

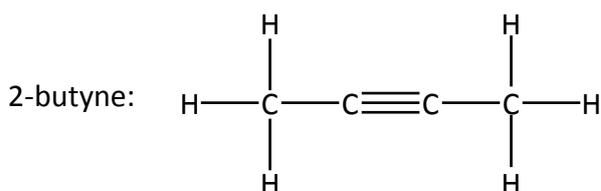
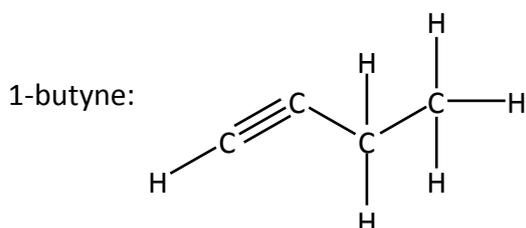
Answer on Question #43825 - Chemistry - Inorganic Chemistry

Question:

How are 1-butyne and 2-butyne different from each other?

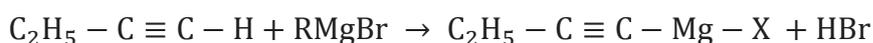
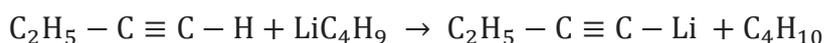
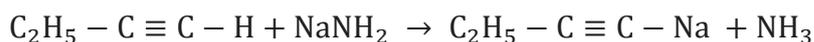
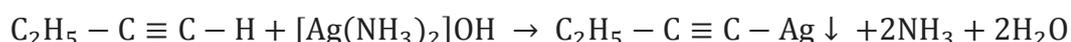
Solution:

1-butyne and 2-butyne both belong to alkyne hydrocarbons. The molecular formula of these compound is C_4H_6 , but their structures are different. As these compounds are alkynes, there is triple bond C-C, but the position of triple bond is changed. So, 1-butyne and 2-butyne are geometric isomers with position isomerism.



It is clear that the position of triple bond in 2-butyne is more sterically restricted than one in 1-butyne. Therefore, 1-butyne is more active in chemical reactions than its isomer. It is flammable and is more active in addition reactions. In addition, intermolecular bonds in 1-butyne are weaker than in 2-butyne because of asymmetric position of triple bond in 1-butyne.

1-butyne can react with ammonia mixture of Ag or Cu (I) oxides, butyllithium, sodium amide, Grignard reagent, instead of 2-butyne, which does not react with such oxides. This type of chemical reaction is qualitative for terminal (triple bond is located near the first carbon atom) alkynes:



Answer: 1-butyne and 2-butyne are geometric isomers with different position of functional group. Their physical and chemical properties differ.