Warm Up

Ag^{+} S^{2-}

$16Ag_{(s)} + S_{8(s)} \longrightarrow 8Ag_2S_{(s)}$

$2CH_3NO_{(s)} \longrightarrow 2C_{(s)} + 3H_{2(g)} + N_{2(g)} + O_{2(g)}$

Check Homework - Worksheet

DECOMP.

$2\,C_{12}H_{22}O_{11(s)} \longrightarrow 24\,C_{(s)} + 22\,H_{2(g)} + 11\,O_{2(g)}$

sucrose → carbon + hydrogen + oxygen

Chemical Reactions

III. Combustion Reaction

A complete combustion reaction is the burning of a substance with oxygen to produce the most common oxides of the elements in the substance being burned.

Most Common Oxides:

- Carbon : $CO_{2(g)}$
- Hydrogen: $H_2O_{(g)}$
- Sulfur: $SO_{2(g)}$
- Nitrogen: $NO_{2(g)}$
- A metal: Oxide of metal with most common ion charge

$Fe^{3+}\ O^{2-}$

Fe_2O_3

* products are gases !

Ex. $C_5H_{12(g)} + 8O_{2(g)} \longrightarrow 5CO_{2(g)} + 6H_2O_{(g)}$

$C_7H_{6(g)} + 11O_{2(g)} \rightarrow 7CO_{2(g)} + 8H_2O_{(g)}$

I. FORMATION

element + element → compound

II. DECOMPOSITION

Compound → elements

III. COMBUSTION

element/compound + oxygen(O_2) → most common oxides

Fe^{3+} O^{2-}

$4\,Fe_{(s)} + 3O_{2(g)} \longrightarrow 2\,Fe_2O_{3(g)}$

$CH_3NH_{3(s)} + \frac{7}{2}O_{2(g)} \longrightarrow CO_{2(g)} + 3H_2O_{(g)} + NO_{2(g)}$

2 7 2 6 2

Combustion Reactions

Write a balanced chemical equation for the following combustion reactions:

$Mg_{(s)} + O_{2(g)} \longrightarrow$

$C_{21}H_{24}N_2O_{4(s)} + O_{2(g)} \longrightarrow$

Homework

$Mg_{(s)} + O_{2(g)} \longrightarrow$

$C_{21}H_{24}N_2O_{4(s)} + O_{2(g)} \longrightarrow$

p. 331 #13, 14
p. 332 #15, 16
p. 337 #20, 21

Chemical Reactions

I. Formation Reactions

elements compound

Ex. $2Mg_{(s)} + O_{2(g)} \rightarrow 2MgO_{(s)}$

II. Decomposition Reactions

compound elements

Ex. $2H_2O_{(l)} \rightarrow 2H_{2(g)} + O_{2(g)}$

III. Combustion Reaction

substance + oxygen ⟶ most common oxides

Ex. $2C_4H_{10(g)} + 13O_{2(g)} \longrightarrow 8CO_{2(g)} + 10H_2O_{(g)}$