

¹Crystallizing Minerals from Aqueous Solutions

C:\a-StudioClassroom\minex07.wpd; July 6, 2005

<u>compound</u>	<u>name</u>	<u>add to 200 cc H₂O</u>
NaCl	halite	100 gm
KCl	sylvite	100 gm
K ₃ Fe(CN) ₆	potassium ferricyanide	93 gm
Cu(CH ₃ COO) ₂ ·H ₂ O	cupric acetate	20 gm
C ₁₂ H ₂₂ O ₁₁	sucrose	460 gm
NaNO ₃	sodium nitrate	110 gm
KAl(SO ₄) ₂ ·12H ₂ O	alum	40 gm
KNaC ₄ H ₄ O ₆ ·4H ₂ O	Rochelle salt	260 gm

equipment

400-ml beakers
water - pref. distilled
stirring rods
weighing papers

balance scale that goes to 500 gm
hot plate
thread
kimwipes & rubberbands

General Procedure

Part 1:

You will create supersaturated solutions by adding the powdered compounds to water in ratios specified. The solutions will be heated and stirred until the solids have dissolved, and then you will let the liquids cool, and cover them with a kimwipe held in place with a rubber band. Then we will wait while they evaporate and see what crystals form.

Be sure to weigh the reagents to make sure you have enough for 200 cc of water. If not, mix up a smaller batch in a smaller beaker.

For the sucrose, suspend a string in the mix to give it something to grow on.

Part 2 (to be done at least 3 weeks after part 1):

Look at the crystals we grew from the aqueous solutions. Try to figure out what the "ideal" crystal shape is. Make a sketch. Describe the number and size of crystals you see. And describe any other interesting features.

¹This exercise is based on: Heaney, P (1997) Crystal Growth Fast and Slow. In, Brady et al. eds. (1997) Teaching Mineralogy. Mineralogical Society of America, pp 67-78.