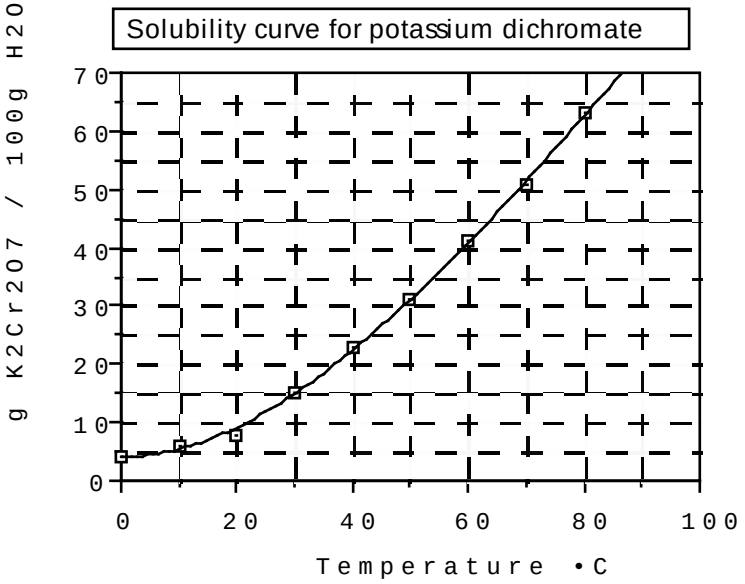
Solutions
Chemistry 110

1) Solubility



Using the above solubility curve answer the following questions:

a] What is the solubility of $K_2Cr_2O_7$ at 55 ^oC? _____g/100 ml

b] What is the maximum number grams of $K_2Cr_2O_7$ that will dissolve in 35 grams of water at 30^oC?

_____

c] If $K_2Cr_2O_7$ does not supersaturate, tell how many grams will precipitate out per 100 g of solvent when a solution containing 30 g per 100 g of water at 60^oC is cooled to 20^oC _____

d] For each of the following, indicate what kind of solution exists.....

(a) saturated, (b) unsaturated

-If the solution contains 2 g $K_2Cr_2O_7$ in 10 g water at 40^oC _____

-If the solution contains 20 grams in 50 g water at 60^oC _____

-If the solution contains 90 g in 300 g water at 70 ^oC _____

2] A 0.200 g sample of tissue from a dead bald eagle is found to contain 2.42 µg of DDT. Express this DDT concentration as mass percent.

3] How would you prepare 250.0 g of a 1.00% by mass of a silver nitrate solution?

_____

Answer: Mix _____g of silver nitrate with _____g of water

4] How many milliters of solution are required to provide 4.00 g sodium acetate from a 2.00 M sodium acetate solution?

5] After 25 ml of 0.50 M sulfuric acid is added to 0.075 liters of water, what is the molar concentration of the resulting solution? [Assume the volumes are additive]

_____

6] What is the molality of a solution made by dissolving 20.0 g of sodium chloride in 225 g of water?

_____

7] How many grams of chloride are contained in 25 ml of a 2.37 M aluminum chloride solution?

_____

8] How many milliters of 3.5 M KBr is needed to prepare 355 ml of 0.50 M solution?

_____

9] 14 grams of methanol, CH_3OH, are dissolved in 100.0 g of water

a) Find the molality of the solution.

_____

b) Find the percent alcohol by mass in this solution.

_____