

ACTIVITY 17: DENSITY OF OIL LAB

QUESTION

What is the density of cooking oil?

SAFETY

Clean everything very well with dishwashing liquid after this experiment to prevent the growth of mold. Do not use the oil for cooking when you have finished. Use only clean water. Squeeze the plunger on the syringe gently. Do not work near an electrical appliance or outlet. Clean up any spills immediately.

MATERIALS

Cooking oil, dishwashing liquid, water, balance (Activity 2)

PROCEDURE

In this lab, you will determine the density of oil by comparing it to water. We know that the density of water is 1.0 g/ml, and we will use this to calculate the density of the oil.

Set up your balance with one cup on each side. Put 30 ml of water in one of the cups. Now fill your syringe with cooking oil. Carefully add the oil to the other side of the balance until they are balanced and record how much oil was required to achieve the balance. Note that at this point the mass of water and the mass of oil are equal even though the volumes are not. Clean the syringe and the cup with dishwashing liquid to get the oil out.

Data

Volume of water 30 ml

Volume of oil _____ ml

Calculations

1. What was the mass of the water used?
2. What was the mass of the oil needed to balance the water?
3. Use the mass and volume of the oil to calculate its density.

Post-Lab Questions

1. Which is denser, oil or water?
2. If you have equal masses of oil and water, which one will have the larger volume?
3. If you have equal volumes of oil and water, which one will have the larger mass?

Extension

Use a similar method to calculate the density of other objects, such as marbles, rocks, rubber balls, and so on. If any of the objects that you choose could be harmful to the eyes, be sure to wear goggles.