

## SAFETY MEETING TOPIC: Using and Storing Acetylene Gas

Companies that fail to use or store compressed gases properly are inviting disaster. Improper handling of compressed gases can lead to serious fires, explosions or releases due to pressure buildup in cylinders or reactivity with other materials. Proper procedures for handling and using acetylene gas should be understood and followed by all employees.

Acetylene is a well known fuel gas used almost universally in gas welding. Even though it is very common, this gas is an extremely dangerous material. Acetylene is so reactive, it should never be allowed to come into contact with certain metals such as unalloyed copper. Nor should it be stored or used at pressures greater than 15 psi. (Cylinder pressures are rated for 250 psi but this is acceptable because the gas is dissolved in acetone.)

Acetylene is so flammable, that the National Electric Code has a special designation (its most stringent) for using electrical equipment around acetylene. No other substance falls into this classification! Acetylene leaks, no matter how small can have serious consequences. The explosive range of the gas, when mixed with air, is from 2.5% to 82%, the widest of any commonly used gas.

When using acetylene gas, always observe the following procedures:

- Close the cylinder valve before shutting off the regulator, to permit gas to bleed from the regulator.
- When returning empty cylinders to storage or for refill, close the valves. Even though the acetylene gas is used up, the flammable acetone in the cylinders can still evaporate into the air and create its own dangers. Acetylene gas is lighter than air so any leaking gas should rise. However, it is only slightly lighter so certain atmospheric conditions can prevent this.
- Acetylene cylinders are not hollow. They are packed with porous rock that is saturated with acetone. Cylinders should be used or stored only in an upright position to avoid the possibility of the acetone leaking from the cylinder. If this is not possible, it is recommended that the cylinder be placed upright and left to stand for one-half hour before using. This is to prevent liquid acetone from running through your regulator.
- Cylinders containing acetylene must not be taken into a confined space.
- Always use acetylene in a well vented area. Never store cylinders near open flames or electrical equipment, where in case of a leak, gas can diffuse to a flame or spark from a motor.
- Never store acetylene, or any other fuel gas, within 25 feet of oxygen cylinders. If this separation is not possible, erect a non combustible (1/2-hour fire rated) partition, at least five feet high, between the two gases in storage.
- Always cap and secure stored cylinders upright to prevent them from falling over and damaging the valve or cylinder.