

# Alkali Metals

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## # General characteristics of alkali metals:-

### Physical characteristics:

- (i) Physical state: All alkali metals are silvery white when freshly cut but tarnish in moist air. They are soft and can be cut with the help of knife.
- (ii) Ionization energy: The ionization energy of alkali metals are generally low. The reason for the low ionization energy of alkali metals is that their atoms are of large size, therefore, the outermost electron is far away from the nucleus and can be easily removed.
- (iii) Oxidation state: In alkali metals, there is only one electron in the valence shell. By losing this electron they can acquire stable electronic configuration of the nearest noble gas. Therefore, alkali metals exhibit  $+1$  oxidation state.

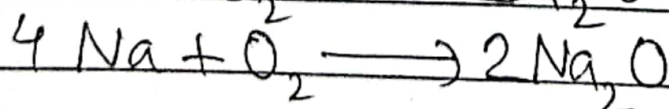
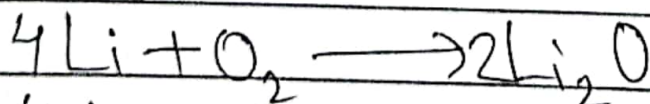


(iv) Electropositive character or Metallic character: The first ionization energy of alkali metal is very low so that they can easily lose an electron present in outermost shell. Thus, alkali metals are highly electropositive (Metallic) in character.

(v) Reducing agent: Due to low ionization energy, alkali metals have larger tendency to lose their outermost s-electron and hence behaves as strong reducing agents.

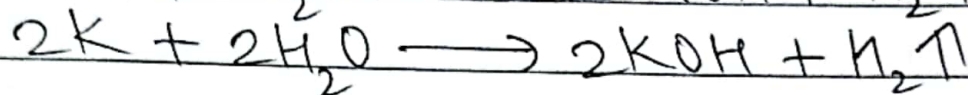
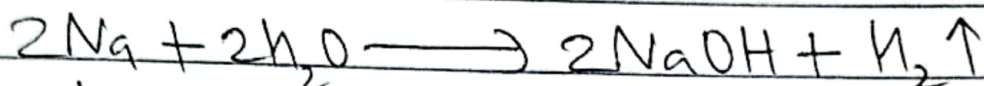
Chemical properties:

1. Action with air: Alkali metals reacts with oxygen (air) rapidly and thus get tarnished due to the formation of their oxides on the surface of metals. So, the alkali metals are stored in kerosene or paraffin.

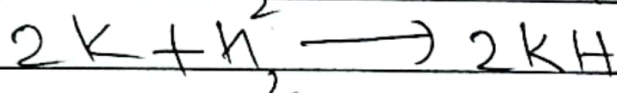
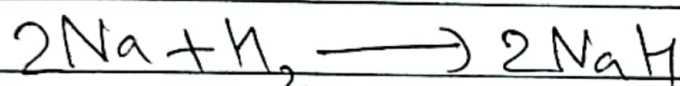




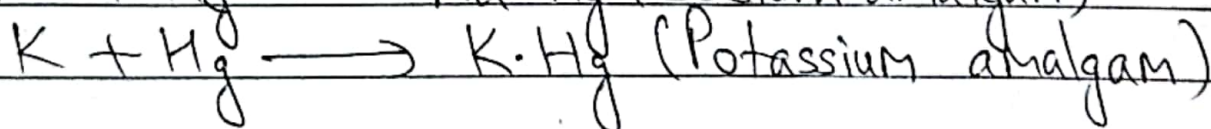
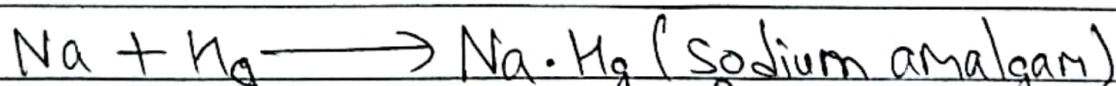
2. Action with water: Alkali Metals react very readily and violently with water forming hydroxides.



3. Action with hydrogen: Hydrogen reacts with alkali metals to form metal hydrides.



4. Formation of amalgam: Alkali metals can form amalgam with mercury.



5. Reducing property: Alkali metals are good reducing agent as they have low ionization energy.

