Answer on Question #44578 – Chemistry – Inorganic Chemistry

Question:

M (molarity) devided by m (molality) = ?

answer is on density,volume,m and M

Answer:

$$\text{Molarity (M)} = \frac{\text{amount (mol)of solute}}{\text{volume (L)of solution}}$$

$$\text{Molality (m)} = \frac{\text{amount (mol)of solute}}{\text{mass (kg)of solvent}}$$

So if we devide Molarity (M) to Molality (m) we will get:

$$\frac{\text{Molarity (M)}}{\text{Molality (m)}} = \frac{\frac{\text{amount (mol)of solute}}{\text{volume (L)of solution}}}{\frac{\text{amount (mol)of solute}}{\text{mass (kg)of solvent}}} = \frac{\text{amount (mol)of solute} * \text{mass (kg)of solvent}}{\text{amount (mol)of solute} * \text{volume (L)of solution}} =$$

$$= \frac{\text{mass (kg)of solvent}}{\text{volume (L)of solution}} = \text{density}$$

Answer: density