

SECURITY PROCEDURES IN OXY-ACETYLENE WELDING

The use of gas welding dates back to the middle 1800s where a mixture of oxygen and hydrogen was used to produce a hot flame that was used in the making of jewellery.

But it was not until the late 1890s when the gas acetylene became available that gas welding developed into the process that we know today. Acetylene is a gas that is manufactured by mixing calcium carbide (a by-product of the electric furnace steel making process) with water. Acetylene when burned alone can produce a flame temperature of about 2200 °C. With the addition of oxygen, a flame temperature in excess of about 3300 °C can be achieved, making acetylene ideal for welding and cutting. An oxy-acetylene outfit is portable, less expensive, and more versatile than an electric welding set up. Oxygen and acetylene are stored under pressure in steel cylinders which should be tested regularly with the date of the last test stamped on the top of the cylinder. Cylinders should always be secured and used in the upright position. When a cylinder is not being used, the valve cap should always be in place.

Oxygen cylinders are made of steel and are usually painted green. They range in size from less than 20 cuft to over 300 cuft and contain compressed oxygen at pressures that can be as high as 2200 psig. All cylinders have valves and are fitted with a screw on steel cap that protects the cylinder valve when the cylinder is not in use. If oxygen comes into contact with oil or grease, it will burst into flame. Never use oil or grease on oxygen cylinder valves or regulators. Make



Semi-automatic welding

sure hands and gloves are free of oil and grease before handling cylinders. Acetylene cylinders are painted black, they are made of steel and have cylinder valves. They range in size from 10 to almost 400 cuft capacity. The cylinders contain a porous filler material which is wetted with acetone that allows the acetylene to safely be contained in the cylinder at 250 psig. Always use an acetylene cylinder in the upright position so you don't draw any of the acetone out of the tank. Acetylene should never be used at a pressure that exceeds 15 psig as it becomes highly unstable which, depending on the condition, could cause it to decompose and explode. As with the oxygen cylinder, make sure the cylinder valve is clean before installing the regulator.

Cuft is an acronym for cubic feet.

Psig (pound per square inch gauge) is the pressure resulting from a force of one pound-force applied to an area of one square inch.

READING COMPREHENSION

● Answer the following questions.

- 1 When was gas welding first used?
- 2 What is acetylene?
- 3 What are the advantages of oxy-acetylene welding?

- 4 What are oxygen cylinders like? And acetylene cylinders?

ACTIVITIES



VOCABULARY

● Find in the text the equivalents of the following Italian words.

- | | |
|-----------------------------|----------------|
| 1 Carburo di calcio | 4 Vite |
| 2 Attrezzatura | 5 Guanti |
| 3 Posizione verticale | |