

Class - B.Sc Part I (Honours)

Subject - Chemistry

Paper - IC

Topic - Synthetic application of organometallic compⁿ of Mg.

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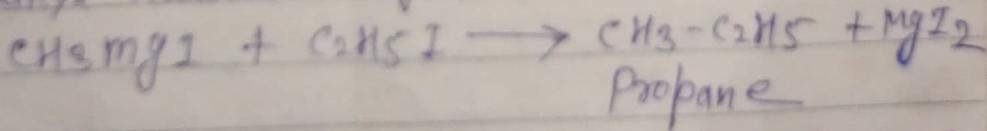
M.D. Jain college, Agra

Synthetic application of organometallic compound of mg (Grignard reagent)

Grignard reagents react with a variety of compounds yielding almost the entire range of organic substances. The following reactions illustrate the synthetic importance of Grignard reagents.

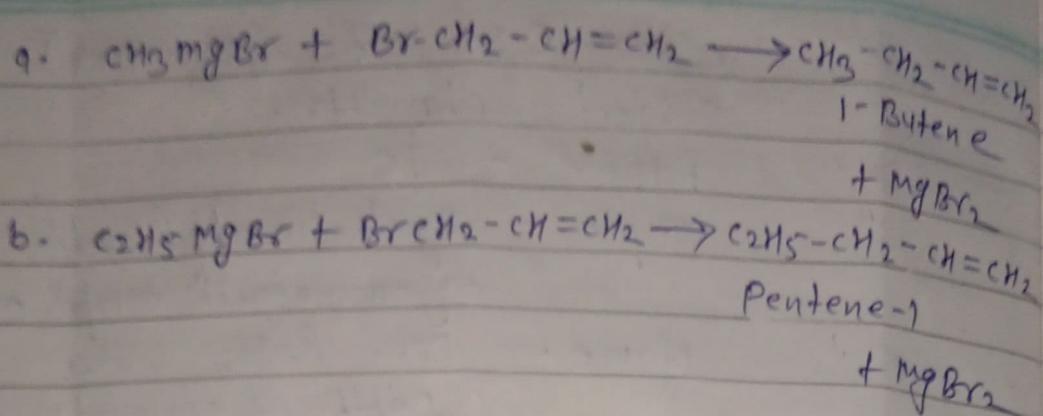
(1) synthesis of alkanes (Reaction with alkyl-halide)-

When Grignard reagents are treated with alkyl halide, higher alkanes are formed.



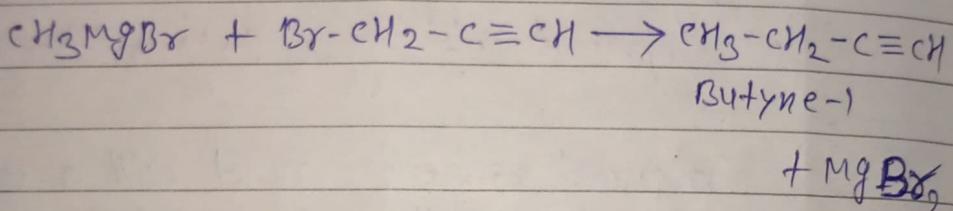
(2) synthesis of alkenes (Reaction with alkynyl-halides)-

On treatment with alkynyl halides, alkenes are formed by double decomposition.

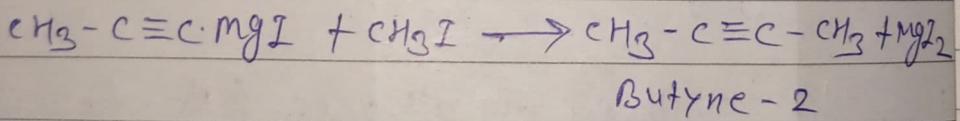


(3) Synthesis of alkynes (Reaction with -alkynyl halides)

Cannizzaro reagent reacts with alkynyl-halides to form alkynes.

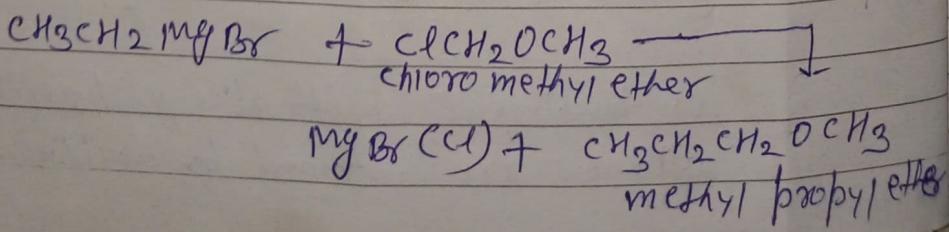


Alternatively alkynyl-magnesium halide may be reacts with an alkyl halide to yield alkynes.



(4) Synthesis of higher ether (Reaction with lower halogenated ether)

Cannizzaro reagent reacts with lower halogenated ether to form higher ether.



(5) Synthesis of 1° alcohol (Reaction with - ethylene oxide)

Grignard reagents react with ethylene oxide to give an addition product which on hydrolysis forms primary (1°) alcohol which contain two carbon atoms more than the grignard reagent.

