

Solubility Curves

Study the solubility curves in the figure, and then answer the questions that follow.

1. What relationship exists between solubility and temperature for most of the substances shown?

2. a. What is the exception?
b. What general principle accounts for this exception?

3. a. Approximately how many grams of NaNO_3 will dissolve in 100 g of water at 20°C ?

- b. How many grams will dissolve at 60°C ?

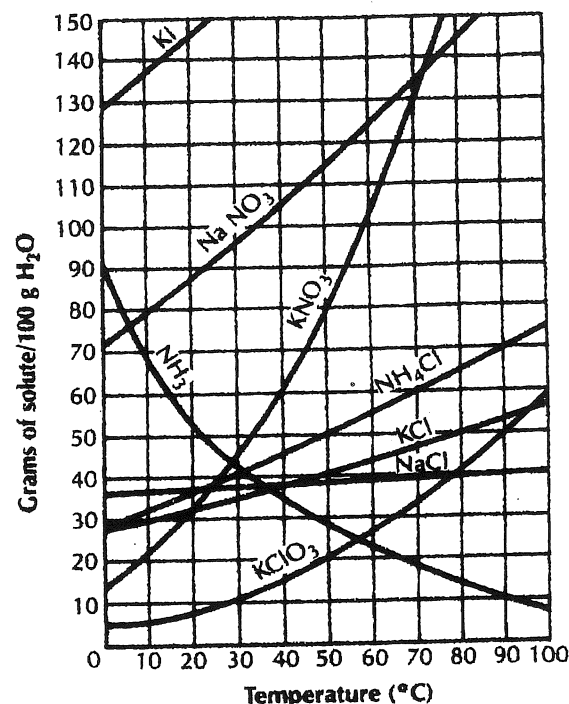
4. How many grams of NH_4Cl will dissolve in 1 liter of H_2O at 50°C ?

5. Ninety grams of NaNO_3 is added to 100 g of H_2O at 0°C . With constant stirring, to what temperature must the solution be raised to produce a saturated solution with no solid NaNO_3 remaining?

6. A saturated solution of KClO_3 was made with 300 g of H_2O at 40°C . How much KClO_3 could be recovered by evaporating the solution to dryness?

7. Five hundred grams of water are used to make a saturated solution of KCl at 10°C . How many more grams of KCl could be dissolved if the temperature were raised to 100°C ?

8. A saturated solution of KNO_3 in 200 g of H_2O at 50°C is cooled to 20°C . How much KNO_3 will precipitate out of solution?



1. _____

- 2a. _____
b. _____

- 3a. _____
b. _____
4. _____
5. _____
6. _____
7. _____
8. _____

SOLUBILITY CURVES

Name _____

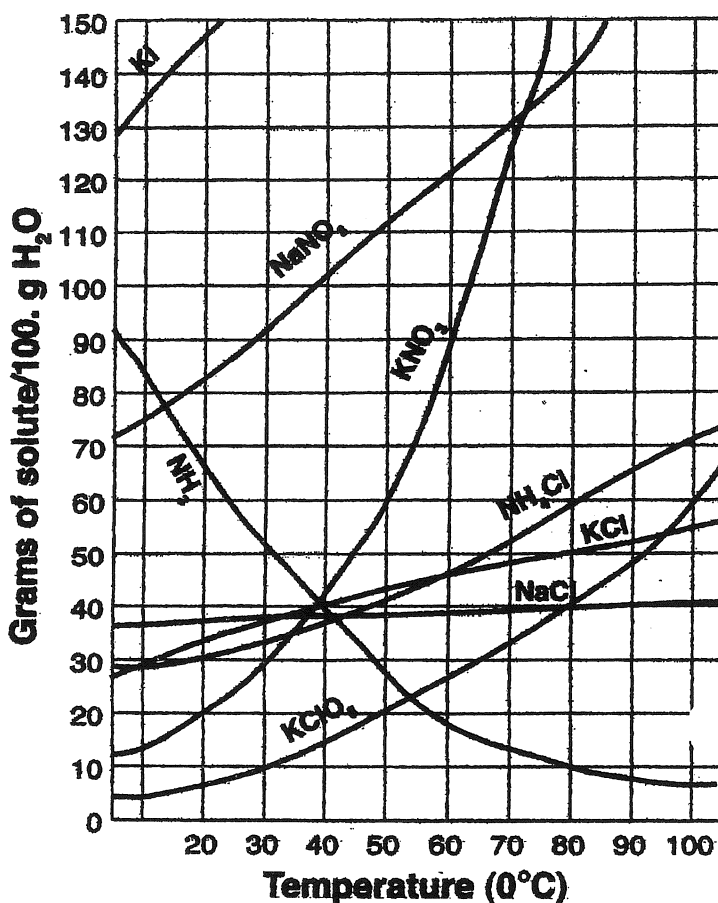
Answer the following questions based on the solubility curve below.

- Which salt is least soluble in water at 20° C? _____
- How many grams of potassium chloride can be dissolved in 200 g of water at 80° C? (KCl)

- At 40° C, how much potassium nitrate can be dissolved in 300 g of water? (KNO₃)

- Which salt shows the least change in solubility from 0° - 100° C?

- At 30° C, 90 g of sodium nitrate is dissolved in 100 g of water. Is this solution saturated, unsaturated or supersaturated? (NaNO₃)



- A saturated solution of potassium chlorate is formed from one hundred grams of water. If the saturated solution is cooled from 80° C to 50° C, how many grams of precipitate are formed? (KClO₃)

- What compound shows a decrease in solubility from 0° to 100° C? _____
- Which salt is most soluble at 10° C? _____
- Which salt is least soluble at 50° C? _____
- Which salt is least soluble at 90° C? _____