CANNED HEAT

AP Chemistry

Background Information: Rather than forming a true solution, particles in the range of 10 to 1000 Angstroms form a colloidal dispersion. Colloidal dispersions are usually translucent or opaque. One type of colloidal system consists of a solid dispersed in a liquid. When this type of system is fluid, as in paints, the dispersion has a firmer consistency, it is called gel. In this experiment you will make canned heat, a gel. Similar gels are used for cooking at campsites, Sterno.

Purpose: To prepare canned heat and test some of its properties.

Procedure:

1. Mass out 3.00 g of calcium acetate in a beaker or plastic cup.
2. Measure out 10.0 mL of water (tap is fine) and add it to the calcium acetate. Stir to dissolve most of the solid (not all of it will dissolve).
3. Add a pinch of salt to the calcium acetate solution and stir.
4. Measure out 75.0 mL of ethanol and transfer it to the beaker or cup containing the calcium acetate solution. Observe and wait for 3-5 minutes (continue to observe).
5. Using your scoopula or spatula, transfer the gel into the evaporating dish and place the dish the ceramic plate.
6. Light the gel in the dish and observe.

Data:

Discussion:

1. What is a true solution?
2. Why is a colloidal dispersion opaque?
3. Can you make a colloid colorful? Give an example.
4. What is the purpose of the sodium chloride?
5. What affect does ethanol have on the saturated solution of calcium acetate?
6. The calcium acetate _____ rapidly, forming a network of solid throughout the liquid.
7. Why does your white substance turn black at the end of the experiment?

Resources:

Conclusion: