SUBJECT - CHEMISTRY
CLASS - BSc(Hons) PART-1
PAPER : I
GROUP : A
TOPIC : BORAZINE

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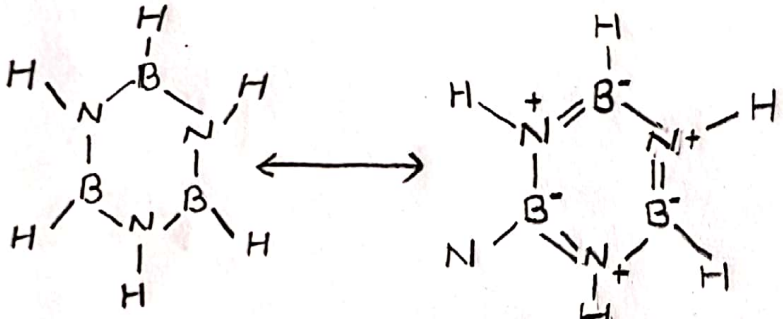
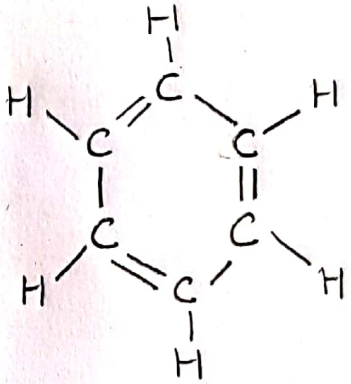


Borazine



Benzene

Borazine $B_3N_3H_6$ is Sometimes called 'inorganic benzene' because its structure shows Some formal similarity with benzene, with delocalized electrons and aromatic character. Their physical properties are also Similar.

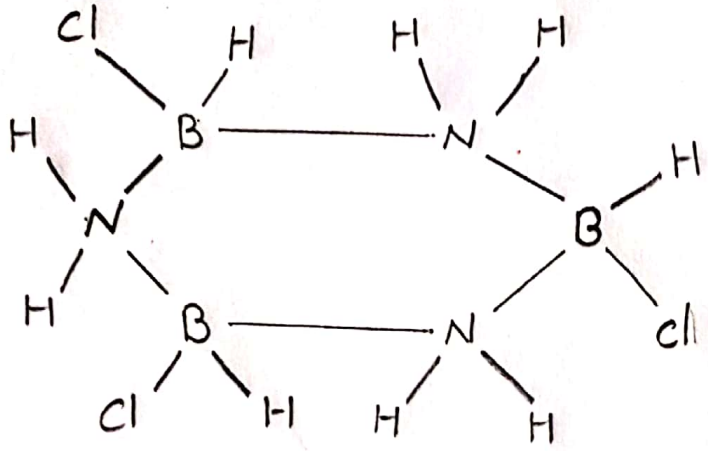
Borazine and Substituted borazines are now made:

$$3BCl_3 + 3NH_4Cl \xrightarrow{140^\circ C} B_3N_3H_3Cl_3 \xrightarrow{Na[BH_4]} B_3N_3H_6$$

$$B_3N_3H_3Cl_3 + MeMgBr \rightarrow B_3N_3H_3(Me)_3$$

Borazine forms π Complexes Such as $B_3N_3H_6 - Cr(CO)_3$ with transition metal Compounds. Borazine is Considerably more reactive than benzene, and addition reactions occur quite readily:

$$B_3N_3H_6 + 3HCl \longrightarrow B_3N_3H_9Cl_3$$



If heated with water, borazine hydrolyses slowly.

$$B_3N_3H_6 + 9H_2O \longrightarrow 3NH_3 + 3H_3BO_3 + 3H_2$$

Some other reactions of boranes

$$B_2H_6 + 6H_2O \longrightarrow 2B(OH)_3 + 6H_2$$

$$2H_3BO_3 + 6H_2$$

$$B_2H_6 + 6MeOH \longrightarrow 2B(OMe)_3 + 6H_2$$

$$B_2H_6 + 2Et_2S \longrightarrow 2[Et_2S \rightarrow BH_3]$$

$$B_2H_6 + 2LiH \longrightarrow 2Li[BH_4]$$

$$2B_2H_6 + 2Na \longrightarrow Na[BH_4] + Na[B_3H_8] \quad \text{Slow}$$

$$B_2H_6 + HCl \longrightarrow B_2H_5Cl + H_2$$

$$B_2H_6 + 3Cl_2 \longrightarrow 2BCl_3 + 6HCl$$