

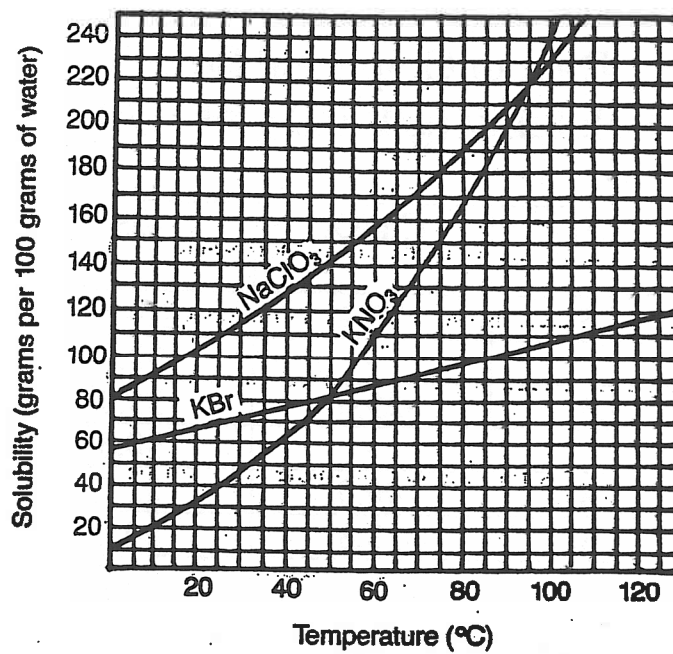
Solubility Data to Graph and Solve Problems

Solubility (g/100.0 g of H₂O)

Temperature °C	LiOH	CuSO ₄	KBr	SrBr ₂
100	17.5	75.4	104.0	222.5
90	-	-	99.2	-
80	15.3	55.0	95.0	181.8
70	-	-	90.0	-
60	13.8	40.0	85.5	150.0
50	13.3	33.3	80.2	135.8
40	13.0	28.5	75.5	123.2
30	12.9	25.0	70.6	111.9
20	12.8	20.7	65.2	102.4
10	12.7	17.4	59.5	93.0
0	12.7	14.3	53.5	85.2

Using the Data and your graph, solve the following problems.

1. Can 10g of CuSO₄ saturate 100 g of water at 40⁰C? Explain your answer.
2. At what temperature will 25.0 g of CuSO₄ saturate 100 g of water?
3. A solution of SrBr₂ is saturated at 20⁰C. How much additional solute must be added to keep the solution saturated as the temperature increases to 30⁰C?
4. At 100⁰C, 100 g of water is saturated with LiOH. The solution is cooled to 0⁰C. How many grams of solid LiOH will settle out of solution? What kind of solution is left?
5. Generally speaking from the data provided, what happens to the solubility of a solid substance as the temperature increases?
6. What happens to the solubility of gases in liquids as temperature increases?



1. Which salt is the least soluble at 90°C?
2. At what temperature does KNO₃ become more soluble than NaClO₃?
3. How many grams of KBr are needed to make a saturated solution in 100 grams of water at 30°C?
4. Which salt is the most soluble at 40°C?
5. What effect does an increase in temperature have on the amount of KNO₃ needed to make a saturated solution?
6. The solubility of NaClO₃ is 120 g/ 100 g water at what temperature?
7. How many grams of sugar were added to make 85 mL of a ten percent sugar solution?
Hint: 85 mL is about 85 g.
8. Find the mass of salt that must be added to 450 mL of water to make a solution having a concentration of 25 grams per liter.