

Molalidad

$$m = \frac{\text{Gramos}}{(\text{P.M.})(\text{Kg agua})}$$

$$m = \frac{\text{moles de soluto}}{\text{Kg de solución}}$$

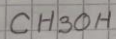
Ejemplo de molalidad

Obten la molalidad de 35g de metanol CH_3OH
450g de agua.

$$m = ?$$

$$g = 35$$

$$\text{Agua} = 450g \div 1000 = 0.45 \text{ Kg}$$



PM

$$\text{C} = 12 \times 1 = 12$$

$$\text{H} = 1 \times 4 = 4$$

$$\text{O} = 16 \times 1 = 16$$

$$32 \text{ g/mol}$$

$$m = g / (\text{P.M.})(\text{Kg})$$

$$m = 35 / (32)(0.45)$$

$$m = 35 / 14.4$$

$$m = 2.43$$

Ejercicios:

1. Calcular la molalidad de una disolución de ácido nítrico HNO_3 en 25g de agua

$$\frac{g}{\text{agua}} = \frac{25\text{g}}{1000} = 0.025$$

HNO_3

$$\text{N} = 1 \times 14 = 14$$

$$\text{H} = 1 \times 1 = 1$$

$$\text{O} = 3 \times 16 = 48$$

$$\text{PM } 63$$

$$m = \frac{g}{(\text{PM})} (\text{Kg})$$

$$m = \frac{25}{63} (0.025)$$

$$m = 9.5/1.6$$

$$m = 59.37$$

2. Calcular la molalidad de metanol CH_3OH en una disolución 15g donde el disolvente son 50g de agua

$$g = 15\text{g}$$

$$\frac{g}{\text{agua}} = \frac{50\text{g}}{1000} = 0.05$$

CH_3OH

$$\text{C} = 1 \times 12 = 12$$

$$\text{H} = 3 \times 1 = 3$$

$$\text{O} = 1 \times 16 = 16$$

$$\text{PM } 31$$

$$m = \frac{15}{(31)} (0.05)$$

$$m = 15/1.55$$

$$m = 9.67$$