

Production and Combustion of Acetylene

Purpose

To demonstrate the generation and flammability of acetylene gas through a solid reacting with water.

Materials

Metal Bowl	DI H ₂ O Bottle
Matches	Calcium Carbide
Candle on a stick	(Must be relatively new)

Procedure

1. Add about 10g of solid calcium carbide to metal bowl. Add more calcium carbide if you want the reaction to last longer.
2. Add approximately 2-3 mL of H₂O to the metal bowl to begin acetylene gas production.
3. Strike a match and light the candle on the stick. Carefully and quickly hold the flame over the burning calcium carbide to ignite the acetylene gas. A large flame of fire will be produced.
4. Add more H₂O to the metal bowl to increase the intensity of the fire.

Safety

Calcium carbide produces flammable acetylene gas upon contact with water. The calcium carbide may contain a contaminant resulting in the release of the toxic gas phosphine on contact with water. Be sure to use non-contaminated, fresh calcium carbide.

Acetylene is highly flammable. Do not stand too close to metal bowl when igniting acetylene gas.

Disposal

Add excess water to calcium carbide until bubbling does not persist. **DO THIS IN THE HOOD DUE TO ACETYLENE GAS PRODUCTION.**

Place solid products in appropriate container and pour leftover liquid down the drain with excess water.