can also reduce the irritant level of vapors. Lab Safety Supply (labsafety.com) has some options.

What If I Want To Vent My Flammable Storage Cabinet?

If the users decide to vent a cabinet, a work order to Facilities Maintenance must be submitted and the following guidelines must be met (See next page for diagram). At the very minimum, venting must incorporate the following steps:

- Remove both metal bungs from sides of cabinet and replace flame arrester screens (normally these come with the cabinets) into the openings.
- Connect the bottom opening to the laboratory exhaust system or fume hood exhaust system using rigid metal piping equivalent or better than that used in construction of the cabinet. **Cabinets shall NOT be vented directly into the fume hood, through the fume hood work surface.** Piping must have an inner diameter no less than that of the opening and threaded to match the hole that's manufactured into the cabinet. If needed, piping may have to be welded in place. Riveting or fastening into the cabinet may compromise the fire protection rating of the cabinet. **PVC or plastic piping shall not be used since it cannot withstand high temperatures, such as in a fire.**
- The top opening shall serve as the fresh air inlet. The make-up air should be supplied to the fresh air inlet through piping similar to that used for the exhaust.
- The total run of the vent piping should not exceed 25 feet.
- **DO NOT** manifold vent piping from multiple cabinets.

The UC Davis Fire Department and Environmental Health and Safety office must be consulted for engineering guidance to ensure cabinets are vented appropriately.

For additional questions, please contact the UC Davis Fire Department Fire Prevention Office at (530) 752-1236.

