

Answer on Question #78500, Chemistry / General Chemistry

Question:

Air is about 78% N₂, 21% O₂, and 0.90% Ar. What is the mole fraction of each gas?

Solution:

According to the Avogadro's law, equal volumes of all gases, at the same temperature and pressure, have the same number of molecules.

So, for the mixture of gases the volume fraction of each gas is equal to the mole fraction.

Answer:

Mole fractions:

$$\text{N}_2: 78\% = 0.78$$

$$\text{O}_2: 21\% = 0.21$$

$$\text{Ar}: 0.90\% = 0.009$$

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