

University of Delaware
Environmental Health & Safety Protocol

Section: Laboratory Safety

Protocol Name: Purchase and Safe Use of Refrigeration Units

Date: April 1975

Revisions: October 1981, June 1989, January 2006, April 2015, June 2016, March 2019

Protocol Number: L-08

I. SCOPE OF PROTOCOL

This protocol addresses the purchase and use of refrigeration units utilized in laboratory, research or other risk areas and applies to all university departments, faculty, staff, and students.

The purchase of units used exclusively for the refrigeration of items intended for human consumption are not included in this policy.

II. DEFINITIONS

A. Domestic Refrigeration Unit

1. Ordinary stock refrigeration equipment, such as refrigerators, freezers, ice machines, storage cases, coolers, etc.

B. Laboratory-Safe Refrigeration Unit

1. A unit in which the refrigeration compartment(s) is vapor-tight and excludes all lights, switches, heating units, thermostats, and other internal ignition sources.

C. Explosion-Proof Refrigeration Unit

1. A unit which is designed for use within environments requiring control of all ignition sources, both internal and external.

D. Flammable Liquid

1. Any liquid having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 pounds per square inch absolute (2068.6 mm Hg) at 100°F (37.8°C).

E. Combustible Liquid

1. Any liquid having a flash point at or above 100°F (37.8°C.) but below 200°F (93.3°C), except any mixture having components with flash points of 200°F (93.3°C) or higher, the total volume of which make up 99% or more of the total volume of the mixture.

III. PROTOCOL STATEMENT

A. Individuals purchasing a refrigeration unit must obtain approval from Environmental Health & Safety prior to purchase.

B. All refrigeration units shall meet, at a minimum, the laboratory-safe classification when the unit is intended for the refrigeration of any flammable or combustible liquid.

- C. All refrigeration units listed as “laboratory-safe” or “explosion-proof” must be either UL listed or FM approved for that service.
- D. Procurement Services shall consult with Environmental Health & Safety prior to the purchase of refrigeration equipment to be used in laboratory settings.

IV. PROTOCOL STANDARDS AND PROCEDURES

A. Use

1. All domestic refrigeration units, used within laboratory, research, or other risk areas, shall be permanently placarded on each compartment door with red lettering at least 1/2 inch in height, "Caution- Flammable and/or Combustible Liquids Prohibited."
2. Each container placed in any refrigeration unit shall be dated and labeled to indicate hazard class and contents.
3. Flammable and/or combustible liquids shall be stored in secondary containment.
4. The face of each refrigeration unit shall be posted with the name, office telephone and home/cellular telephone number of the person(s) responsible for the unit.
5. Flammable and/or combustible liquids shall not be placed in domestic refrigeration units.
6. Domestic and laboratory-safe refrigeration units shall not be used in environments where flammable and/or combustible vapors may be present.
7. Items intended for human consumption shall not be placed in any refrigeration unit that is used, or has been used, for the refrigeration of any chemical included in the NIOSH Registry of Toxic Effects of Chemical Substances, radioactive material, biological agents, carcinogens, drugs, other hazardous or toxic substances, or any other item not intended for human consumption.
8. Refrigeration units used for the refrigeration of items intended for human consumption shall not be located in laboratory, research, or other risk areas.

For more information regarding this policy, contact Environmental Health & Safety 302-831-8475.