Oct 21, 2019

1) Pass in Lab Reports
2) Types of Reactions (Combustion)

Test on Chapter 6 Monday Oct 28th!!

Warm-Up

Solution A has a mass of 15g. Solution B has a mass of 11g. When they are mixed together a chemical reaction occurs in which a gas is produced. If the mass of the final mixture is 20g, what mass of gas was produced?

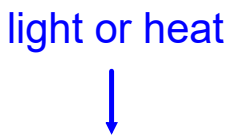
Solution A + solution B → final mixture
15 g + 11g → 20g

26g → 20g
gas 6g

Types of Chemical Reactions

I. Combustion

The reaction of a substance with oxygen to produce oxides and energy.



Ex. fuel + oxygen ⇒ oxides + energy

There are two types of combustion reactions that can happen the reactants can burn completely (**complete combustion**) or when there is not enough oxygen available an (**incomplete combustion**) can occur.

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Complete Combustion

Substance being 'burned' completely.

For hydrocarbons, the products will always be carbon dioxide and water vapour.

Ex. butane + oxygen ⇒ carbon dioxide + water vapour

$C_4H_{10} + O_2 \Rightarrow CO_2 + H_2O$ (skeletal)

Incomplete Combustion

Occurs when there is not enough oxygen available to burn a substance completely.

For hydrocarbons, the products will be carbon dioxide, carbon monoxide, carbon and water vapor.

Ex. butane + oxygen ⇒ carbon dioxide + carbon monoxide + carbon + water

$C_4H_{10} + O_2 \Rightarrow CO_2 + CO + C + H_2O$ (skeletal)

Oct 19-3:27 PM

Example: Write balanced word and chemical equations to represent the complete combustion of methane (CH_4).

methane + oxygen → carbon dioxide + water

$$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$$

Example: Given the following chemical equation write the products of an incomplete combustion and balance the equation.

$$\_\_C_6H_{14} + \_5\_O_2 \Rightarrow CO_2 + CO + C + H_2O$$

p 232 #1,3-5a

Oct 19-3:32 PM