Question #67527, Chemistry / Other

the mole fraction of He is gaseous solution prepared from 4.0g of He, 6.5g of Ar. and 10.0g of Ne is 0.603

Solution

Total number of moles of this solution is:

$$\sum n_i = \frac{m_{He}}{A_{r\,He}} + \frac{m_{Ar}}{A_{r\,Ar}} + \frac{m_{Ne}}{A_{r\,Ne}}$$

$$\sum \nu_i = \frac{4\ g}{4 g/mol} + \frac{6.5 g}{39.95\ g/mol} + \frac{10}{20.17\ g/mol} = 1.658\ mol$$

$$\varphi_{He} = \frac{\nu_{He}}{\sum \nu_i} = \frac{1}{1.658} = 0.603$$

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