

1) % Comp Na_2PO_4

$$\text{Na} - 3 \times 23.0 = 69.0$$

$$\text{P} - 1 \times 31.0 = 31.0$$

$$\text{O} - 4 \times 16.0 = 64.0$$

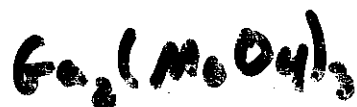
$$164.0 \text{ g/mol}$$

$$\% \text{Na} = \frac{69.0}{164.0} \times 100 = 42.1\%$$

$$\% \text{P} = \frac{31.0}{164.0} \times 100 = 18.9\%$$

$$\% \text{O} = \frac{64.0}{164.0} \times 100 = 39.0\%$$

Cellium (II) molybdate



$$\text{Ce} - 2 \times 139.9 = 279.8$$

$$\text{Mo} - 2 \times 95.9 = 191.8$$

$$\text{O} - 12 \times 16.0 = 192.0$$

$$663.6 \text{ g/mol}$$

$$\% \text{Ce} = \frac{279.8}{663.6} \times 100 = 42.2\%$$

$$\% \text{Mo} = \frac{191.8}{663.6} \times 100 = 28.9\%$$

$$\% \text{O} = \frac{192.0}{663.6} \times 100 = 28.9\%$$

Empirical Formula

$$\frac{1.18 \text{ g K}}{39.10 \text{ g K}} \div \frac{1 \text{ mol K}}{39.10 \text{ g K}} = 0.023 \text{ mol K} \quad \frac{23}{39} = 1$$

$$\frac{1.18 \text{ g Cr}}{52.00 \text{ g Cr}} \div \frac{1 \text{ mol Cr}}{52.00 \text{ g Cr}} = 0.023 \text{ mol Cr} \quad \frac{23}{52} = 1$$

$$\frac{1.27 \text{ g O}}{16.00 \text{ g O}} \div \frac{1 \text{ mol O}}{16.00 \text{ g O}} = 0.079 \text{ mol O} \quad \frac{23}{16} = 1.5$$

$$1.5 = \frac{3}{2} = \frac{3}{2}$$



Na 29.17% S 40.57% O 30.26%

assume 100g sample

$$\frac{29.17 \text{ g Na}}{22.99 \text{ g/mol}} = 1.27 \text{ mol Na}$$

$$\frac{40.57 \text{ g S}}{32.07 \text{ g/mol}} = 1.26 \text{ mol S}$$

$$\frac{30.26 \text{ g O}}{16.00 \text{ g/mol}} = 1.9 \text{ mol O}$$

$$1.27 : 1.26 : 1.9 = \frac{3}{2} : \frac{3}{2} : 2 \quad \text{Na}_2\text{S}_2\text{O}_3$$

$$\frac{.763 \text{ mol NaCl}}{1 \text{ mol NaCl}} \bigg/ \frac{6.02 \times 10^{23} \text{ Fe NaCl}}{1 \text{ mol NaCl}} = 4.59 \times 10^{23} \text{ Fe NaCl}$$

$$\frac{53.1 \text{ g HBr}}{80.9 \text{ g/mol}} \bigg/ \frac{6.02 \times 10^{23} \text{ Fe HBr}}{1 \text{ mol HBr}} = 3.95 \times 10^{23} \text{ Fe HBr}$$

$$\frac{2.44 \times 10^{24} \text{ molecules SiH}_4}{6.02 \times 10^{23} \text{ molecules SiH}_4} \bigg/ \frac{1 \text{ mol SiH}_4}{6.02 \times 10^{23} \text{ molecules SiH}_4} = 4.0 \text{ mol SiH}_4$$

$$\frac{4.0 \text{ mol SiH}_4}{1 \text{ mol SiH}_4} \bigg/ \frac{32.1 \text{ g SiH}_4}{1 \text{ mol SiH}_4} = 130.1 \text{ g SiH}_4$$

$$\begin{array}{r} \text{Si: } 28.1 \\ \text{H: } 4.0 \\ \hline 32.1 \end{array}$$

