EXERCISE 19

MATTER AND MATERIALS

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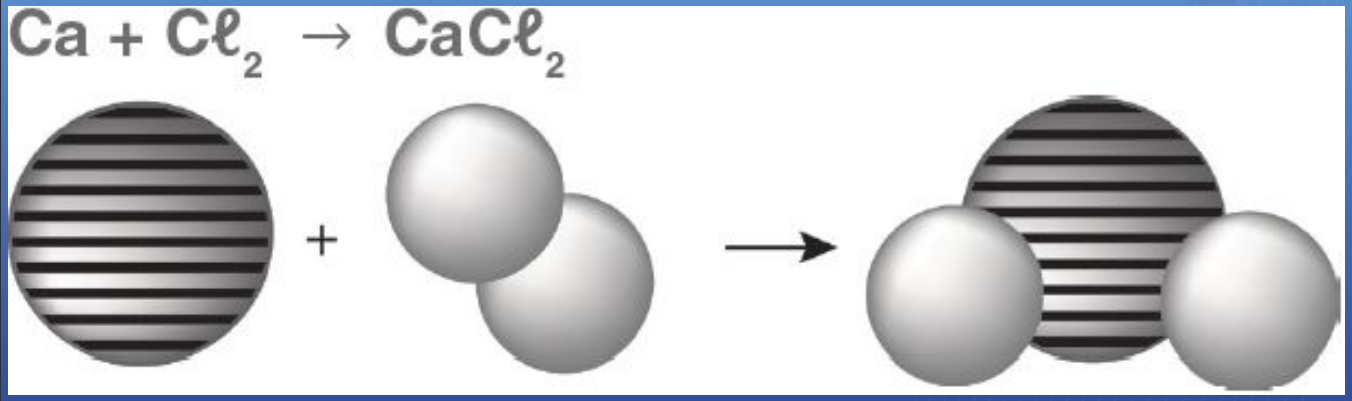
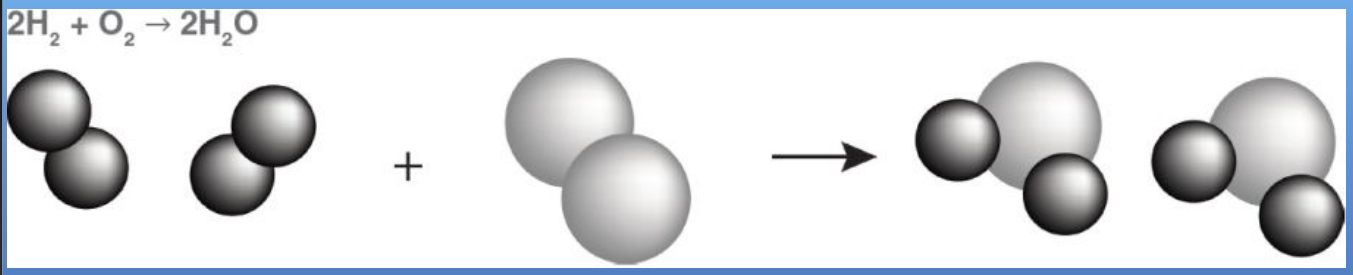
Balance the following chemical equations by drawing the correct number of particles. Write out the equation in symbols as well.

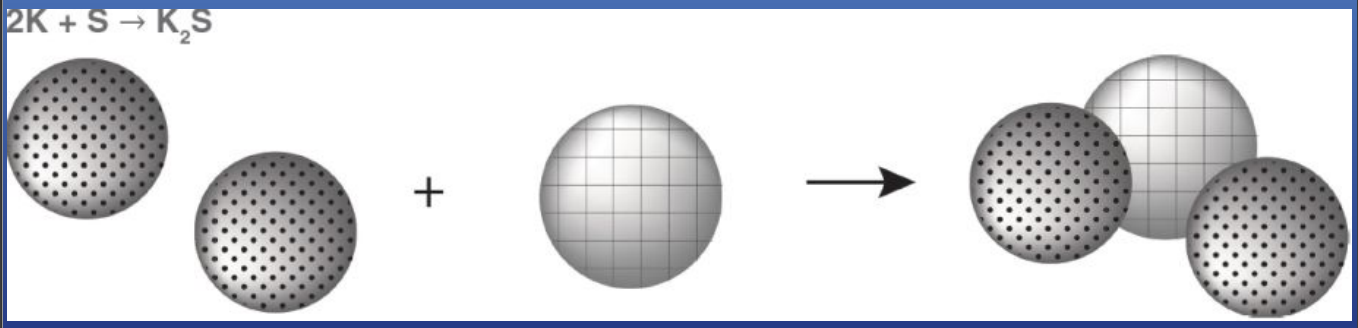
1.1 calcium + chlorine → calcium chloride



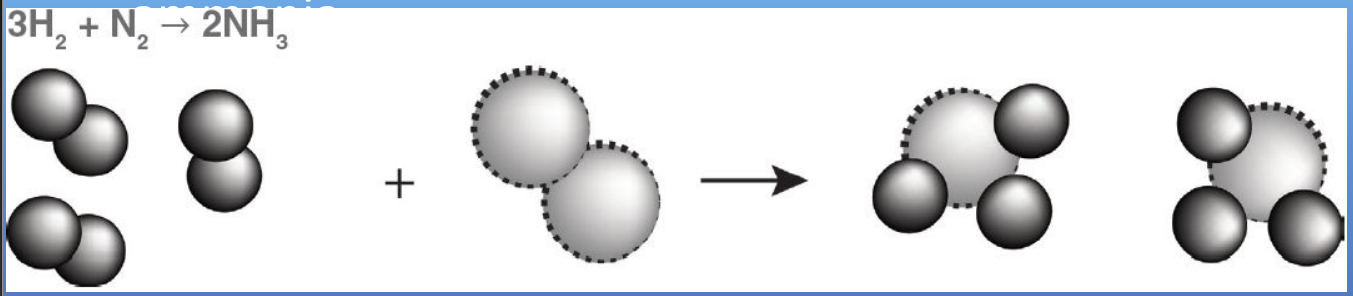
1.2 hydrogen + oxygen →



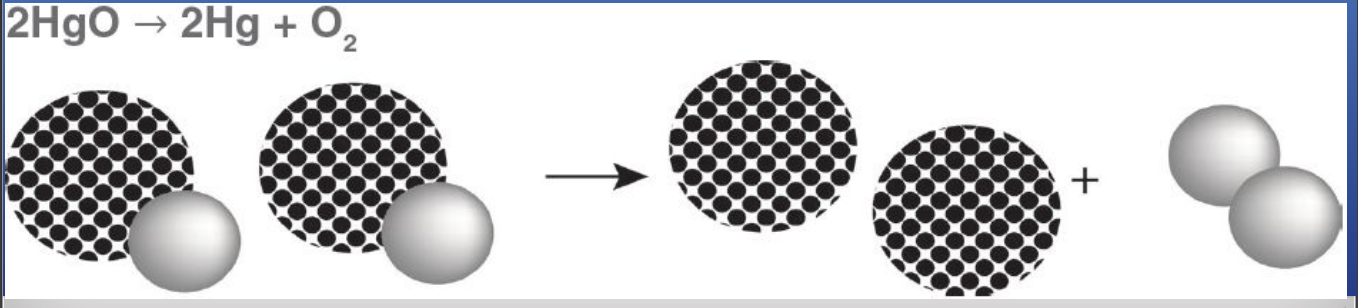
1.3 potassium + sulfur → potassium sulfide



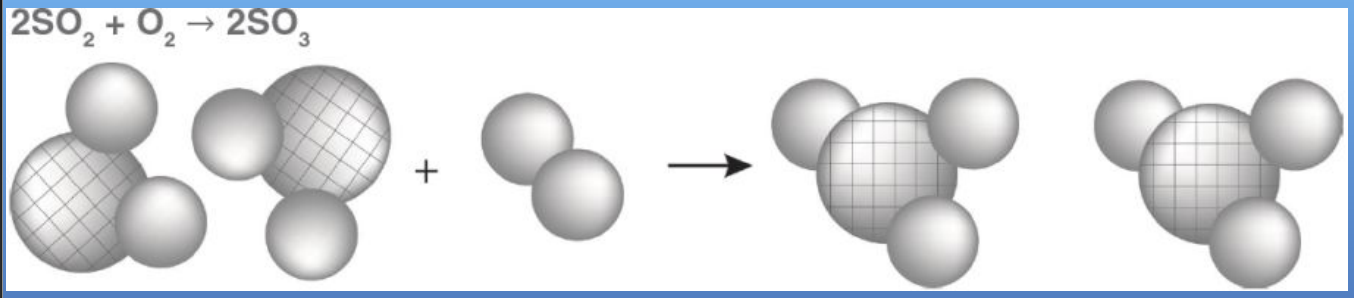
1.4 hydrogen + nitrogen → ammonia



1.5 Mercuric(II) oxide → mercury +



1.6 Sulfur dioxide + oxygen → sulfur trioxide



2 Balance the following chemical equations:

2.1 $HgO \rightarrow Hg + O_2$

$2HgO \rightarrow 2Hg + O_2$

2.2 $Mg + SO_2 \rightarrow MgO + S$

$2Mg + SO_2 \rightarrow 2MgO + S$

2.3 $K + C\ell_2 \rightarrow KC\ell$

$2Mg + SO_2 \rightarrow 2MgO + S$

2.4 $CH_4 + O_2 \rightarrow CO_2 + H_2O$

$2K + C\ell_2 \rightarrow 2KC\ell$

2.5 $CF_4 + Br_2 \rightarrow CBr_4 + F_2$

$2CH4 + 3O_2 \rightarrow 2CO_2 + 2H_2O$

2.6 $KC\ell O_4 \rightarrow KC\ell + O_2$

$CF4 + 2Br_2 \rightarrow CBr_4 + 2F_2$

2.7 $P_4 + O_2 \rightarrow P_2O_3$

$CF_4 + 2Br_2 \rightarrow CBr_4 + 2F_2$

2.8 $MgO + H_2SO_4 \rightarrow MgSO_4 + H_2O$

$MgO + H_2SO_4 \rightarrow MgSO_4 + H_2O$

2.9 $NaBr + C\ell_2 \rightarrow NaC\ell + Br_2$

$2NaBr + C\ell_2 \rightarrow 2NaC\ell + Br_2$

2.10 $A\ell + 6HC\ell \rightarrow A\ell C\ell_3 + H_2$

$2A\ell + 6HC\ell \rightarrow 2A\ell C\ell_3 + 3H_2$

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3 Use the word equation to write down the balanced chemical equation:

3.1 Aluminium + oxygen → aluminium oxide

$4A\ell + 3O_2 \rightarrow 2A\ell_2O_3$

3.2 Hydrogen + chlorine → hydrogen chloride

$H_2 + C\ell_2 \rightarrow 2HC\ell$

3.3 Sodium + hydrogen chloride → sodium chloride + hydrogen gas

$2Na + 2HC\ell \rightarrow 2NaC\ell + H_2$

3.4 Ammonia + oxygen → nitrogen monoxide + water

$$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$$

3.5 Water → oxygen + hydrogen

$$2H_2O \rightarrow O_2 + 2H_2$$

3.6 Lithium + sulfuric acid → lithium sulphate + hydrogen

$$2Li + H_2SO_4 \rightarrow Li_2SO_4 + H_2$$

3.7 Iron(II) oxide → iron + oxygen

$$2FeO \rightarrow 2Fe + O_2$$

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3.8 Hydrogen chloride → hydrogen + chlorine

$$2HC\ell \rightarrow H_2 + C\ell_2$$

3.9 Sodium + bromine → sodium bromide

$$2Na + Br_2 \rightarrow 2NaBr$$

3.10 Potassium + oxygen → potassium oxide

$$4K + O_2 \rightarrow 4K_2O$$