

Helium gas consists of separate He atoms rather than molecules. How many helium atoms, n , are there in 2.0g of helium? $M=4.0 \text{ kg/kmol}$ for He.

Solution:

Let:

$$m = 2,0g$$

$$M = 4,0 \text{ Kg/Kmol} = 4,0 \text{ g/mol}$$

$$N = ?$$

Such as 1mol of substance contain N_A (Avogadro constant) particles: ($N_A = 6.22 * 10^{23}$)

$$N = \frac{m}{M} * N_A$$

$$N = \frac{2,0}{4,0} * 6,22 * 10^{23} = 3,11 * 10^{23}$$

Answer:

$$3,11 * 10^{23}$$