

# Safe Operating Procedure

(Revised 7/24)

## LIQUIFIED PETROLEUM GAS (LPG) PORTABLE CYLINDERS

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### Background and Scope

LPG includes propane, butane, and butylenes used for heating, cooking, and fuel. The purpose of this SOP is to provide safe practices for use and storage of portable LPG cylinders. This SOP is based on NFPA requirements, as administered by the State Fire Marshal's Office.

### Storage Requirements Inside of Building



- **Research Labs**  
A total of 20 pounds maximum is allowed per each research lab. This includes use and storage.
- **Teaching Labs/Dining Services and Other Rooms Occupied by the Public**  
Individual cylinders are not to exceed 2.5 pounds in volume nor exceed 20 pounds total in a room. LPG can only be used for demonstration purposes as part of a teaching lab; however, the cylinders may not be stored in the room.
- **General Use Classrooms**  
LP gas is not allowed for use or storage in general use classrooms
- **Dining Rooms and Commercial Food Service**  
No more than two 10-ounce non-refillable butane cylinders in use per appliance and not more than 24 cylinders in storage are permitted.
- **Shops/Warehouses/and Nonpublic Buildings**  
A maximum total of 40 pounds is allowed for storage or use in shops, warehouses, and agricultural buildings.
- **Other**  
Any cylinder connected to a forklift is excluded from the storage requirements.

### Storage Outside of Building

- Extra cylinders that are not allowed inside a building must be stored outside in a vented and locked cage, or other approved design. Shading is preferred.
- The cage must be at least 5' from any building opening, at least 10' from weeds and other combustibles, and must be protected from possible vehicle damage, theft, or pilfering.



- Storage must be at least 20 feet from any vehicular, equipment (tractor), or other type fuel dispenser.
- A placard should be attached to the cage to indicate no smoking, flame, or matches within 25 ft. of the cage.

### General Storage Procedures

- LP gas cylinder storage should be located to minimize exposure to excessive warm temperatures, physical damage, or tampering. Excessive cold is not a concern.
- Tank valves should be closed tight, with a safety plug inserted, and remain in the outlet until placed into service to keep the threads clean.
- Storage in a well-ventilated area above ground is required, as LP gas is heavier than air and will accumulate in basements and low areas.
- Cylinders stored in buildings should not be located near exits, stairways, or areas intended for safe egress.
- Screw-on type caps or collars must be securely in place on all containers stored whether full, partial full, or empty. Cylinder outlet valves must be closed and plugged or capped.
- Cylinders having greater than one pound capacity should be positioned in the up-right position so that the pressure relief valve is in direct contact with the vapor space of the cylinder. If a cylinder has been stored or transported on its side, stand it up vertically for at least one hour before using.

### General Use Requirements

- LP containers or cylinders must not be filled inside university buildings.
- LP cylinders must meet U.S. Department of Transportation (DOT) Specifications.
- When transporting small cylinders by passenger vehicle, cylinders must be secured in an upright position and all outlets must be plugged or capped. Carrier compartments must be ventilated and sealed from the vehicle's interior. A maximum of 90 lbs. of propane can be carried by passenger truck.
- LP gas used for repair and maintenance purposes that uses an open flame outside of designated hot work areas must follow the EHS SOP, **Hot Work Permit Operations**.
- LPG will cause natural rubber and some plastics to deteriorate. Use only hoses and other equipment specifically designed for LPG. Hoses and the washer/gasket of the pressure regulator should be inspected regularly and replaced if showing signs of wear or deterioration.
- Always check cylinder connections for leaks with a bubble solution.
- Never smoke while connecting the equipment and do not check for leaks with a flame.
- Shut the cylinder valve when the cylinder is not in use.