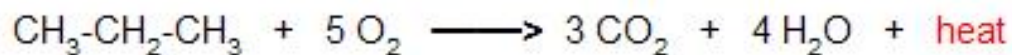


The Reactions of Alkanes

Alkanes

In the absence of a spark or a high-intensity light source, alkanes are generally inert to chemical reactions.

However, alkanes burn in the presence of a spark, undergoing a combustion reaction.



In the presence of light, or at high temperatures, alkanes react with halogens to form alkyl halides. Reaction with chlorine gives an alkyl chloride (substitution reaction).



The Reactions of Alkanes

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However, one complication is that all the hydrogen atoms of an alkane may undergo substitution, resulting in a mixture of products, as shown in the following unbalanced equation.

The relative amounts of the various products depend on the proportion of the two reactants used.

In the case of methane, a large excess of the hydrocarbon favors formation of methyl chloride as the chief product; whereas, an excess of chlorine favors formation of chloroform and carbon tetrachloride.

