



Hydrogen

Position of hydrogen in the periodic table

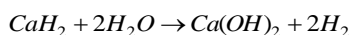
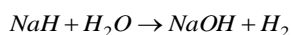
Hydrogen is the first element in the periodic table. Hydrogen is placed in no specific group due to its property of giving electron (When H^- is formed) and also losing electron (When H^+ is formed).

Preparation of Dihydrogen:

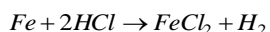
(i) *By action of water with metals*



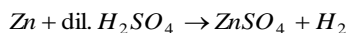
(ii) *By the reaction of water on alkali and alkaline earth metals hydrides*



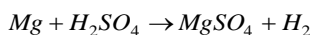
(iii) *By action of metal with acids:*

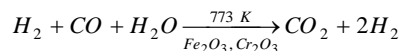


(vi) *Laboratory method:*

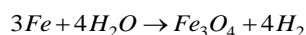


(vii) *Preparation of pure hydrogen:* (i) The action of pure dil. H_2SO_4 on pure magnesium ribbon.



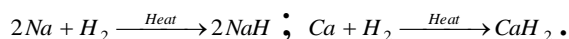


(iii) **Lane's process:**

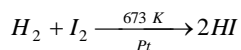
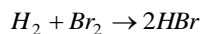
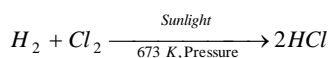
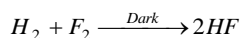
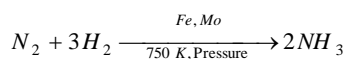


Physical properties of dihydrogen: It is a colourless, tasteless and odourless gas.

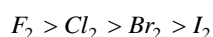
(i) **Action with metals:** To forms corresponding hydrides.



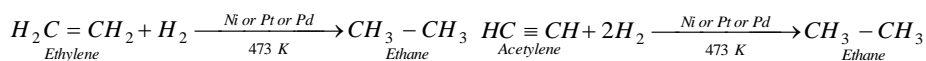
(ii) **Reaction with Non-metals** $2H_2 + O_2 \xrightarrow{970\text{ K}} 2H_2O$



The reactivity of halogen towards dihydrogen decreases as,



(iii) **Reaction with unsaturated hydrocarbons:** H_2 reacts with unsaturated hydrocarbons such as ethylene and acetylene to give saturated hydrocarbons.



Uses of Dihydrogen

(i) As a reducing agent

(ii) In the hydrogenation of vegetable oils

(iii) As a rocket fuel in the form of liquid H_2

(iv) In the manufacture of synthetic petrol