



California State University of Bakersfield, Department of Chemistry

Buoyant Bubble

Standards:

MSETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

Introduction:

Have you ever seen a bubble floating in the middle of a fluid? Well here is your chance. In this experiment you will create your own buoyant bubble that floats somewhere in the middle of the bottle.

Materials:

- 1 clear, clean and dry bottle or jar with sealable lid
- Tap water
- Isopropyl rubbing alcohol
- 1 teaspoon of vegetable oil

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear your eye safety and gloves.

Procedure:

1. Mix $\frac{1}{2}$ cup of water with $1\frac{1}{2}$ cups of isopropyl alcohol in a mixing bowl.
2. Pour this mix into your jar or bottle.
3. Carefully measure and pour 1 teaspoon of vegetable oil into the jar or bottle by bringing the spoon carefully to the lip of the jar or bottle.
4. If the oil is floating on the surface, carefully add a little more alcohol to the mixture. If the blob sinks to the bottom carefully add more water.

Data and Observations:

What did you see? Anything you were not expecting?

Questions:

Can you get the blob of oil to float in the middle of the bottle?

What is the shape of the oil bubble?

What is causing this oil bubble to float at different levels?

References:

1. COSI, Center of Science and Industry. For Educators, Classroom Activities. <http://www.cosi.org/educators/classroom-activities/item/buoyant-bubble>(accessed Jul 18, 2013).