

MAFES Dawg Tracks



October 27, 2008 Safe Use of Compressed Gas



Many, if not most, farms have compressed gas cylinders in use. Mishandling or careless use of these cylinders can cause some critical problems. Unsecured cylinders that have been tipped over and hit the floor have been known to become projectiles and have penetrated concrete block walls. According to studies, a cap or neck of a cylinder that exploded after getting knocked over releases sufficient energy to propel the cap $\frac{3}{4}$ of a mile high. A standard 250 cu. Ft. cylinder pressurized to 2,500 PSI can become a rocket attaining a speed of 30 mph in a fraction of a second after venting from the broken cylinder connection.

BASIC SAFETY TIPS WHEN RECEIVING CYLINDERS:

- Check for leaks
- Make a visual inspection of the cylinder for any type of damage that might be present.
- Check to be sure that the valve cover and shipping cap is on.
- Check for proper labeling.
- Upon inspection, if you should find a damaged cylinder that is in poor condition, leaks or is unidentifiable, contact the vendor for pickup and replacement.
- Wear appropriate foot protection when transporting or moving cylinders, such as sturdy shoes with steel-toes.
- Proper personal protective clothing and equipment should be worn.
- It is necessary to have the proper **MSDS** available to be familiar with the health, flammability and reactivity hazards associated with the gases that you will use.

CYLINDER MARKINGS:

- The cylinders must be properly labeled, with the gas identity and appropriate hazards, such as health, flammability and reactivity.
- Cylinders have several stamped markings:
 - (1) Top mark - DOT or an International Code Council (ICC), which identifies the pertinent regulations for that cylinder.
 - (2) 2nd mark - This is the serial no. and under the serial no. is the manufacturer's symbol, user or purchaser. A (+) sign signifies that the cylinder may be 10% overcharged. A star indicates a ten-year test interval.

STORING CYLINDERS:

- Cylinders should be stored in compatible groups -
 - ~ Flammables segregated from oxidizers
 - ~ Corrosives from flammables
 - ~ Full cylinders from empties
 - ~ The empty cylinders should be clearly marked and stored as carefully as those that is full because residual gases may be present.
 - ~ All cylinders from corrosive vapors
 - ~ Store cylinders in an upright position...

- Keep **OXYGEN** cylinders a minimum of 20 feet from flammable gas cylinders or combustible materials. If this space isn't available, separate them by non-combustible barrier at least 5 feet high having a fire rating of at least $\frac{1}{2}$ hour.
- Compressed gas cylinders should be secured firmly at all times. A clamp, belt or chain, securing the cylinder between the "waist" and "shoulder" to a wall, are generally suitable for this purpose.
- Cylinders should be individually secured with each cylinder having its own strap. Sometimes securing cylinders with a single strap is not effective.
- Keep valve protective caps in place when the cylinder is not in use.
- Mark empty cylinders **EMPTY OR MT.**
- Keep valves closed on empty cylinders.
- Cylinders must be kept away from heat sources and stored in well-ventilated areas designated and marked only for cylinders.

MOVING CYLINDERS:

- Use a cylinder cart with a security chain.
- Don't use the protective valve caps for moving or lifting the cylinders.
- Don't allow a cylinder to strike each other or to be handled roughly.
- Unless cylinders are moved on a special cart, make sure that the regulators are removed, the valves closed and the protective cap is in place.

CYLINDER USE:

- Be sure all connections are tight. Use soapy water to locate leaks. Keep valves, regulators and couplings clean and free of oil.
- Keep cylinders away from heat and open flames.
- Use flashback arrestors and reverse-flow check valves to prevent flashback when using oxy-fuel systems.
- The cylinder valve should always be opened slowly. Always stand away from the face and back of the gauge when opening the valve.
- If a special wrench is required to open the valve or manifold valve, the wrench should be left in place on the valve stem when in use. This precaution is mentioned so the gas can be cut off in case of an emergency.

THINGS NOT TO DO:

- Never roll a cylinder to move it.
- Never carry a cylinder by the valve.
- Never leave a cylinder unsecured.
- Never leave an open cylinder unattended.
- Never discard pressurized cylinders in normal trash.