

Chapter 7: "Solutions" Worksheet and Key

Define the following terms:

mixture	solvent	Osmosis
aqueous	solute	Osmotic pressure
solutions	saturated solution	Osmolarity
colloids	solubility	Osmolality
suspensions	molarity	Diffusion
heterogeneous	molality	
homogenous	Henry's law	

SEE LECTURE NOTES FOR DEFINITION ANSWERS

1. If 50 g of NaOH is dissolved into 150 ml of ethanol, name the solute & the solvent.
SEE LAST PAGE FOR ANSWERS TO PROBLEMS 1-5
2. Name 2 ways to *increase* the *speed* with which a solute dissolves.
3. What does "like dissolves like" mean?
4. Which of the following solvents is nonpolar?
a. CCl₄ b. water c. NH₃ d. all are nonpolar
5. How does increasing the temperature of a solid affect its solubility? What about for a gas?
6. What volume of 1.50 M NaCl is needed for a reaction that requires 146.3 g of NaCl?
1.67 L
7. What is the molarity of a solution composed of 8.2 g of potassium chromate, K₂CrO₄ dissolved in enough water to make 500. mL of solution?
.084M

8. What is the % (w/w) of a solution containing 21 g KCl in 125 grams of solution?

17%

9. What volume of a 5.0 M solution is needed to make 1.5 L of 2.0M NaOH?

.60 L

10. Calculate the number of moles and the number of grams of solute in 2.0L of a 0.30 M Na₂SO₄ solution.

.60 moles= 85g

11. How many mL of a 1.35 M solution will contain 8.20 mole NaOH?

6070 mL

Answers to problems 1-5

1. If 50 g of NaOH is dissolved into 150 ml of ethanol, name the solute & the solvent.

solute=NaOH

solvent= ethanol

2. Name 2 ways to *increase* the *speed* with which a solute dissolves.

stir, heat

3. What does “like dissolves like” mean?

polar molecules dissolve polar molecules

non-polar molecules dissolve non-polar molecules

4. Which of the following solvents is nonpolar?

a. CCl₄

5. How does increasing the temperature of a solid affect its solubility? What about for a gas?

as temp. of solution increases, solids become more soluble

as temp. of solution increases, gases become less soluble