THE IMPORTANCE OF ACETYLENE ORGANIC SUBSTANCES IN CHEMICAL SYNTHESIS AND ITS PLACE

[1]Boytemirov Otabek Eshmurodovich, [2]Shukurov Abror Sharipovich
Assistant teacher of Karshi University of Engineering Economics[1], The master student of Karshi University of Engineering Economics[2]
otabekboytemirov@gmail.com[1], abror.shukurov@bk.ru[2]

ABSTRACT

This article discusses the importance of acetylene, its structure, physical properties, chemical properties, reactions, production and synthesis.

Keywords: acetylene, physical properties, reactions, chemical properties, synthesis.

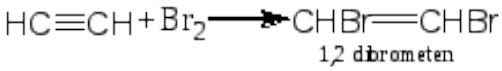
PHYSICAL PROPERTIES

Acetylene is a colorless pure, almost odorless gas, liquefies at -81.8 ° C, lighter gas than acetylene air, when heated with atmospheric oxygen, a very large heat is released at 3150C (1326 kg / mol). Therefore, on an industrial scale, about 30 percent of acetylene is used in autogenous welding and metal cutting. The acetylene used for this is obtained by the action of water on CaC2. The remaining 70 of acetylene are used in the chemical industry to obtain various synthetic compounds (ethyl spirit, acetic acid, vinyl chloride, acrylonitrile). Thus, acetylene is a widely used starting material in organic synthesis.

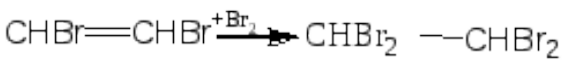
Chemical properties: Acetylene undergoes addition, exchange, oxidation, polymerization reactions.

1.Combination reactions:

a) Acetylene and its homologues bind hologens, this reaction proceeds in two stages:

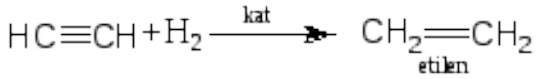


1,2 dibrometen



1,1,2,2 - tetrobrometan

b) Acetylene and acetylene series hydrocarbons easily bind hydrogen under the catalyst of nickel, platinum, palladium metals. Alkenes are formed first, followed by alkanes:



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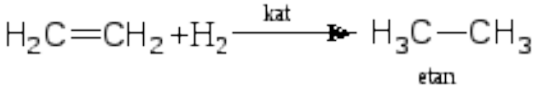

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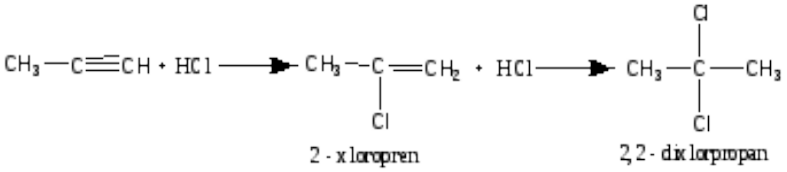
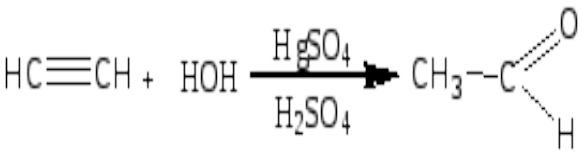
c) Binding of hydrogen-hydrogen. If hydrogen chloride is added to acetylene, the gaseous substance is vinyl chloride or chlorvinyl.



2 - xloropren 2,2 - dixlorpropan

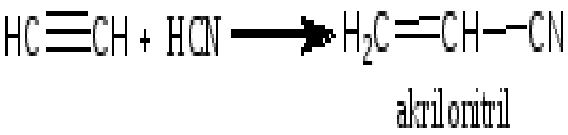
The addition of hydrogen chloride to the homologues of acetylene follows Markovnikov's rule.

d) Binding of water: The reaction of attaching water to acetylene is called Kucherov's reaction (1881). Acetylene mercury (II) sulphate catalyzes water to form acetic aldehyde (acetaldehyde).



This reaction is called the hydration reaction.

e) The binding of cyanic acid to acetylene is important and is used in industry to obtain acrylontrile monomer.

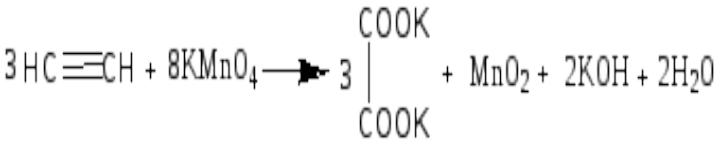


Acrylonitrile is a synthetic fiber used in the textile industry - nitron fiber. Nitron fiber is resistant to mineral oils and gasoline.

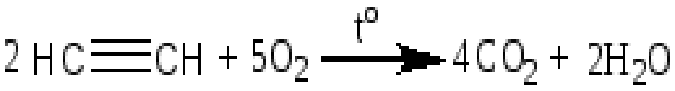
2. Oxidation reaction.

Acetylene and alkynes are easily oxidized. Acetylene decolorizes potassium permanganate solution.

Under the influence of strong oxidants, partial or complete oxidation of the triangle in acetylene occurs:

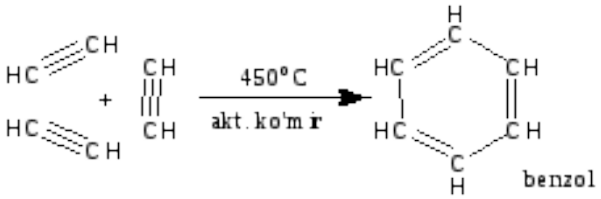


Acetylene burns in oxygen to form a bright flame.

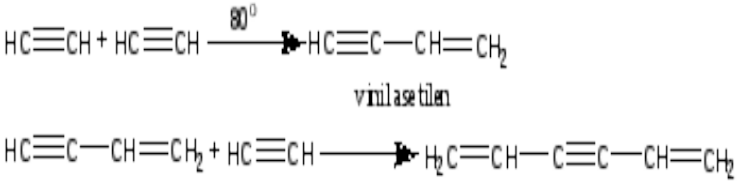


Qadimda atsesilendan yorug'lik manbalari sifatida foydalanilgan.Atsesilen havoda dudli alanga berib yonadi. Uning havo yoki kislorod aralashmasi portlaydi. Atsesilen zarb ta'sirida ham portlashi mumkin shuning uchun uni aseton eritmasi holida g'ovak materiallarga shimdirib bolonlarda saqlanadi va tashiladi.

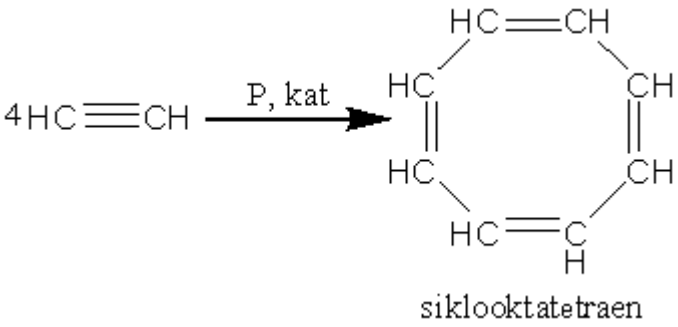
3. Polymerization reaction: When acetylene is passed over activated carbon at 450C, it trims to form benzene.



This reaction was reported by N.D. Zelinsky and B. A. Kazansky. When acetylene is passed through a solution of CH2Cl2 and NH4Cl in HCl at 80C, first a dimer-vinyl acetylene is formed and then a trimer divinyl acetylene.



Under pressure, the acetylene catalyzes to polymerize to form cyclooctotetreone.



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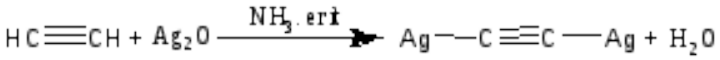
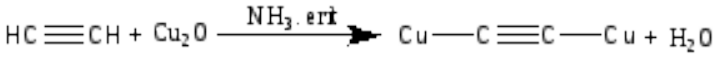
4.Exchange reaction:

Oxidation reaction; acetylene forms metal acetylenides by exchanging with metals such as Ag, Cu, Na, Zn. Acetylene is stronger than water. If acetylene is exposed to an ammoniacal solution of silver oxide or copper (I) oxide, silver acetylene is formed.





Some acetylunides, for example: Na - C = C - Na, are also called CaC_2 carbides. Silver and copper acetylcynides are explosive, for example, the formation of Cu_2C_2 is often used in the qualitative determination of acetylene. Sodium carbide and calcium carbides usually combine violently with water. Calcium carbide is widely used in the production of acetylene in the laboratory and in the autogenous method.

CONCLUSION

In conclusion, acetylene plays a key role in the time of synthesis. **Synthesis** (Greek synthesis - compounding) (in chemistry) Obtaining complex compounds from simpler compounds: especially of great importance in organic chemistry. Major industries, including dyes, plastics, synthetic rubbers, and others, are developing on the basis of organic synthesis**.**

LIST OF USED LITERATURE

1. www.hozir.org
2. Properties of Acetylene