

Problem of the Day 13 CHEM 1252

1. An aqueous solution of sulfuric acid contains 571.6 g of H_2SO_4 per liter of solution and has a density of 1.329 g/mL.

a) Calculate the mass % of the solution.

6

b) Calculate the molality of the solution.

6

c) Calculate the molarity of the solution.

4

2. When 1.00 g benzene, C_6H_6 , is added to 80.00 g cyclohexane C_6H_{12} , the freezing point of cyclohexane is lowered from $6.5\text{ }^\circ\text{C}$ to $3.3\text{ }^\circ\text{C}$. What is the value of K_f , the molal freezing point depression constant, for cyclohexane. Hint: $\Delta T_f = i K_f m$.

12

3. If the human eye has an osmotic pressure of 8.00 atm at 25°C , what molarity of solute particles in water will provide an isotonic eyedrop solution (a solution with equal osmotic pressure)?

8