

The Effect of Temperature on Solubility

Purpose:

The purpose of this lab is to find out what effect a change in the temperature has on the solubility of substances.

Materials:

1 small test tubes, 10ml graduated cylinder, hot plate, NaCl, KNO₃, Stirring rod.

Procedure:

1. Place 5.0 ml of water into each of two small test tubes.
2. Add 5.0 g of NaCl to one and 5.0 g of KNO₃ to the other
3. Stir both until saturated solutions are produced. Record your observations and make a sketch.
4. Place both test tubes into a beaker of cold water and heat until the water is boiling, stirring constantly. Make observations and a sketch.
5. Place the test tubes into a beaker of cold water. Make observations and a sketch.

Questions:

1. How do you know the solutions are saturated?
2. As the water gets hotter, what do you observe happening to the solids in the test tubes?
3. Do the solubilities appear to change equally or differently as the temperature of the water increases?
4. What do you predict will happen if the test tubes are cooled together in a beaker of cold water?
5. What did happen when the test tubes were cooled?
6. From these observations, what can you conclude about the effect of temperature on the solubilities of different substances?
7. Calculate the solubilities of the two solutions at room temperature (25°C) and boiling.

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