FAST GAS ⇒ Large V, High T
Low (No) Mass, Low P

$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

$PV = nRT$ Works at any (T+V)

STP

$(1)V = (1)(0.08206)(273)$ ← 1 mole

$V = 22.4\ \ell$

1 Mole gas = 22.4 AT STP ONLY

$P_T = P_{gas,1} + P_{gas,2} + \ldots P_{gas\ n}$

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p21 ③ $2H_2O_{2(aq)} \rightarrow 2H_2O_{(l)} + O_{2(g)}$

40.8 g

V = ?

T = −13°C

P = 2.4 atm

Moles O_2?

$40.8\ g\ H_2O_2 \times \frac{1\ mole\ H_2O_2}{34\ g\ H_2O_2} \times \frac{1\ mole\ O_2}{2\ mole\ H_2O_2} = 0.6\ mole\ O_2$

$PV = nRT$

$(2.4)V = (0.6)(0.08206)(260)$

$V = 5.334\ \ell$

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(5) $2H_2(g) + O_2(g) \rightarrow 2H_2O(s)$

1.98×10^5 KL

1.98×10^8 L

STP T = 273K P = 1atm

$PV = nRT$

$(1)(1.98 \times 10^8) = n(0.0826)(273)$

$n = 8.84 \times 10^6$ moles H_2

$\frac{8.84 \times 10^6 \text{ mole } H_2}{} \left| \frac{2 \text{ mole } H_2O}{2 \text{ mole } H_2} \right| \frac{18 \text{ g } H_2O}{1 \text{ mole } H_2O} = 1.59 \times 10^8 \text{ g } H_2O$

1.59×10^5 Kg

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Density

$\text{Density} = \frac{\text{mass}}{\text{volume}} = \frac{g}{\ell}$

$PV = nRT$

$\frac{PV}{1} = \left(\frac{g}{MW}\right)RT$

$\text{Moles } (n) = \frac{g}{\text{Molar Mass } (MW)} = \frac{g}{MW}$

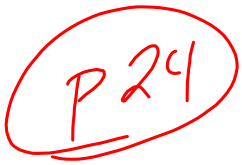
Mass on PT

$\frac{PV}{1} = \frac{gRT}{MW}$

$d = \frac{g}{V} = \frac{P(MW)}{RT}$

density of any gas

Feb 29-9:09 AM



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