WORKSHEET 14

CHEMICAL EQUATIONS

Syllabus reference 8.2.4

1 Write balanced chemical equations to convey the same information as the following statements.

a A molecule of phosphorus which contains four atoms reacts with three molecules of oxygen (each containing two atoms) to form one molecule of a compound containing four phosphorus atoms and six oxygen atoms.

b A molecule of acetylene (ethyne) contains two carbon atoms and two hydrogen atoms. Oxygen gas exists as diatomic molecules. Two molecules of acetylene react with five molecules of oxygen gas to form four molecules of carbon dioxide and two molecules of water.

2 Write in words all the information contained in the following chemical equations.

a $CH_4 + 2Cl_2 \rightarrow CH_2Cl_2 + 2HCl$

(CH_4 is called methane, CH_2Cl_2 is dichloromethane and HCl is hydrogen chloride.)

b $2H_2SO_4 + S \rightarrow 3SO_2 + 2H_2O$

(H_2SO_4 is sulfuric acid and SO_2 is sulfur dioxide.)

3 Balance the following equations.

a $Mg + O_2 \rightarrow MgO$

b $Zn + HCl \rightarrow ZnCl_2 + H_2$

c $Zn + AgNO_3 \rightarrow Zn(NO_3)_2 + Ag$

d $AlCl_3 + NaOH \rightarrow Al(OH)_3 + NaCl$

e $Al(OH)_3 + HCl \rightarrow AlCl_3 + H_2O$

f $Pb(NO_3)_2 + KI \rightarrow PbI_2 + KNO_3$

g $C + H_2SO_4 \rightarrow CO_2 + SO_2 + H_2O$

4 Write balanced chemical equations for the following reactions.

a Burning carbon in limited oxygen gas to form carbon monoxide.

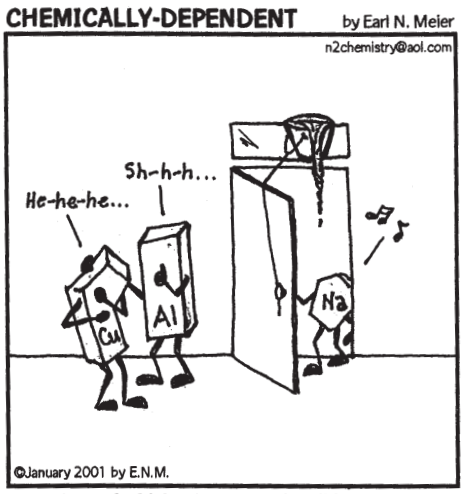
b Heating silver carbonate to form silver oxide and carbon dioxide.

c Reacting magnesium with hydrochloric acid to form magnesium chloride and hydrogen gas.

d Reacting sodium hydroxide with sulfuric acid to form sodium sulfate and water.

e Reacting silver nitrate with potassium bromide to form potassium nitrate and silver bromide.

5



A practical joke about to go horribly wrong.

Give a balanced chemical equation to show the result of the practical joke in the cartoon above.