FLAMMABLE LIQUIDS AND COMPRESSED GAS
STORAGE REQUIREMENTS INFORMATION SHEET

FLAMMABLE LIQUIDS

Flammable liquids in use should be limited to the minimum quantity necessary to complete the current project needs. All other product should be kept stored in approved storage cabinets and containers.

STORAGE CABINETS

Not more than 454 L (120 gal) of Class I, Class II, and Class IIIA liquids can be stored in a FM or UL listed storage cabinet. No more than 227 L (60 gal) may be Class I and Class II liquids.

Not more than three storage cabinets can be located in one fire area. Additional storage cabinets shall be permitted in the same fire area, if a minimum separation of 100 ft is maintained between each group of no more than three cabinets).

Maximum Allowable Flammable Liquid Storage, Including Storage Cabinets

<table>
<thead>
<tr>
<th>Flammable/Combustible Liquid Classification</th>
<th>Maximum Quantity per 100 sq ft of laboratory space</th>
<th>Maximum Quantity per Laboratory Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>38 L (10 gal)</td>
<td>2,270 L (600 gal)</td>
</tr>
<tr>
<td>I, II, and IIIA</td>
<td>76 L (20 gal)</td>
<td>4,540 L (1,200 gal)</td>
</tr>
</tbody>
</table>

Notes:
- Allowable quantities stored outside of approved storage cabinets and safety cans are 50% of the quantities listed above.
- Laboratory units used for instructional purposes shall be limited to 50% of the flammable and combustible liquid quantity.

FLAMMABLE/COMBUSTIBLE LIQUID CLASSIFICATION

Flammable Liquid
- **Class IA** liquids shall include those liquids that have a flash point below 73°F (22.8°C) and a boiling point below 100°F (37.8°C).
- **Class IB** liquids shall include those liquids that have a flash point below 73°F (22.8°C) and a boiling point at or above 100°F (37.8°C).
- **Class IC** liquids shall include those liquids that have flash points at or above 73°F (22.8°C) but below 100°F (37.8°C).
**Combustible Liquid**

- **Class II** shall include those liquids that have a flash point at or above 100°F (37.8°C) and below 140°F (60°C).
- **Class IIIA** shall include those liquids that have a flash point at or above 140°F (60°C) and below 200°F (93°C).
- **Class IIIB** shall include those liquids with a flash point at or above 200°F (93°C).

**FLAMMABLE LIQUID CONTAINERS**

**Maximum Allowable Container Capacity**

<table>
<thead>
<tr>
<th>Container Type</th>
<th>Flammable Liquids</th>
<th>Combustible Liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>500 ml*</td>
<td>1 L*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 L</td>
</tr>
<tr>
<td>Metal or Approved Plastic</td>
<td>4 L</td>
<td>20 L</td>
</tr>
<tr>
<td>Safety Cans</td>
<td>10 L</td>
<td>20 L**</td>
</tr>
<tr>
<td>Metal Drums (DOT Spec.)</td>
<td>N/A</td>
<td>20 L**</td>
</tr>
<tr>
<td>Polyethylene (DOT spec. 34, UN</td>
<td>4 L</td>
<td>20 L**</td>
</tr>
<tr>
<td>1H1, or DOT exemption)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Glass containers as large as 4L (1.1 gal) shall be permitted to be used if needed and if the required purity would be adversely affected by storage in a metal or an approved plastic container, or if the liquid would cause excessive corrosion or degradation of a metal or an approved plastic container.

** In undergraduate laboratory work areas, no container for Class I or Class II liquids shall exceed a capacity of 4 L (1.1 gal). Safety cans shall be permitted to have an 8 L (2.1 gal) capacity.

**LABORATORY REFRIGERATORS**

Every laboratory refrigerator should be clearly marked to indicate whether it is safe for storage of flammable materials. Labels that can be used on laboratory refrigerators include:

- **Do not store flammable solvents in this refrigerator.**
  
  Label used for unmodified domestic refrigerators

- **Notice: This is not an explosion proof refrigerator, but is has been designed to permit safe storage of materials producing flammable vapors. Containers should be well stoppered or tightly closed.**
  
  Label for laboratory-safe or modified domestic refrigerators
COMPRESSED GAS CYLINDERS

Maximum Number of Full Size Compressed or Liquefied Gas Cylinders in Use in Laboratory Work Areas

<table>
<thead>
<tr>
<th>Flammable or Oxidizing Gases</th>
<th>Liquefied Flammable Gases</th>
<th>Gases with Health Hazard Rating of 3 or 4*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3</td>
<td>3**</td>
</tr>
</tbody>
</table>

Note: Maximum number of cylinders per 46.5 m² (500 ft²) or less.

* Gases with a Health Hazard Rating of 4 are not permitted.
** Use or storage of gases with a Health Hazard Rating of 3 are limited to a total of 400 scf (compressed) or 100 pounds (liquefied).

Maximum quantities of compressed or liquefied gas cylinders in undergraduate instructional laboratory units may not exceed three full size cylinders in any combination.

Compressed gas cylinders not “in use” must not be stored inside a laboratory. A compressed gas cylinder shall be considered to be “in use” if it is:
- Connected through a regulator to deliver gas to a laboratory operation; or
- Connected to a manifold being used to deliver gas to a laboratory operation; or
- A single cylinder secured alongside the cylinder in (a) above as the reserve cylinder for (a).

Excess cylinders must be stored in the centralized outside storage areas.

Empty cylinders should be marked as “Empty” or “MT” and stored separated by category in the outside storage area.