





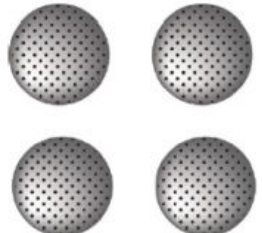
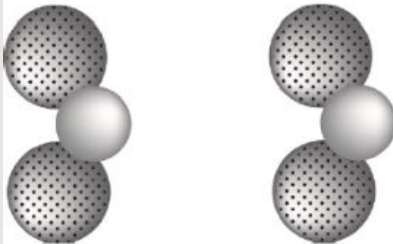
EXERCISE 18

MATTER AND MATERIALS

PAGE 178

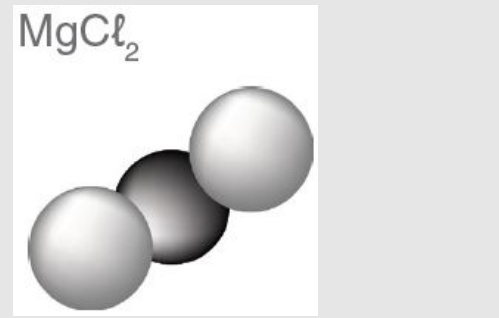
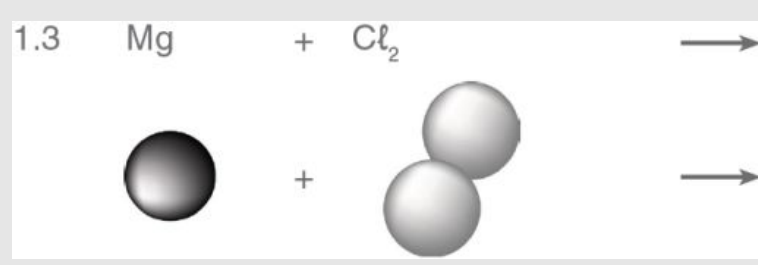
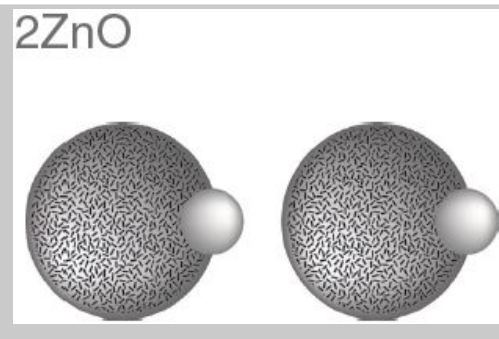
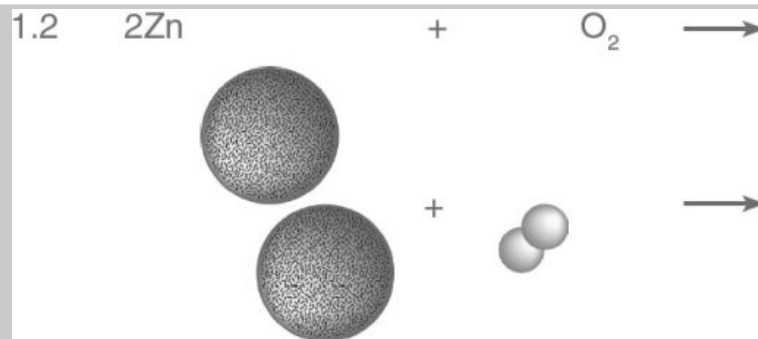


1 Illustrate the following compounds on microscopic level and complete each chemical equation:

Reactants		Product	
E.g. H_2	$+ Cl_2$	\longrightarrow	$2HCl$
	$+ \begin{matrix} \text{grey} \\ \text{white} \end{matrix}$	\longrightarrow	
1.1 $4K$	$+ O_2$	\longrightarrow	$2K_2O$
	$+ \begin{matrix} \text{grey} \\ \text{white} \end{matrix}$	\longrightarrow	



Reactants		Product	
-----------	--	---------	--



Reactants		Product	
-----------	--	---------	--





2 Complete the following table by giving the formulae of the compounds formed:



	Na^+	Mg^{2+}	Al^{3+}	Ca^{2+}
OH^-	E.g. $\text{Na}^+ + \text{OH}^- \rightarrow \text{NaOH}$	2.1 $\text{Mg}(\text{OH})_2$	2.2 $\text{Al}(\text{OH})_3$	2.3 $\text{Ca}(\text{OH})_2$
SO_4^{2-}	2.4 Na_2SO_4	2.5 MgSO_4	2.6 $\text{Al}_2(\text{SO}_4)_3$	2.7 CaSO_4
CO_3^{2-}	2.8 Na_2CO_3	2.9 MgCO_3	2.10 $\text{Al}_2(\text{CO}_3)_3$	2.11 CaCO_3
PO_4^{3-}	2.12 Na_3PO_4	2.13 $\text{Mg}_3(\text{PO}_4)_2$	2.14 AlPO_4	2.15 $\text{Ca}_3(\text{PO}_4)_2$



3 Complete the following table:

Formula	Chemical name	Common name
HCl	Hydrogen chloride	3.1 Swimming pool acid/ hydrochloric acid
3.2 H_2CO_3	Hydrogen carbonate	3.3 Carbonic acid
3.4 NaHCO_3	3.5 Sodium hydrogen carbonate	Baking soda
3.6 KOH	Potassium hydroxide	3.7 KOH
MgSO_4	3.8 Magnesium sulphate	3.9 Epsom salts
3.10 NaCl	Sodium chloride	Table salt



4 How many atoms of each type do the following compounds consist of?

4.1 P_4O_{10} **4P; 10O** 4.2 CH_3CH_2OH **2C; 6H; 1O**

4.3 $K_2Cr_2O_7$ **2K; 2Cr; 7O** 4.4 HNO_3 **1H; 1N; 3O**

4.5 $Pb(NO_3)_2$ **1Pb; 2N; 6O**

5 How many different elements do the following compounds consist of?

5.1 $Ca(OH)_2$ **3** 5.2 H_2SO_4 **3**

5.3 CH_3CH_2COOH **3** 5.4 $Pb(NO_3)_2$ **3**

5.5 H_2O **2**



6 Complete the following table:

	Formula	Name	Anion/cation
6.1	Hg^{2+}	Mercury(II)	Cation
6.2	CrO_4^{2-}	Chromate	Anion
6.3	CH_3COO^-	Acetate	Anion
6.4	Mn^{7+}	Manganese(VII)	Cation
6.5	NO_2^-	Nitrite	Anion

7 Name the following compounds:

7.1 Carbon bonded to one oxygen

Carbon monoxide



7.2 Sulfur bonded to three oxygens.

Sulfur trioxide



7.3 Carbon bonded to two oxygens.

Carbon dioxide

8. Complete the following table by giving the Stock notation names of the compounds:

Formula	Naming	Formula	Naming
CuF_2	Copper(II) fluoride	CoBr_3	Cobalt(III) bromide
Au_3P	Gold(I) phosphide	MnI_2	Manganese(II) iodide



Formula	Naming	Formula	Naming
Cr_2S_3	Chrome(III) sulfide	SnBr_2	Tin(II) bromide
NiS	Nickel(II) sulfide	Mn_2O_5	Manganese(V) oxide
PbO_2	Lead(IV) oxide	PbCl_4	Lead(IV) chloride
FeS	Iron(II) sulfide	NiBr	Nickel(I) bromide
CoS	Cobalt(II) sulfide	FeCl_2	Iron(II) chloride
Cr_2O_3	Chrome(III) oxide	Hg_2S	Mercury(I) sulfide
FeBr_3	Iron(III) bromide	AuI	Gold(I) iodide
SnCl_4	Tin(IV) chloride	NiBr_2	Nickel(II) bromide