Explosion of Lycopodium Powder

Purpose

To demonstrate the effect of surface area on the rate of a chemical reaction.

Materials

exploding can device

spatula/spoon

lighter

lycopodium power

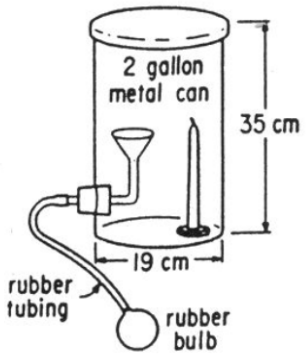
100 mL beaker

Procedure

1. Place lycopodium powder in the device.
2. Carefully light the birthday candle in the device.
3. Squeeze firmly on the pipette bulb, and watch as the dust cloud from the lycopodium lights.
4. After the flame cloud is produced, **use the beaker to snuff the candle. DO NOT BLOW OUT CANDLE**, this can cause the lycopodium powder to ignite and burn your face.

Additional Information

1. This demonstration illustrates that a combustible material, as lycopodium powder, when finely divided and dispersed in the air, will explode upon ignition.
2. The powder will not ignite or burn, however, unless it is air-borne as dust.
3. Any spilled powder can be wiped up with a damp cloth and discarded in a waste container.
4. Tossing very small amounts of lycopodium powder into an open flame will have sparkling results.
5. Variation:
    a. Assemble the explosion can as diagramed below:



b. Be sure the candle wick is level with the funnel top.

c. With a spatula, add a small amount of lycopodium powder to the funnel.

d. Put the shield in place and turn off the lights.

e. Light the candle. Tongs will be useful. Fireplace matches also work well.

f. Seal the container uniformly (if the lid is to fly straight up).

g. Quickly move as far away as possible, while holding the rubber bulb, and squeeze the bulb firmly.

Reference

Aylea, H.N. & Dutton, F.B., Tested Demonstrations in Chemistry, 1965.