

This demonstration illustrates a dust explosion, in which small particles of a normally stable material become highly explosive. A pile of lycopodium powder will not burn. However, if this powder is blown into a cloud, the surface area of powder that contacts the oxygen in the air is vastly increased, and the powder will rapidly burn if it comes in proximity of a flame. About one tablespoon of powder is blown out of a funnel, forming a cloud that ignites when it reaches a burning candle about one foot above the funnel, as seen in *Figure 1*.



Figure 1

Lycopodium powder will not burn if it is exposed in bulk to a flame. What happens if we form an airborne dust in which the particles of lycopodium powder are surrounded by air and exposed to a flame?

About a tablespoon of lycopodium powder is placed in this funnel and a candle about 30 centimeters above the funnel is lit.

A cloud of powder is created by blowing into a rubber tube attached to the bottom of the funnel.

Equipment

1. Supply of lycopodium powder.
2. Source of flame.
3. Glass funnel clamped upright to a ring stand, with a long length of rubber tubing attached to its stem.
4. Candle clamped several inches above the funnel's mouth.
5. Appropriate safety gear.