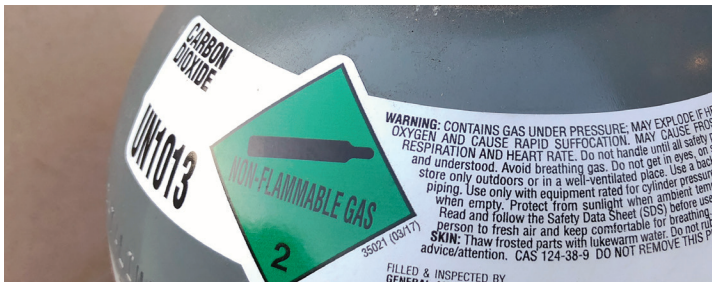
compressed gas cylinder safety

Safe management of compressed gas cylinders should protect the integrity of the cylinder valve at all times and prevent the release of hazardous energy and chemicals.

Compressed gas cylinder safety falls into three categories: Storage, Use, and Transport/Handling.

■ GENERAL:

- **All cylinders must be labeled in terms of:**
  - > **Chemical ID** (what's in there?!)
  - > **Fill status** (empty or full?)



■ STORAGE: Compressed gas cylinders must be stored in a secure and upright position:

- **Secure:** means you can physically demonstrate that if the cylinder is bumped or nudged, it will not fall over
  - > **Chained to the wall; tank cabinets or corral slots**
- **Capped:** regulators are to be removed and the cap is to be applied so that in the unlikely case that the cylinder were to fall over, the valve is still protected
- **Segregated**
  - > Empty and full containers must be stored separately
  - > Compressed gases are chemicals too—separate non-compatible chemicals!
    - Separate chemicals based on their Department of Transportation class designation, i.e. don't store flammable chemicals and oxidizers together

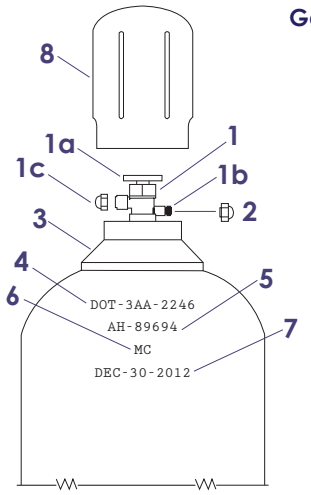
- **Identifiable**
  - > **Chemical ID** (What's in there?!)
  - > **Fill status** (empty or full?)
- **Out of the way**
  - > Should not be stored in high traffic areas (walking, forklift, or otherwise)
  - > Away from corrosive environments and temperature extremes

■ USE: Safe use is similar to safe storage with a few minor exceptions:

- Must be able to demonstrate that cylinder is integrated in equipment and actively in use
- **Secure and upright**
  - > **Chained to wall or sturdy component of equipment; on rated safety stand; fall-safe regulator attached**
- **Leak tested:** to prevent a hazardous release and/or loss of expensive resources
  - > Test lines and joints with a soap spray
    - Do not just rely on listening for a hissing sound
  - > Install CO_2 meters in any area where CO_2 is used

■ TRANSPORT/HANDLING:

- **PPE:** must wear closed toe shoe; preferably a safety-toed boot
- **Capped:** tank is most likely to be knocked over while in transport
- **Strapped:** tank should be locked in and secured to transport dolly or vehicle
- **Small distances:** tilt the tank slightly, and move tank in small, controlled increments to place in working position
- **Transport cart or dolly:** use a rated transport device for moving tanks from one location to another
  - > Rolling tank on its side, dragging, picking up and lugging around, and/or cradling in the tines of the forklift are dangerous methods of transporting cylinders
- **Transport using a forklift:** may only be done with rated pallet adaptor specifically designed for the purpose of transporting compressed gas cylinders
- **Transport with motor vehicle:** may only be done by persons with a proper Department of Transportation (DOT) certification, unless transporting quantities under DOT regulatory limits



Gas Cylinder Parts

1. **Cylinder Valve**
   a. Valve Handwheel
   b. Valve Outlet Connetion
   c. Pressure Relief Device
2. **Valve Outlet Cap**
3. **Cylinder Collar**
4. **DOT Specification**
5. **Serial Number**
6. **Manufacturer's Symbol**
7. **Test Date**
8. **Cylinder Cap**

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