

## Methane Bubbles

### Purpose

To demonstrate gas density and a combustion reaction.

### Materials

plastic funnel	glycerine
rubber tubing (2 meters)	soap solution
meter stick with candle	CH <sub>4</sub> source

### Procedure

1. Attach the rubber tubing to the plastic funnel (notching the funnel may be helpful).
2. Prepare a soap solution in the demonstration table sink.
3. Add glycerine to the soap solution for thicker walled bubbles.
4. Connect the rubber tubing to the gas outlet on the demonstration table.
5. Tape a candle to a meter stick, light the candle, and select a student to handle the meter stick.
6. Place the funnel in the solution, turn the gas on and control the gas flow to produce small bubbles that will lift off the funnel, once the funnel is removed from the solution.
7. Once the bubble is free of the funnel, any contact with the candle flame will cause a small but very hot ball of fire.

### Additional Information

1. The bubbles rise since their density is less than air, since the bubble is large enough to develop a buoyancy that will overcome the mass of the soap solution.
2. Methane is combustible in air:



### Reference

Ice Demonstration Workshop, University of Arizona, 1986.