

Colligative Properties

1. What is the vapor pressure of an aqueous solution that has 2.50 g of Na_2CO_3 dissolved in 286.00 g of water at 29.0 °C? The vapor pressure of water at 29.0 °C is 30.0 mmHg.
2. Calculate the freezing point of a solution that is prepared by dissolving 1.35 g of aspirin (acetylsalicylic acid, $\text{C}_9\text{H}_8\text{O}_4$) in 100.00 g of chloroform, CHCl_3 . The melting point of CHCl_3 is -63.5 °C and $K_f = 4.70$ °C/m.
3. What is the vapor pressure of a solution that contains 8.65 g of urea ($\text{CH}_4\text{N}_2\text{O}$) in 145.25 g of water at 35.0 °C? The vapor pressure of water at 35.0°C is 42.2 mmHg.
4. A certain sugar is obtained from the degradation of cellulose. A 250.00 mL aqueous solution contains 1.35 g of this sugar. At 28.2 °C, the osmotic pressure is 425.6 mmHg. What is the molar mass of this sugar?