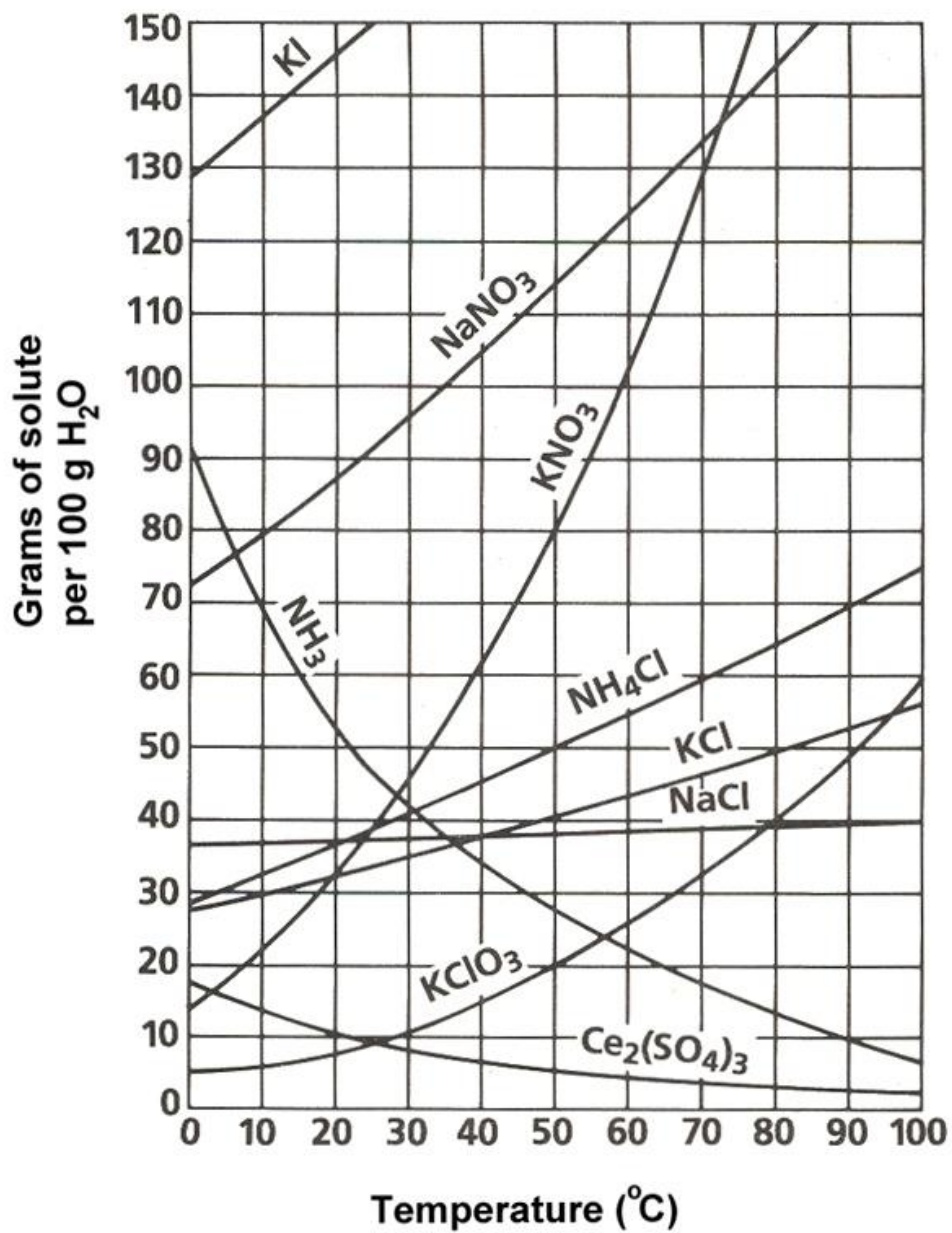


SOLUBILITY CURVE WORKSHEET

Use your solubility curve graph provided to answer the following questions.

1. What are the customary units of solubility on solubility curves? _____
2. Define solubility. _____
3. According to the graph, the solubility of any substance changes as _____ changes.
4. List the substances whose solubility decreases as temperature increases. _____

5. Which substance is least affected by temperature changes? _____
6. How many grams of ammonium chloride (NH_4Cl) at 50°C ? _____
7. _____ and _____ have the same solubility at approximately 78°C .
8. Which compound is least soluble in water at 10°C ? _____
9. How many grams of KNO_3 can be dissolved at 50°C ? _____
10. Are the following solutions unsaturated, saturated, or supersaturated?
 - a. 45g of NaNO_3 in 100 g of water at 30°C . _____
 - b. 60g of KClO_3 in 100 g of water at 60°C . _____
11. How many grams of sodium chloride, NaCl are required to saturate 100 grams of water at 100°C ? _____
12. How many grams of NaNO_3 are required to saturate 100 grams of water at 90°C ? _____
13. How many grams of KI will saturate water at 20°C ? _____
14. At what temperature would 25g of potassium chlorate (KClO_3) dissolve? _____
15. At what temperature would 55g of NH_4Cl dissolve? _____
16. 89 g NaNO_3 is prepared at 30°C .
 - a) Will all of the salt dissolve? _____
 - b) What mass of NaNO_3 will dissolve at this temperature? _____
17. If 25 grams of NH_4Cl is dissolved at 50°C , how many additional grams NH_4Cl would be needed to make the solution saturated at 80°C ? _____
18. At 50°C , how many grams of KNO_3 will dissolve? _____
19. At 70°C , how many grams of cerium (III) sulfate ($\text{Ce}_2(\text{SO}_4)_3$) dissolve? _____
20. Determine if each of the following is unsaturated, saturated, or supersaturated.
 - a. 55g of NH_3 at 20°C . _____
 - b. 10g of $\text{Ce}_2(\text{SO}_4)_3$ at 10°C . _____
 - c. 125g of KNO_3 at 60°C . _____
 - d. 65g of NH_4Cl at 80°C . _____
 - e. 12g of NH_3 at 90°C . _____
 - f. 80g of NaNO_3 at 10°C . _____
 - g. 145g of NaNO_3 at 80°C . _____
 - h. 35g of NaCl at 100°C . _____



SOLUBILITY CURVE WORKSHEET KEY

Use your solubility curve graphs provided to answer the following questions.

1. What are the customary units of solubility on solubility curves? Degress Celsius and grams of solute/100g of water
2. Define solubility. A measure of how much solute can dissolve in a given amount of solvent.
3. According to the graph, the solubility of any substance changes as temperature changes.
4. List the substances whose solubility decreases as temperature increases. NH₃ and Ce₂(SO₄)₂
5. Which substance is least affected by temperature changes? NaCl.
6. How many grams of ammonium chloride (NH₄Cl) at 50°C? 50g
7. NaCl and KClO₃ have the same solubility at approximately 78°C.
8. Which compound is least soluble in water at 10°C? KClO₃
9. How many grams of KNO₃ can be dissolved at 50°C? 80g
10. Are the following solutions unsaturated, saturated, or supersaturated?
 - a. 45g of NaNO₃ in 100 g of water at 30°C. saturated
 - b. 60g of KClO₃ in 100 g of water at 90°C. supersaturated
11. How many grams of sodium chloride, NaCl are required to saturate 100 grams of water at 100° C? 40g
12. How many grams of NaNO₃ are required to saturate 100 grams of water at 75°C? 140g
13. How many grams of KI will saturate water at 20°C? 33g
14. At what temperature would 25g of potassium chlorate (KClO₃) dissolve? 60°C
15. At what temperature would 60g of NH₄Cl dissolve? 70°C
16. 89 g NaNO₃ is prepared at 30°C.
 - a) Will all of the salt dissolve? No
 - b) What mass of NaNO₃ will dissolve at this temperature? 95g
17. If 50 grams of NH₄Cl is dissolved at 50°C, how many additional grams NH₄Cl would be needed to make the solution saturated at 80°C? 15g
18. At 50°C, how many grams of KNO₃ will dissolve? 80g
19. At 70°C, how many grams of cerium (III) sulfate (Ce₂(SO₄)₃) dissolve? 5g
20. Determine if each of the following is unsaturated, saturated, or supersaturated.
 - a. 55g of NH₃ at 20°C supersaturated
 - b. 10g of Ce₂(SO₄)₃ at 10°C unsaturated
 - c. 110g of KNO₃ at 60°C. supersaturated
 - d. 65g of NH₄Cl at 80°C. saturated
 - e. 12g of NH₃ at 90°C. supersaturated
 - f. 78g of NaNO₃ at 10°C. saturated
 - g. 145g of NaNO₃ at 80°C. saturated
 - h. 35g of NaCl at 100°C. unsaturated