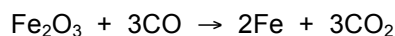




1 What mass of iron is formed when 240 g of iron(III) oxide reacts with carbon monoxide?

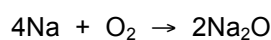


$$\text{moles Fe}_2\text{O}_3 = \frac{\text{mass}}{M_r} = \frac{240}{160} = 1.5 \text{ moles}$$

$$\text{moles Fe} = 2 \times 1.5 = 3.0 \text{ moles}$$

$$\text{mass Fe} = M_r \times \text{moles} = 56 \times 3.0 = 168 \text{ g}$$

2 What mass of oxygen reacts with 9.2 g of sodium?



$$\text{moles Na} = \frac{\text{mass}}{M_r} = \frac{9.2}{23} = 0.4 \text{ moles}$$

$$\text{moles O}_2 = \frac{0.4}{4} = 0.1 \text{ moles}$$

$$\text{mass O}_2 = M_r \times \text{moles} = 32 \times 0.1 = 3.2 \text{ g}$$

3 How many moles in each of the following?

a 12 mg of magnesium

$$\text{moles Mg} = \frac{\text{mass}}{M_r} = \frac{0.012}{24} = 0.0005 \text{ moles}$$

b 8.0 kg of oxygen

$$\text{moles O}_2 = \frac{\text{mass}}{M_r} = \frac{8000}{32} = 250 \text{ moles}$$

4 What is the mass of each of the following?

a 0.100 moles of calcium hydroxide

$$\text{mass Ca(OH)}_2 = M_r \times \text{moles} = 74 \times 0.100 = 7.4 \text{ g}$$

b 0.025 moles of aluminium sulfate

$$\text{mass Al}_2(\text{SO}_4)_3 = M_r \times \text{moles} = 342 \times 0.025 = 8.55 \text{ g}$$