

FLAMMABLE AND COMBUSTIBLE LIQUID SAFETY GUIDE

| Version | Date | Comments |
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| 1 | August, 2008 | Initial <i>Flammable and Combustible Liquid Safety Guide</i> |
| 2 | March, 2010 | Routine review |
| 3 | August, 2011 | Routine review |
| 4 | May, 2015 | Routine review |

A. INTRODUCTION

The purpose of this Guide is to explain the safe storage and use of flammable and combustible liquids. This Guide is based upon Occupational Health and Safety Administration (OSHA) Standard 29 CFR 1910.106: *Flammable and Combustible Liquids*.

B. SCOPE

This Guide applies to all George Mason University employees and persons that work with flammable and combustible liquids.

C. FLAMMABLE AND COMBUSTIBLE LIQUIDS

A flashpoint is the minimum temperature at which a liquid gives off enough vapor to form an ignitable mixture in air.

- A flammable liquid (Class I liquid) is any liquid that has a flashpoint less than 100° F.
- A combustible liquid (Class II and III liquids) is any liquid that has a flashpoint equal to or greater than 100° F but less than 200° F.

D. GENERAL REQUIREMENTS

- All containers must be properly labeled and marked with the complete chemical name and associated hazards (e.g., flammable, flammable liquid, combustible, etc.).
- All containers must be metal, sealed with a cap or lid, and not be damaged or leaking.
- Sources of ignition (e.g., smoking and open flames) are prohibited in flammable or combustible liquid storage areas or within 25 feet where these materials are used. Other sources of ignition include: cutting and welding, hot surfaces, frictional heat, radiant heat, and static, electrical, and mechanical sparks.
- Containers, tanks, cabinets, and inside storage areas must be designed in conformity with OSHA standards. Contact EHS for evaluation and assistance.
- Flammable and combustible liquids must not limit or obstruct exits, stairways, or areas normally used for safe egress.
- Leaking containers must be placed in secondary containment and taken to a storage room or a safe location outdoors and the contents must be transferred to an undamaged container as soon as possible. Contact EHS for assistance.

- At least one Class ABC fire extinguisher must be located within 10 feet of any flammable and/or combustible liquid storage area and within 50 feet of a flammable liquid use area.
- Other combustible materials (e.g., wood, cloth, paper) must not be stored in the same area or on top of flammable or combustible liquids storage areas.
- When transferring flammable liquids from one container to another, the two containers must be bonded (connected by a bonding wire) and grounded (one container connected to a grounded point), see Figure 1.
- The volume of flammable and combustible liquids in one area may not exceed OSHA, International Fire Code, or NFPA limitations. Contact EHS for additional information.

E. CONTAINERS AND TANKS

- A container is any can, barrel, or drum that has a capacity not exceeding 60 gallons.
- All portable gasoline and flammable liquid cans and containers must be made of metal and have a flame arresting cap or lid. Plastic gasoline/flammable liquid cans and containers are not appropriate for the work place.
- A portable tank is a closed container, not intended for fixed installation, which has a liquid capacity between 60 and 660 gallons.
- All tanks must have at least one venting device installed in the top of the tank that would sufficiently limit the internal pressure under fire exposure conditions. All tanks must be equipped with secondary containment.
- The distance between any two flammable or combustible liquid storage tanks shall not be less than three feet.

F. STORAGE CABINETS

- No more than 10 gallons of flammable and/or combustible liquids may be stored outside of a storage cabinet.
- No more than 60 gallons of Class I or Class II liquids, or more than 120 gallons of Class III liquids may be stored in a flammable storage cabinet.
- All storage cabinets must be clearly labeled “**Flammable – Keep Fire Away.**”

G. STORAGE AREAS

Flammable and combustible liquid storage areas must meet the following conditions:

- There must be at least one clear aisle, no less than three feet wide, within the storage area.
- There must be at least six complete air changes per hour.
- Containers larger than 30 gallon may not be stacked upon one another.
- Areas where flammable or combustible liquids are transferred from one tank or container to another must be separated from other operations in the building.
- A pump or self-closing faucet must be used to transfer liquids. A method for controlling spills and spill supplies must be located near the transfer area. Adequate natural or mechanical ventilation must be provided.
- Storage of flammable and combustible liquids is prohibited in office spaces.

H. OUTSIDE STORAGE

- Outside storage areas that contain flammable and combustible liquids may not be located within 10 feet of buildings, streets, alleys, and public areas, and less than 20 feet from adjacent property lines.
- Outside storage must be provided with secondary containment.
- Outside storage areas must be secured and protected against tampering or trespassers and kept free of debris and other unnecessary combustible material.
- An unobstructed access way within 200 feet of the outside storage area and at least 12 feet wide is required to permit access for fire control and emergency response equipment.

I. BONDING AND GROUNDING

- Any time a flammable material is transferred from one container to another, each container must be bonded to the other and one container grounded using the following procedure (see Figure 1 below).
 - Before opening each container, attach the containers to one another using a conductive material such as a bonding wire with alligator clips.
 - Attach the container that is resting closest to the ground to a conductive metal object that is firmly in contact or implanted into the ground soil.
 - Once the transfer is complete, reseal the containers and remove the bonding and grounding devices.

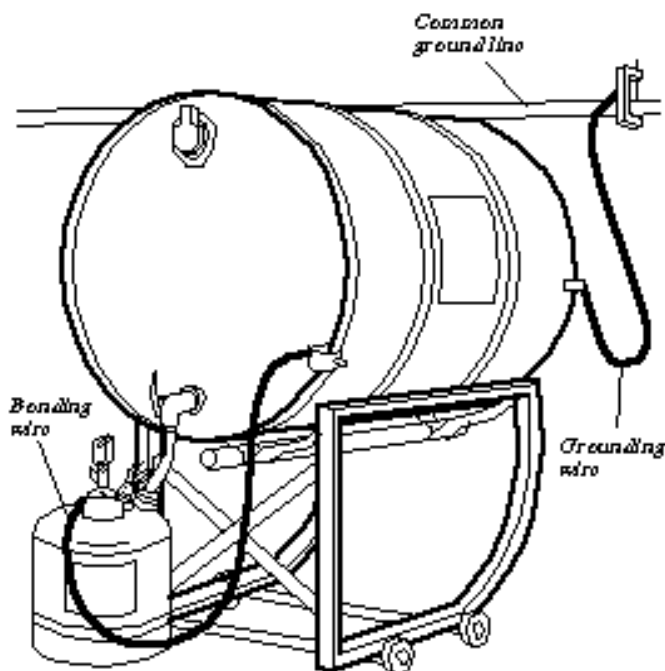


Figure 1

The information contained in this Guide is not inclusive of all OSHA regulations. Please contact Environmental Health and Safety Office at (703) 993-8448 or visit www.OSHA.gov for more information regarding workplace hazards, safety precautions, and regulations.

Environmental Health and Safety Office

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