

Quadrant II – Transcript and Related Materials

Programme: Bachelor Of Science (First Year)

Subject: Chemistry

Course Code: CHC 101

Course Title: Inorganic Chemistry & Organic Chemistry Section B

Unit: III Aliphatic Hydrocarbons

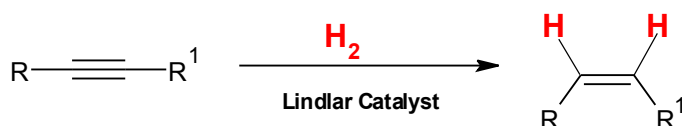
Module No : 42

Module Name : Alkenes (upto 5 carbons) Preparation :By cis – Alkene (partial catalytic hydrogenation) & trans – Alkenes (Birch Reduction)

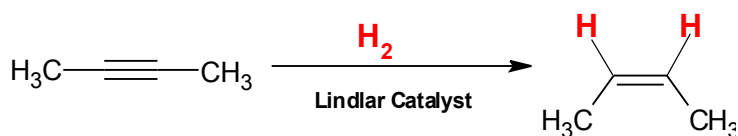
Name of the Presenter: Ms. Shradha S. Piligaonkar

Notes :

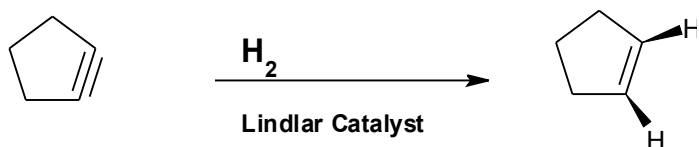
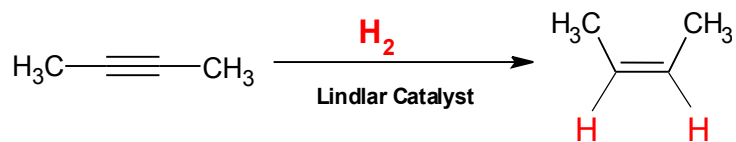
1. Partial Catalytic Hydrogenation (using Lindlar catalyst)



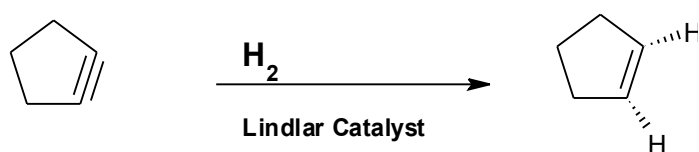
- Hydrogenation of alkyne using lindlar catalyst is a syn addition reaction.
- The product obtained by hydrogenation of alkyne using lindlar catalyst is Cis product.
- Lindlar Catalyst, consists of palladium on calcium carbonate combination to which lead acetate & quinoline.
- Lead acetate & quinoline partially deactivates the catalyst, as a result the reaction stops at alkene stage.
- Thus gives cis alkene as an exclusive product.
- Is a stereospecific reaction.



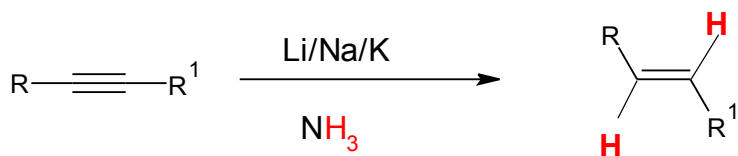
Or



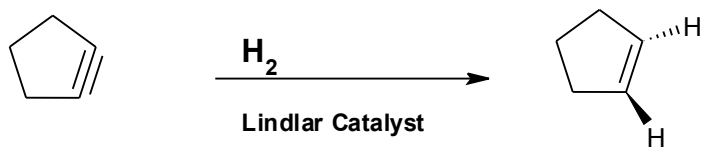
Or



2. Birch Reduction



- Birch reduction is a reaction that converts alkyne into alkene by making use of an alkali metal i.e. Na, Li or K in liquid ammonia.
- Birch reduction is also known as anti addition reaction as the hydrogen addition takes place from the opposite side of a double bond.
- The product obtained through birch reduction is a trans product.
- Is a stereospecific reaction.



Examples on Hydrogenation using Birch reduction & Lindlar catalyst

