



# MAFES Dawg Tracks

March 12, 2012

Compressed Gas Cylinder Safety



Because of the nature of gas cylinders, special storage and handling precautions are necessary. There are distinct hazards associated with gas cylinder use, such as oxygen displacement, explosion hazards, and the toxic effect of some types of gases along with the physical hazards of a ruptured cylinder.

There are 200 different types of materials in gas cylinders including atmospheric gases, fuel gases, refrigerant gases, poison gases and miscellaneous gases. Compressed gases are usually divided into six categories, with some gases being common to more than one classification. These classes are;

- ✓ Flammable Gases
- ✓ Oxygen & Oxidizing Gases
- ✓ Acid & Alkaline Gases
- ✓ Highly Toxic Gases
- ✓ Cryogenic Liquefied Gases
- ✓ Inert Gases

A sudden release of these gases, such as a ruptured valve with the cover not properly tightened or a ruptured place in the tank, can cause this cylinder to become a projectile. They have been known to penetrate concrete block walls.

There are some procedures to be followed to prevent this happening using safe storage and handling tips.

## **IDENTIFYING CONTENTS OF GAS CYLINDERS-**

- The contents of gas cylinders should be identified clearly so that the contents can be determined quickly by laboratory workers.
- A durable label should be affixed that can't be easily removed from the cylinder.
- Compressed gas cylinders received without legible printed contents should not be accepted.
- Color-coding is not a reliable means of identification. Colors vary from different suppliers and labels on the caps of cylinders aren't acceptable because who knows if the caps have been switched from other cylinders.
- Tags should be attached on the cylinders so that the users and dates of use can be entered.
- If cylinder labeling becomes unclear or defaced, this cylinder should be taken out of service, marked "contents unknown" and returned to the supplier for correction.

## **TRANSPORTING GAS CYLINDERS-**

- ✓ Cylinders being moved by trucks must be fastened securely and upright so they can't fall over or strike another.
- ✓ They must have caps on and secure before transporting them. The cap must be screwed down tight and the cylinder should not be handled by the cap as it is for valve protection only.

- ✓ Cylinders should not be transported with the regulator attached to the cylinder.
- ✓ Always use a cylinder cart to move the cylinders. Do not drag, slide or roll them on the edge.
- ✓ Only one cylinder should be moved at a time.

## **STORING COMPRESSED GAS CYLINDERS-**

- Do not allow cylinders to be dropped or struck violently.
- Cylinders should be properly secured at all times whether attached to a wall, cylinder truck, cylinder rack or a post.
- Liquefied flammable gas cylinders should be stored in an upright position or such that the pressure relief valve is in direct communication with the vapor space of the cylinder.
- Caps used for valve protection should be kept on the cylinders at all times except when the cylinder is actually being used or charged.
- Cylinders should not be used for rolling, supports, or any purpose other than the transportation and supply of gas.
- Cylinders should be stored in a well-ventilated area away from flames, sparks, or any other source of heat or ignition. Keep cylinders away from electrical circuits.
- Cylinders should not be exposed to open flames or to any temperature above 125°F.
- Oxygen cylinders, empty or full, in storage should be separated from fuel-gas cylinders and combustible materials by a minimum distance of 20 feet or by a barrier at least 5 feet high having a fire-resistant rating of at least one-half hour.
- Flammable gas cylinders should not be stored with oxygen or nitrous oxide cylinders or adjacent to oxygen charging facilities.
- Full and empty cylinders of all gases should be stored separately and identified by signs to prevent confusion.
- Cylinders may be stored outdoors, but should be protected from the ground to prevent corrosion. In extreme temperature situations, they should be stored so that they are protected from the sun's direct rays.
- Cylinders should not be exposed to continuous dampness, stored near salt or other corrosive chemicals or fumes. Corrosion may damage the cylinders and cause their valve protection caps to stick.
- Do not charge, ship, or use any cylinder that is not provided with a legible decal that identifies its contents.
- Stand to the side of the regulator when opening the cylinder valve.
- Do not leave an open cylinder unattended.
- Do not carry a cylinder by the valve.
- Do not attempt to refill or mix gases in a cylinder.

*Ted Gordon – Risk Mgmt. / Loss Control Mgr.  
MAFES / MSU-ES (662) 566-2201*