find the molarity of a solution if 0.5g of sodium chloride is dissolved to make 50.0ml of solution

Solution:

One can calculate the quantity of moles of sodium chloride:

$$\nu(NaCl) = \frac{m(NaCl)}{M(NaCl)} = \frac{0.5g}{58{,}5g/mol} = 0.0086mol$$

Molarity is an amount of moles in one liter of solution:

$$C_M(NaCl) = \frac{\nu(NaCl)}{V(solution)} = \frac{0.0086mol}{0.05L} = 0.172M$$

Answer: C_M = 0.172 M