

Production of a Foam

Purpose

To demonstrate the formation of a foam from two clear solutions.

Materials

2 250 mL beakers

laundry detergent (powdered)

100 mL graduated cylinder

$\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$

2 stirring rods

NaHCO_3

mortar and pestle

Procedure

Preparation

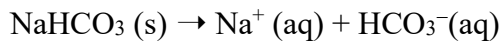
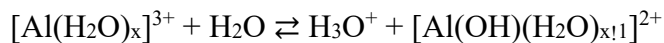
1. Place 1.0 g laundry detergent and 7.0 g $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$ in the mortar and grind it to a powder.
2. Place powder into a 250 mL beaker. Add 50 mL water and stir to dissolve. Label this Solution A.
3. Dissolve 5.0 g NaHCO_3 in 50 mL of water in the second 250 mL beaker. Label this Solution B.

Presentation

1. Pour A into B and mix quickly.
2. Invert the beaker to show the stability of the foam.

Additional Information

1. Reactions are:



2. A chemical foam contains CO_2 ; a mechanical foam contains air.

3. A foam is a colloidal system with a gas dispersed in a liquid.
4. Other foams include whipped cream, shaving cream.

Questions for the Students

1. What is a foam?
2. What reactions lead to the production of the foam?
3. How is this reaction similar to the reaction which produces CO₂ during baking?
4. Name some other foams.

Reference

Summerlin, L. and Ealy, J. Chemical Demonstrations: A Sourcebook for Teachers, Vol. I, 1985.