Ammonium nitrite (NH_4NO_2) decomposes upon heating to form N_2 gas.

$NH_4NO_2{}_{(s)}$ --> $N_2{}_{(g)}$ + 2H2O

When a sample of NH_4NO_2 is decomposed in a test tube 511 ml N_2 is collected over water at 26°C and 745 torr total pressure. How many grams of NH_4NO_2 were decomposed?

Total pressure of gas 745 torr

Net pressure of gas = total pressure – water vapor pressure

$$=(745 -25) \text{ torr } = 720$$

Pressure in atm = 720torr X $\dfrac{1\ atm}{760\ torr}$ = 0.9473

Temperature = 26 o C = 299.149 K

PV = nRT

$n=\dfrac{PV}{RT} = \dfrac{0.9473 \text{ x } 0.511 \text{ L}}{8.2100E-2\ Latm/molK x\ 299.1498K}$ =0.0197 moles

molar mass of amm. nitrite =64.05g/mol

grams of ammonium nitrite=0.01971 mols x 64.0520g/mol = 1.26 g ANSWER

Ammonium nitrite (NH_4NO_2) decomposes upon heating to form N_2 gas.

$NH_4NO_2{}_{(s)}$ --> $N_2{}_{(g)}$ + 2H2O
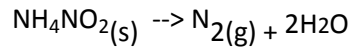
When a sample of NH_4NO_2 is decomposed in a test tube 616 ml N_2 is collected over water at 26°C and 766 torr total pressure. How many grams of NH_4NO_2 were decomposed?

Total pressure of gas 766 torr

Net pressure of gas = total pressure – water vapor pressure

$$=(766 -25) \text{ torr } = 741$$

Pressure in atm = 741torr X $\dfrac{1\,atm}{760\,torr}$ = 0.97499

Temperature = 26 o C = 299.149 K

PV = nRT

$$n=\dfrac{PV}{RT} = \dfrac{0.97499 \text{ x } 0.6159 \text{ L}}{8.21000E-2 \ Latm/molKx \ 299.1499K} = 2.4454183320463604E-2 \text{ moles}$$

molar mass of amm. nitrite =64.0520g/mol

grams of ammonium nitrite=2.4454E-2 mols x 64.052g/mol = 1.57 g ANSWER