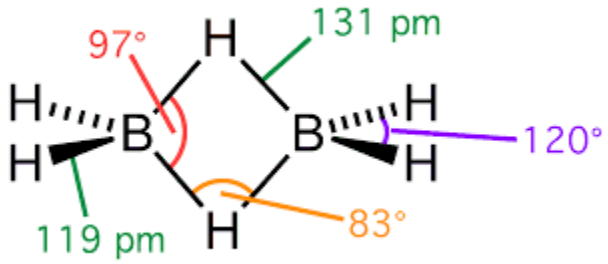
Tips :

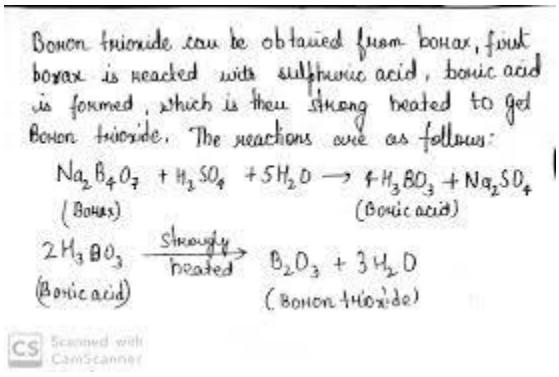
Remember the structure of B2H6. The number of 3c-2e bonds.

The bridge angle and the bond length difference in banana and normal bonds .which is in plane and which is not.



Learn the reactions of production of Boron from borax.

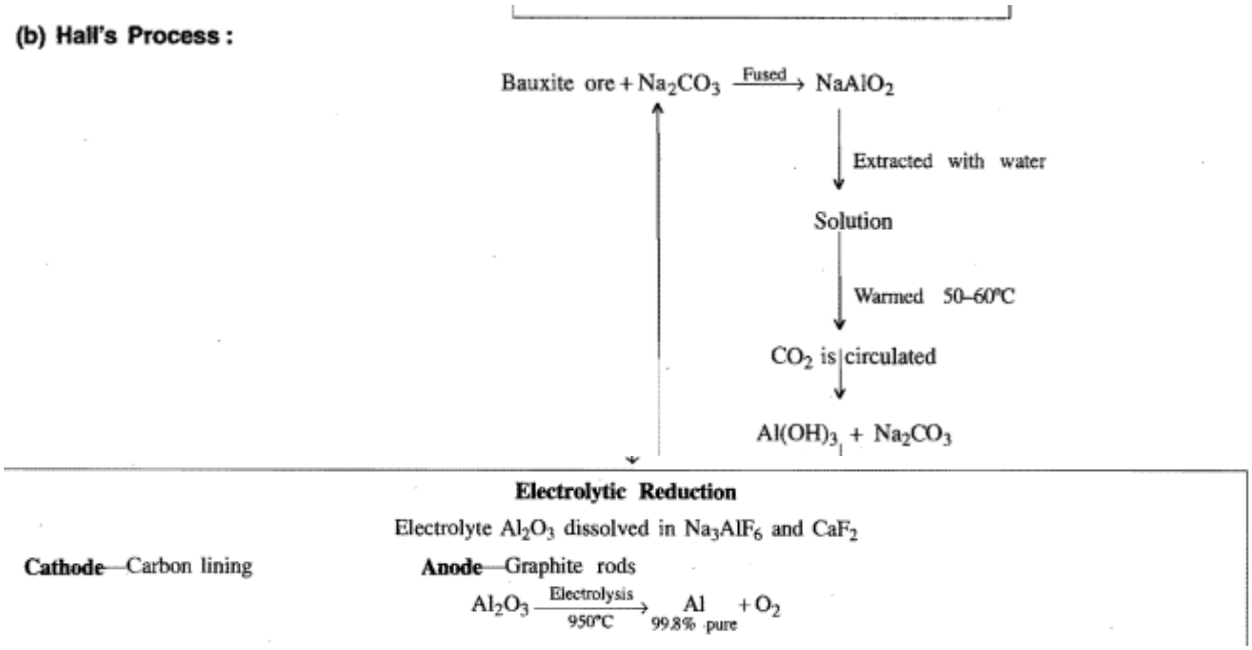
$Na_2B_4O_7{\cdot}10H_2O + 2\ HCl \rightarrow 4\ H_3BO_3 + 2\ NaCl + 5H_2O$.



Further by Mg reduction

Learn all different combinations which forms 3c 2e bond and co ordinate bonds

(b) Hall's Process :



Some B2H6 reactions :

$$B_2H_6 \xrightarrow{\text{Red heat}} 2B + 3H_2$$

(ii) It burns in oxygen. The reaction is highly exothermic.

$$B_2H_6 + 3O_2 \longrightarrow B_2O_3 + 3H_2O + X$$

(iii) It readily reacts with water liberating hydrogen.

$$B_2H_6 + 6H_2O \longrightarrow 2H_3BO_3 + 6H_2$$

(iv) It reacts with strong alkalies to form metaborates and hydrogen.

$$B_2H_6 + 2KOH + 2H_2O \longrightarrow 2KBO_2 + 6H_2$$

(v) It reacts with chlorine forming boron trichloride.

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

(vi) In presence of anhydrous aluminium chloride, it reacts with dry HCl.

$$B_2H_6 + HCl \longrightarrow \underset{\text{Chlorodiborane}}{B_2H_5Cl} + H_2$$

(vii) Lithium borohydride is formed when diborane reacts with LiH in presence of ether.

$$2LiH + B_2H_6 \xrightarrow{\text{Ether}} 2LiBH_4$$

Learn All the exception in trends in Ionisation Energy and Atomic Radius

	B	Al	Ga	In	Tl
Atomic radius (pm) (Metallic)	85	143	135	167	170

The values of first, second and third ionisation energy of group 13 elements are tabulated below:

Element	Ionisation energy (kJ mol^{-1})			
	1st	2nd	3rd	Sum of three
B	801	2427	3659	6887
Al	577	1816	2744	5137
Ga	579	1979	2962	5520
In	558	1820	2704	5082
Tl	589	1971	2877	5437