**Limiting reagents**



**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 5.672 g of sodium hydroxide was added to a solution containing 0.175 mol of sulfuric acid. Determine the amount of sodium sulfate formed and the amount of excess reagent remaining.
2. Iron can be reacted with oxygen to form iron (III) oxide. If 5.24 g of oxygen reacts with 0.178 mol of iron, what mass of iron (III) oxide will be produced? What mass of Fe will be left over at the end of the reaction? What mass of O2 will be left over at the end of the reaction?
3. How much carbon monoxide, in grams, is produced from the combustion of 1.00 tonne of coal, C, and 1.00 tonne oxygen gas?
4. When 21.6g of lithium reacts with 32.3g of oxygen, calculate the number of g of Li2O formed. Is Li or O2 in excess, and by how many grams?
5. How much potassium chloride is produced from the reaction of 2.50g of K and 3.22g of Cl2?
6. Fertilisers are used to provide substances that are lacking in Australian soils. Superphosphate is produced using the reaction below.

Ca3(PO4)2 + 4H3PO4 à 3Ca(H2PO4)2

calcium phosphate calcium dihydrogenphosphate

25.0 tonne of calcium phosphate is heated with 30.0 tonne of phosphoric acid. What mass of calcium dihydrogenphosphate (superphosphate) is formed?

1. The equation for the reaction of manganese dioxide with hot concentrated hydrochloric acid is:

MnO2(s) + 4HCl(aq) à Cl2(g) + MnCl2(aq) + 2H2O(l)

When 3.57g of impure manganese dioxide was treated with excess hydrochloric acid, 2.76g of chlorine gas was given off. Calculate the percentage purity of the manganese dioxide.