

Combustion Reactions

Complete Combustion Rxn

A chemical reaction where a compound made with carbon and hydrogen react with oxygen (O_2) decompose to produce carbon dioxide and water ($CO_2 + H_2O$)

Incomplete Combustion Rxn

A combustion reaction where oxygen (O_2) is limited producing a mixture of both carbon monoxide (CO) and carbon dioxide (CO_2)

Combustion Rxn



Reactants	Products
Hydrocarbon	Water Vapor
Oxygen Gas	Carbon Dioxide

Incomplete Rxn

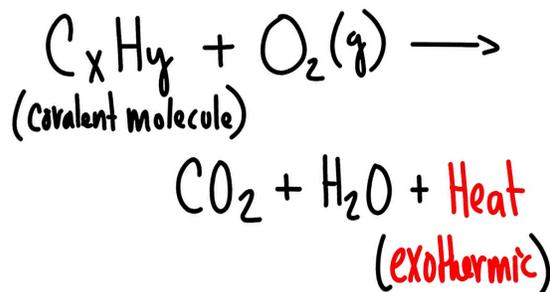


Reactants	Products
Hydrocarbon	Water Vapor
Oxygen Gas	Carbon Dioxide
	Carbon Monoxide

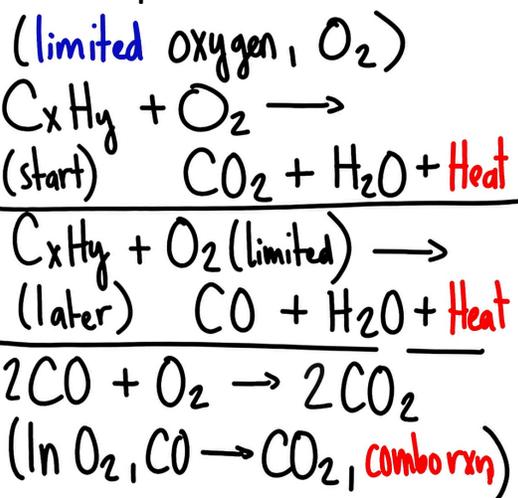
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Combustion Reaction

Complete Combustion
(*excess oxygen, O_2*)

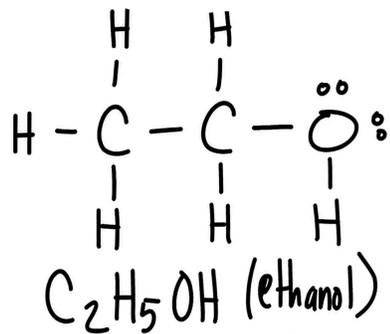


Incomplete Combustion

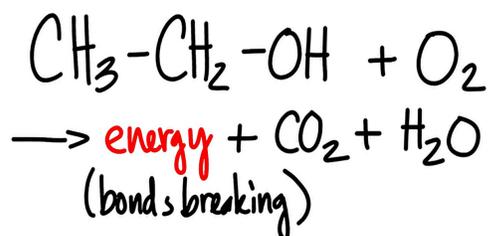


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Combustion Process



5 H-C Bonds (weaker)
 1 C-O Polar Bond (stronger)
 1 H-O Polar Bond (stronger)
 1 C-C Bonds (weaker)



Bond Energy \longrightarrow Heat
 (PE) \longrightarrow (KE)

Reaction produces heat
 More Bonds = More heat!