

Answer on Question #75162, Chemistry / General Chemistry

What is the molality of a solution formed when 80.0 moles of Potassium Hydroxide (KOH) are mixed with 5.4 kg of water?

- A. 1.5 M
- B. 1.5 m
- C. 14.8 m
- D. 14.8 M
- E. None of the Above

Solution:

Right answer is - C. 14.8 m

Based on the definition of the concept of molality - the amount of dissolved substance (number of moles) per 1000 g of solvent, we have a mathematical formula for determining this quantity:

$$m = \frac{\nu}{m_2}$$

where:  $m$  – molality,  $\nu$  - amount of solute (mol number),  $m_2$  - mass of solvent, kg.

it follows, that:

$$m = \frac{80}{5,4} \approx 14,8(\text{mol/kg}) \text{ or } 14,8 \text{ m}$$

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