Check Homework - Worksheet

FORMATION

Zn^{2+} O^{2-}

g) zinc + oxygen → zinc oxide

$2Zn_{(s)} + O_{2(g)} \rightarrow 2ZnO_{(s)}$

DECOMP.

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

sucrose → carbon + hydrogen + oxygen

f) $2NaOH_{(l)} \rightarrow 2Na_{(s)} + O_{2(g)} + H_{2(g)}$

Chemical Reactions

III. Combustion Reaction

A complete combustion reaction is the burning ($+ O_{2(g)}$) 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

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

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

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

$2CH_3NH_{3(s)} + 7O_{2(g)} \longrightarrow 2CO_{2(g)} + 6H_2O_{(g)} + 2NO_{2(g)}$

$$1.12\ \text{mol}\ NH_3 \times \frac{6.02\times10^{23}\ \text{molecules}\ NH_3}{1\ \text{mol}\ NH_3} \times \frac{4\ \text{atoms}}{1\ \text{molecule}}$$

$$= 2.70 \times 10^{24}$$

(3) $92.12\ \text{g/mol}$

$$0.780\ \text{mol}\ Ca(CN)_2 \times \frac{92.12\ \text{g}}{1\ \text{mol}} = 71.9\ \text{g}$$

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

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

O_2

substance + oxygen ⟶ most common oxides

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