36488, Chemistry, Inorganic

18g glucose, C6H12O6 (Molar mass=180 g mol) is dissolved in 1kg of water in a sauce pan. At What temperature will this solution boil(kb for water=0.52kg mol -1 B.P of pure water = 373.1K)

Solution:

We calculate the change of the boiling-point if we'll use the equation:

$$\Delta T = K_b \frac{m(solute)}{M(solute)\ \ m(solvent)} = 0.52 \frac{18}{180 \bullet 1} = 0.05K$$

So, this solution will boil at 373.10+0.05=373.15 K.

Answer:

The boiling-point of this solution is 373.15 K.