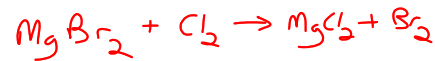


45.2 g of magnesium bromide reacts with 32.7 g of chlorine in a single replacement reaction. Determine the mass of the products.



$$\frac{45.2 \text{ g MgBr}_2}{184.1 \text{ g/mol}} = 0.246 \text{ mol MgBr}_2$$

$$\frac{32.7 \text{ g Cl}_2}{71.0 \text{ g/mol}} = 0.461 \text{ mol Cl}_2$$

$$\frac{\text{MgBr}_2}{\text{Cl}_2} = \frac{1}{1} = \frac{0.246 \text{ mol}}{x}$$

↪ $x = 0.246 \text{ mol Cl}_2 \text{ needed}$

MgBr₂ is LR

$$\frac{\text{MgBr}_2}{\text{MgCl}_2} = \frac{1}{1} = \frac{0.246 \text{ mol}}{x}$$

↪ 0.246 mol MgCl₂
(0.246 mol MgCl₂)(95.3 g/mol)
23.4 g MgCl₂

↪ Br₂ = 0.246 mol
(0.246 mol Br₂)(159.8 g/mol)
39.3 g Br₂

40.0 g of ammonia burns in excess oxygen to form nitrogen monoxide and water. Determine the mass of the products.



$$\frac{40.0 \text{ g NH}_3}{17.0 \text{ g/mol}} = 2.35 \text{ mol NH}_3$$

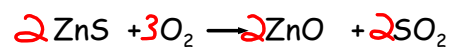
$$\frac{\text{NH}_3}{\text{NO}} = \frac{4}{4} = \frac{1}{1} = \frac{2.35 \text{ mol}}{x}$$

↪ $x = 2.35 \text{ mol NO}$
(2.35 mol NO)(30.0 g/mol)
70.5 g NO

$$\frac{\text{NH}_3}{\text{H}_2\text{O}} = \frac{4}{6} = \frac{2}{3} = \frac{2.35 \text{ mol}}{x}$$

↪ $x = 3.53 \text{ mol H}_2\text{O}$
(3.53 mol H₂O)(18.0 g/mol)
63.5 g H₂O

How many grams of zinc sulfide is needed to form 50.0 g of ZnO



$$\frac{50.0\text{g ZnO}}{81.4\text{g/mol}} = 0.614\text{mol ZnO}$$

$$\frac{\text{ZnO}}{\text{ZnS}} = \frac{2}{2} = \frac{1}{1} = \frac{0.614\text{mol}}{X}$$

$\rightarrow 0.614\text{mol ZnS}$

$$(0.614\text{mol ZnS})(97.5\text{g/mol})$$

59.9g ZnS