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GATTERMANN REACTION

LUDWIG GATTERMANN

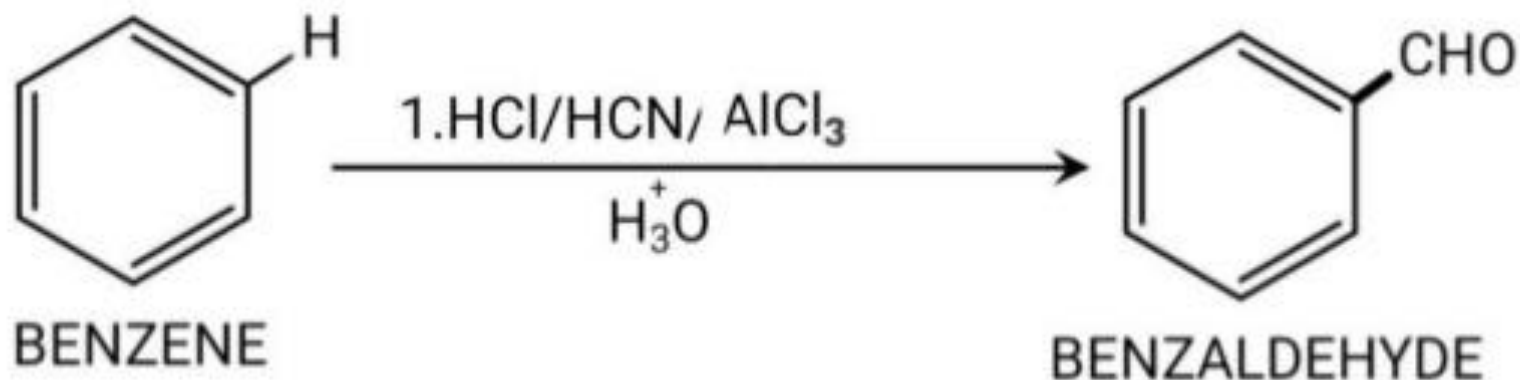
INTRODUCTION:

- THE GATTERMANN REACTION IS ALSO KNOWN AS GATTERMANN FORMYLATION REACTION.
- IT IS A CHEMICAL REACTION IN WHICH THE AROMATIC COMPOUNDS ARE FORMYLATED BY A MIXTURE OF HYDROGEN CYANIDE (HCN) AND HYDROGEN CHLORIDE (HCl) IN THE PRESENCE OF LEWIS ACID CATALYST SUCH AS $AlCl_3$.
- IT IS NAMED AFTER GERMAN CHEMIST LUDWIG GATTERMANN.
- IT IS SIMILAR TO FRIEDAL CRAFTS REACTION.



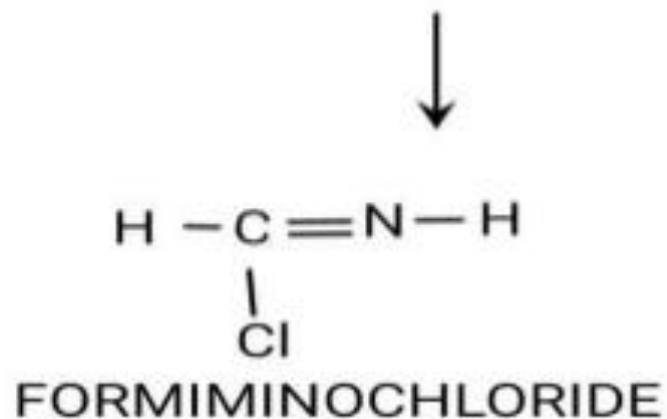
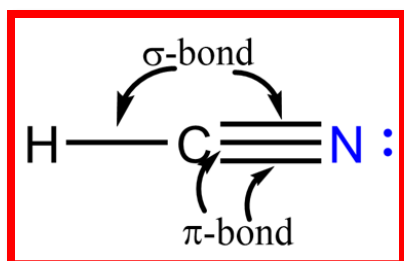
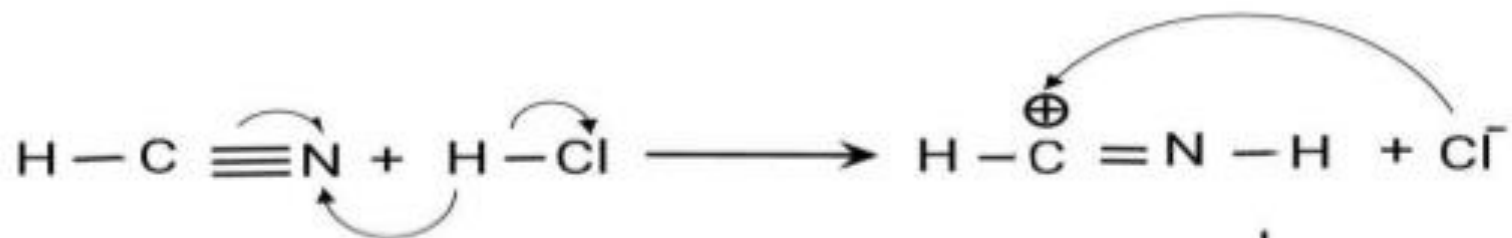
REACTION

WHEN BENZENE OR ITS DERIVATIVE IS TREATED WITH HCl AND HCN IN THE PRESENCE OF LEWIS ACID CATALYST AlCl_3 , FOLLOWED BY HYDROLYSIS IT GIVES BENZALDEHYDE OR SUBSTITUTED BENZALDEHYDE.

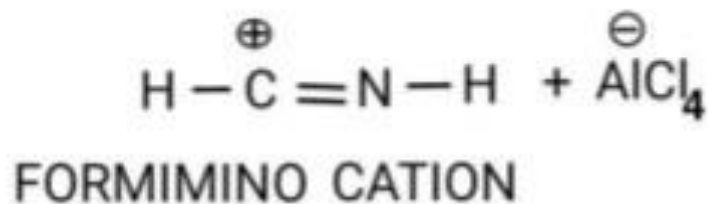
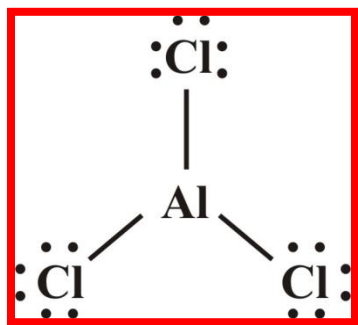
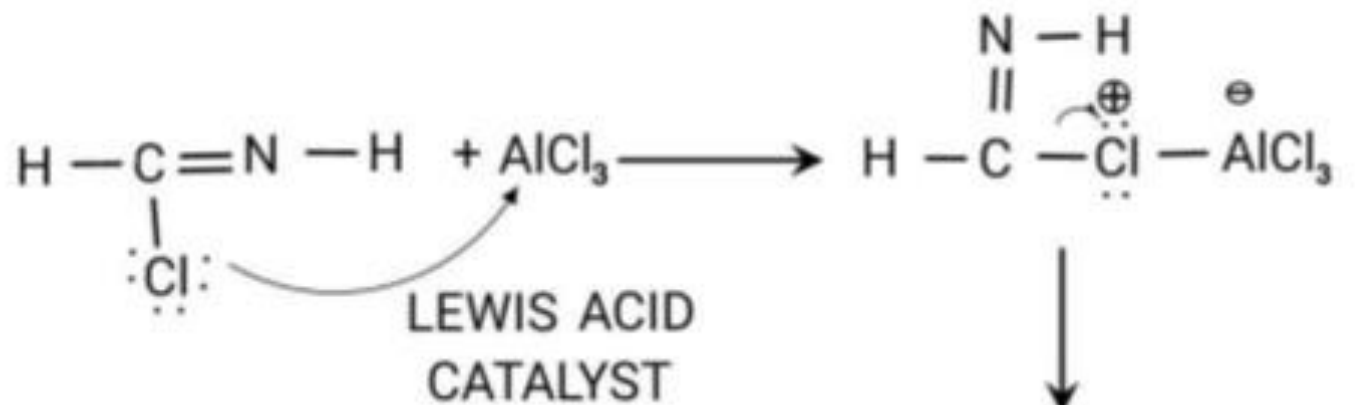


MECHANISM

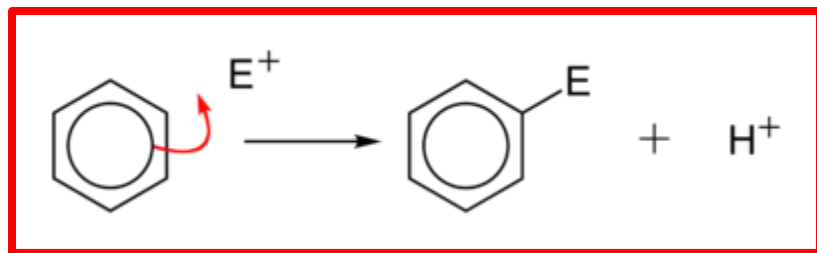
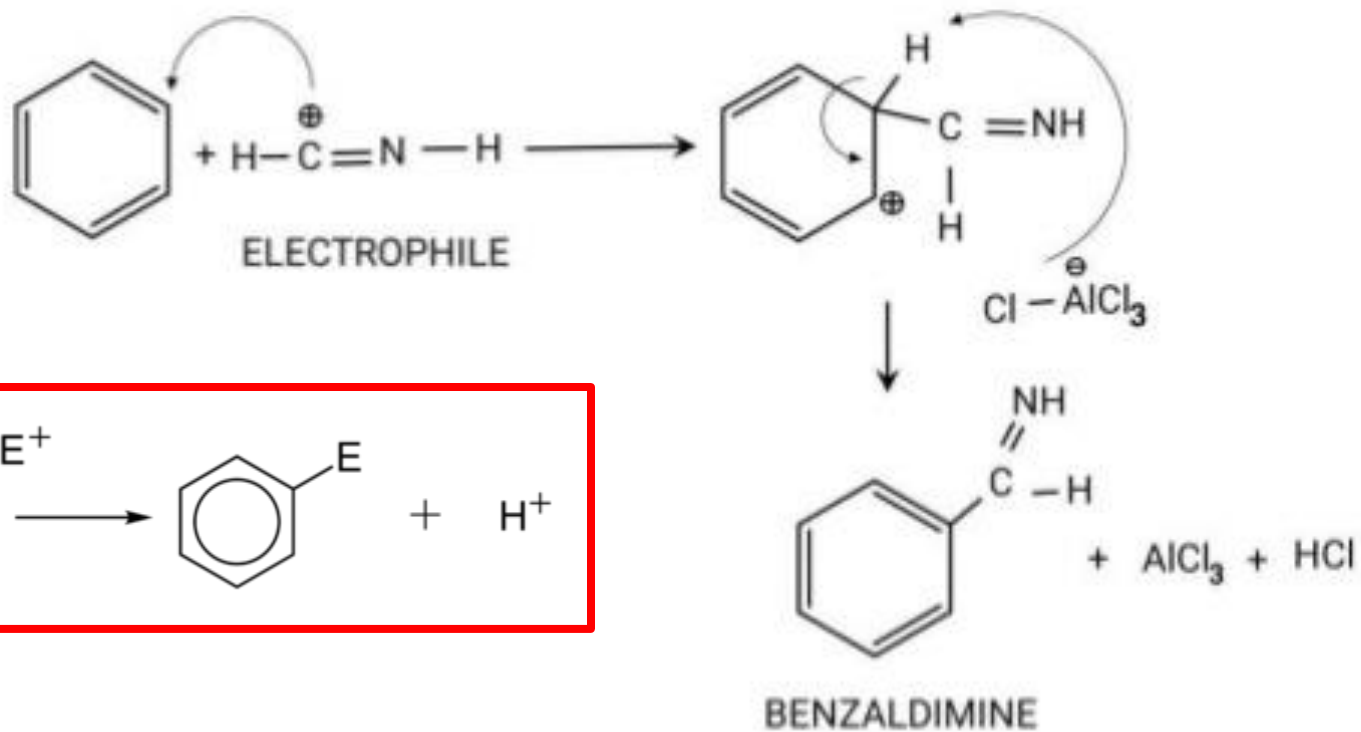
STEP 1: FORMATION OF FORMIMINO CHLORIDE



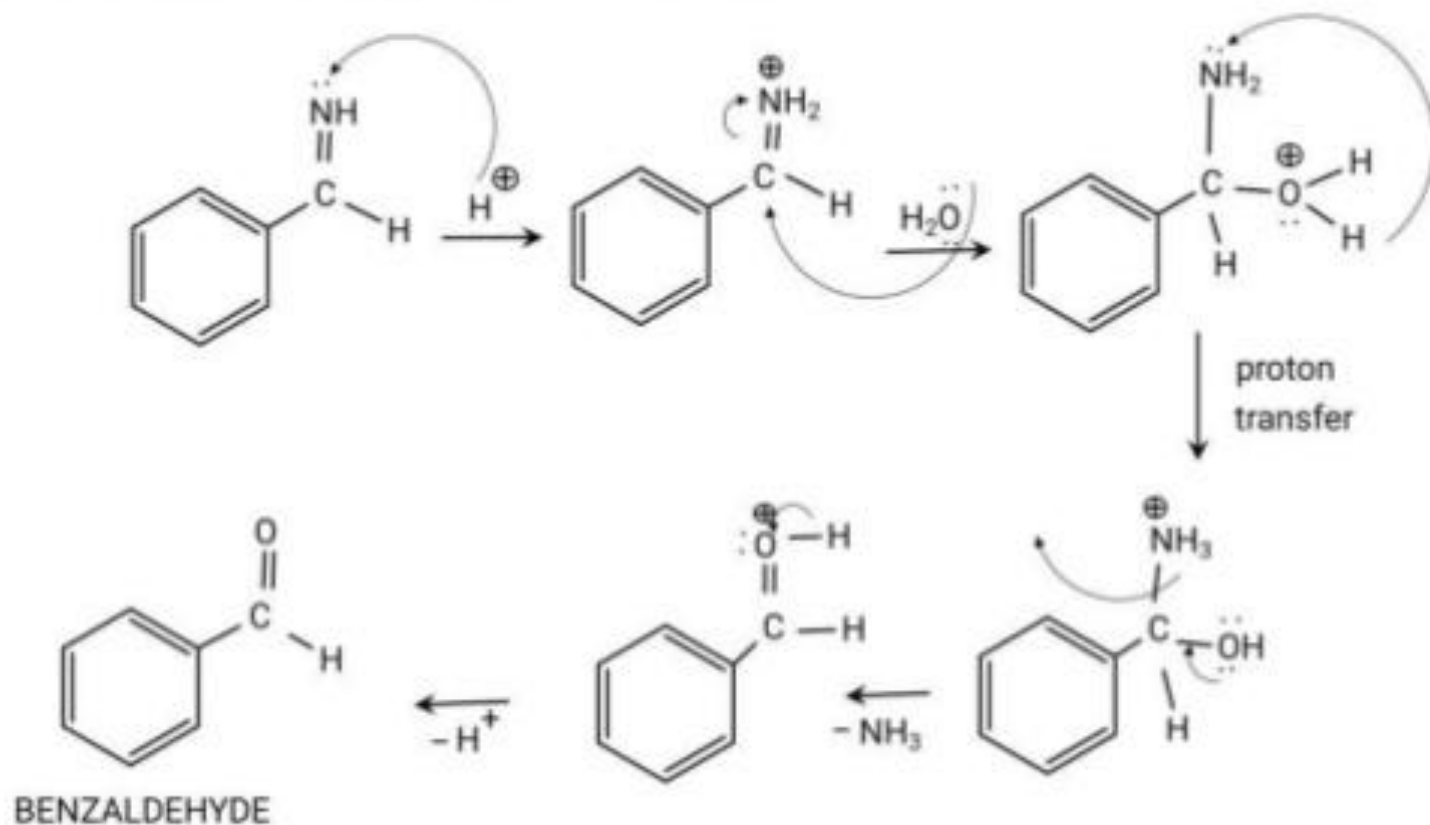
• STEP 2: FORMATION OF ELECTROPHILE



STEP 3: ATTACK OF ELECTROPHILE ON BENZENE RING



STEP 4: HYDROLYSIS OF BENZALDIMINE



APPLICATION

GATTERMANN REACTION IS USED FOR OBTAINING CHLOROBENZENE OR BROMOBENZENE FROM BENZENE DIAZONIUM CHLORIDE BY TREATING IT WITH Cu/HBr RESPECTIVELY.

