

$$2.0 \text{ mol of HCl} \times \frac{1 \text{ mol of MgCl}_2}{2 \text{ mol of HCl}} = 1.0 \text{ mol of MgCl}_2$$

$$1.0 \text{ mol of MgCl}_2 \times \frac{95.21 \text{ g}}{1 \text{ mol of MgCl}_2} = 95.21 \text{ g of MgCl}_2$$

14)

$$10.0129 \text{ amu} \times 0.1991 = 1.99$$

$$11.0093 \text{ amu} \times 0.8009 = \frac{8.82}{10.81 \text{ amu of B}}$$

15)

$$6.0 \text{ g of CH}_4 \quad 4.5 \text{ g of C} \quad 1.5 \text{ g of H}_2$$

$$\frac{6.0 \text{ g}}{16 \text{ g/mol}} = 0.375 \text{ mol of CH}_4 \quad / 0.375 = 1$$

$$\frac{4.5 \text{ g}}{12 \text{ g/mol}} = 0.375 \text{ mol of C} \quad / 0.375 = 1$$

$$\frac{1.5 \text{ g}}{2} = 0.75 \text{ mol of H}_2 \quad / 0.375 = 2$$

= CH₂ is empirical formula of Methane

16)

$$\frac{40 \text{ g of S}}{32.065}$$

$$\frac{60 \text{ g of O}_2}{32.0}$$

~~$$\frac{40}{32.065}$$~~

~~$$\frac{60}{32.0}$$~~

~~0.125~~

~~0.1875~~

$$\frac{40}{32.065} = 1.25 \text{ mol}$$

$$\frac{60}{16} = 3.75 \text{ mol of O}_2$$

$$\frac{1.25 \text{ mol}}{1.25} = 1$$

$$\frac{3.75}{1.25} = 3$$

