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16 INTERPRETING GRAPHICS

Use with Section 16.1

Solubilities of Some Substances in Water at Various Temperatures					
		Solubility (g/100 g of H_2O)			
Substance	**Formula**	**0°C**	**20°C**	**50°C**	**100°C**
Barium hydroxide	$Ba(OH)_2$	1.67	31.89	—	—
Barium sulfate	$BaSO_4$	0.00019	0.00025	0.00034	—
Calcium hydroxide	$Ca(OH)_2$	0.189	0.173	—	0.07
Lead(II) chloride	$PbCl_2$	0.60	0.99	1.70	—
Lithium carbonate	Li_2CO_3	1.5	1.3	1.1	0.70
Potassium chlorate	$KClO_3$	4.0	7.4	19.3	56.0
Potassium chloride	KCl	27.6	34.0	42.6	57.6
Sodium chloride	NaCl	35.7	36.0	37.0	39.2
Sodium nitrate	$NaNO_3$	74	88.0	114.0	182
Sodium sulfate	Na_2SO_4	4.76	62	50.0	41.0
Silver nitrate	$AgNO_3$	122	222.0	455.0	733
Lithium bromide	LiBr	143.0	166	203	266.0
Cane sugar (sucrose)	$C_{12}H_{22}O_{11}$	179	230.9	260.4	487

A portion of Table 16.1 from your textbook has been reproduced above. Use the table to answer the following questions.

1. Saturated solutions of each of the following compounds are made at 20°C. Circle the letter(s) of the solution(s) that will form a precipitate upon heating.

a. NaCl

b. Na_2SO_4

c. Li_2CO_3

d. sucrose

2. A saturated solution of potassium chloride is prepared in 100.0 g of water at 20°C. If the solution is heated to 50°C, how much more KCl must be added to obtain a saturated solution?

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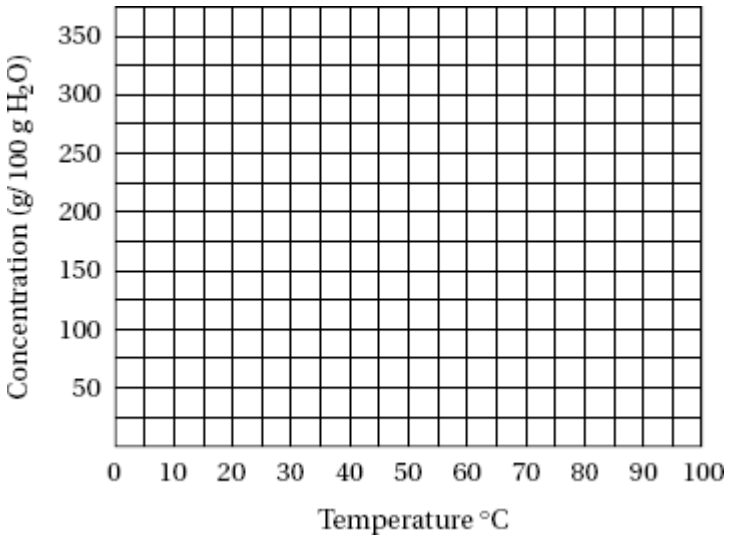
3. A saturated solution of sucrose in 1000.0 g of boiling water is cooled to 20°C. What mass of rock candy will be formed?

4. Using data from the table, plot the solubility curves of KCl, LiBr and Na_2SO_4 on the graph below. Be sure to label each curve. Use the graph to answer the following questions.



a. Which of the compounds is most soluble at 25°C?

_____

_____

b. Which of the compounds has the lowest solubility at 90°C?

_____

_____