

Colligative Properties Worksheet Answers

FYI: K_f of water is 1.86°C/m ; K_b of water is 0.52°C/m

- 1) Explain why the addition of a solute decreases the melting point of a liquid.
- 2) What is the melting point of a solution in which 3.5 grams of sodium chloride is added to 230 mL of water? **-0.967°**
- 3) What is the boiling point of a solution in which 22.5 grams of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) is dissolved in 550 mL of water? **100.06°**
- 4) Rank the following solutions from lowest to highest boiling point, a 2.5 m solution of sodium chloride, a 3.5 m solution of magnesium chloride, or a 4.5 m solution of sulfur dioxide?
 $4.5 \text{ m SO}_2 < 2.5 \text{ m NaCl} < 3.5 \text{ m MgCl}_2$
- 5) If an aqueous solution has a boiling point of 102.5° , what's the effective molality of the solute? **4.81 m**