

$$[1] \quad 1\text{ l Ag} \quad \rho = 13.59 \text{ g/cm}^3 \quad M = 200.59 \text{ g}$$

$$1\text{ l} = 1000 \text{ ml} \hat{=} 1000 \cdot 13.59 = 13590 \text{ g}$$

$$n = \frac{m}{M} = \frac{13590}{200.59} = 67.75 \text{ mol}$$

$$67.75 \text{ mol} \cdot 6.022 \cdot 10^{23} \text{ mol}^{-1} = 4.08 \cdot 10^{25}$$

$$4.08 \cdot 10^{25} \cdot 157 \cdot 10^{-12} = 6.41 \cdot 10^{15} \text{ m}$$

$$6.41 \cdot 10^{15} \text{ m} / 3 \cdot 10^8 \text{ m s}^{-1} = 21\,351\,546 \text{ s}$$

$\hat{=} 35 \text{ Wochen}$

$$[2] \quad 5.7 \text{ g} \cdot 0.75 = 41.78 \text{ g Au}$$

$$M_{\text{Au}} = 196.97 \text{ g mol}^{-1} \quad \rho = 19.3 \text{ g mol}^{-1}$$

$$n = \frac{m}{M} = \frac{41.78}{196.97} = 0.21 \text{ mol} \xrightarrow{\cdot 6.022 \cdot 10^{23}} 1.28 \cdot 10^{23} \text{ Atome}$$

$$[3] \quad 75 \text{ g} \cdot 0.734 = 55.05 \text{ g MnO}_2$$

$$M_{\text{MnO}_2} = 86.94 \quad n = \frac{m}{M} = \frac{55.05}{86.94} = 0.63 \text{ mol MnO}_2$$

$$\xrightarrow[.1]{:1} 0.63 \text{ mol Cl}_2 \quad m_{\text{Cl}_2} = 0.63 \cdot 70.9 = 44.90 \text{ g}$$

$$[4] \quad 1 \text{ kg Mg} \dots n = \frac{1000}{24,3} = 41,15 \text{ mol}$$

$$1 \text{ kg S} \dots n = \frac{1000}{32,065} = 31,19 \text{ mol}$$



$$m = n \cdot M = 31,19 \cdot 56,365$$

$$= 1758 \text{ g MgS}$$

[5] 100g ... 39.2g P ($M = 30.97 \text{ g/mol}$) $n = 1.26 \text{ mol}$
 ... 40.4g O ($M = 16 \text{ g/mol}$) $n = 2.525 \text{ mol}$
 ... 20.3g S ($M = 32.07 \text{ g/mol}$) $n = 0.633 \text{ mol}$

1.26 : 2.525 : 0.633 = 2 : 4 : 1 ... **P_2O_4S**

[6] $50 \cdot 15 \cdot 1.8 = 1620 \text{ m}^3 \hat{=} 1620 \cdot 10^6 \text{ cm}^3 = 1.6 \cdot 10^9 \text{ cm}^3$

$M(C_{12}H_{22}O_{11}) = 342 \text{ g/mol}$

3mol ... $6.2 \cdot 10^{26}$ Moleküle $\frac{6.2 \cdot 10^{26}}{1.6 \cdot 10^9} = 3.86 \cdot 10^{17}$ Moleküle



$\begin{matrix} 14.01 \leftarrow \\ \downarrow \\ 1 \\ \downarrow \\ 55.85 \leftarrow \end{matrix}$

$\begin{matrix} 32.07 \leftarrow \\ \downarrow \\ 16.00 \leftarrow \\ \downarrow \\ 16.00 \leftarrow \end{matrix}$

$M_{Fe} = 55.85$

$55.85 : 392.01 = 0.1424 \xrightarrow{235g} 33.48 \text{ g}$

$$\begin{array}{c}
 \text{mol} \quad \text{g} \\
 0.87 \quad 6.915 \\
 \\
 [8] \quad M = \frac{m}{n} = \frac{6.915}{0.87} = 7.95 \text{ g/mol (Lit)}
 \end{array}$$



