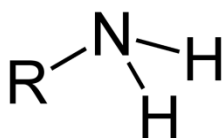
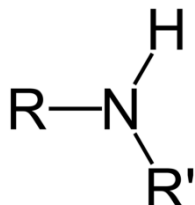


Amine Chemistry

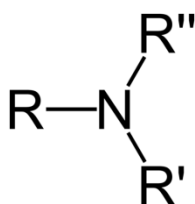
Amines have general formula $R-NH_2$ and are organic derivatives of ammonia. Can exist as primary, secondary and tertiary amines.



Primary Amine- N bonded to one alkyl group
Methylamine/ Amminomethane



Secondary Amine- N bonded to two alkyl groups
Dimethylamine/ Methylaminomethane



Tertiary Amine- N bonded to three alkyl groups
Trimethylamine/ Dimethylaminomethane

Amines can act as bases due to lone pair of electrons on nitrogen atom. Lone pair of electrons can accept a proton, H^+ , and so amines can act as Bronstead-Lowry bases.

Relative Base Strength

The relative base strength is determined by how available the lone pair on the nitrogen is for protonation.

The lone pair on N is more available to accept H^+ (More basic) if more alkyl groups inductively donate electrons. So methylamine is more basic than ammonia.

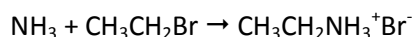
The lone pair on N is less available to accept electrons (Less basic) if the N is bonded to a benzene ring as the N becomes involved with delocalisation. So ammonia is more basic than phenylamine.

Reaction of Ammonia and Amines with Haloalkanes

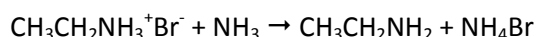
Ammonia and amines act as nucleophiles, where the lone pair of electrons on the N attacks a δ^+ Carbon. They will undergo nucleophilic substitution reactions with haloalkanes.

Reaction of Ammonia with bromoethane;

Ste 1. Ammonia acts as nucleophile and substitute the bromine, an ethylammonium salt is produced;



The salt then undergoes proton exchange with another molecule of ammonia to produce the primary amine and Ammonium Bromide salt



Step 2. Primary amine formed in step 1 is a better nucleophile than ammonia so competes with it for any bromoethane present

