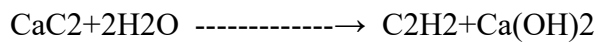




## IS 8471: 2003 Acetylene Generators- Requirements

### (Amalgamation of IS 8471(Part 1 to 5))

Acetylene generators are equipment used for the production of acetylene gas, typically used in welding, cutting, and other industrial applications. These generators work by reacting calcium carbide ( $\text{CaC}_2$ ) with water ( $\text{H}_2\text{O}$ ) to produce acetylene gas ( $\text{C}_2\text{H}_2$ ) and calcium hydroxide ( $\text{Ca}(\text{OH})_2$ ) as a by-product.



Acetylene is widely used in industries like metal cutting and welding due to its high flame temperature. Acetylene generators are important because they produce the gas on-site, reducing the need for storage and transportation of compressed acetylene cylinders, which can pose safety risks.

While looking for an acetylene generator, buyer should insure about Safety Considerations as Acetylene is a highly flammable gas, and its production and storage require strict safety measures. Following Parameters are main safety related aspects: Pressure Control, Temperature Control, Gas Purity, Calcium Carbide Quality, Acetylene Gas Flow Rate, Generator Construction Materials etc.

The standard outlines the structural requirements for the pressure vessel (which contains the carbide and water), ensuring it can withstand the internal pressures generated during operation. IS 8471 specifies the use of **pressure relief valves**, **safety valves**, and **pressure regulators** to control and limit the internal pressure of the generator. It specifies the use of cooling mechanisms like water jackets or heat exchangers to manage the heat generated during the exothermic reaction. It includes specifications for **purification systems** that remove impurities from the acetylene gas before it is stored or transported. Standard specify quality of water used in the generation process. For instance, the water should be free from contaminants like salts and minerals that could interfere with the chemical reaction or cause scaling and deposits in the system.

**Explosion Prevention Features:** The standard mandate the use of **explosion-proof** components and devices like **flame arresters** and **check valves** to prevent the backflash of flames or gas into the generator, especially in case of an ignition outside the generator.

In summary, **IS 8471** ensures the quality of acetylene generators by setting stringent requirements for material quality, safety mechanisms, temperature and pressure control, gas purity, and efficient maintenance practices. These standards are designed to reduce risks associated with acetylene production, such as explosions, fire, and exposure to impurities.