

Marks
8

- Calcium chloride (3.42 g) is completely dissolved in 200 mL of water at 25.00 °C in a 'coffee cup' calorimeter. The temperature of the water after dissolution is 27.95 °C. Calculate the standard enthalpy of solution of CaCl₂ (in kJ mol⁻¹). The heat capacity of water is 4.184 J K⁻¹ g⁻¹. Ignore the heat capacity of the CaCl₂.

Answer:

What would be the vapour pressure of water above this solution?
(P^0 (H₂O) = 3.17 kPa)

Answer:

What would be the freezing point of this solution? The molal freezing point depression constant (K_f) for water is 1.86 °C kg mol⁻¹.

Answer:

Which would you expect to cause the greater freezing point depression of water, 3.42 g of CaCl₂ or 3.42 g of NaCl? Explain your answer.