

Answer on Question #56051 - Chemistry – General chemistry

Question

What is the molar mass of a gas if 1.25 g of the gas has a volume of 205 mL at STP?

M = ???

g/mole

Answer:

Ideal gas law:

$$PV = \frac{m}{M}RT$$

Therefore:

$$M = \frac{mRT}{PV} = \frac{1.25 \cdot 8.314 \cdot 273}{101325 \cdot 205 \cdot 10^{-6}} = 136.6 \text{ g/mole}$$

Answer: 136.6 g/mole