

Chemical Properties of s-block elements

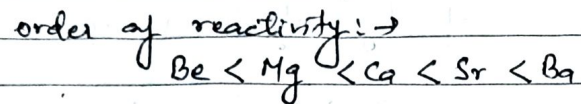
(IIA - Alkaline earth metal)

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- * Less reactive than alkali metals.

order of reactivity: $\rightarrow$

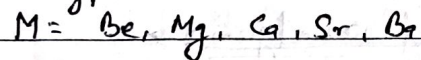


Reaction with air

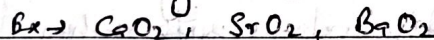
- * Except Be, these metals easily tarnished in air.
- * Beryllium in powdered form, burns brilliantly on ignition in air.
- * In moist air, except 'Be' all the elements converts into carbonates.
- * In dry air all elements of IIA give nitride and oxide both.

Reaction with oxygen

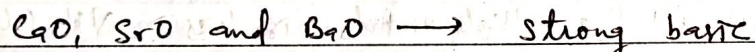
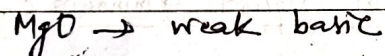
- * Alkaline earth metals reacts with O_2 to form 'MO' type oxides.



- * In IIA only Ca, Sr, Ba form peroxide.



- * BeO shows amphoteric properties.



- * Basic properties increases from BeO to BaO

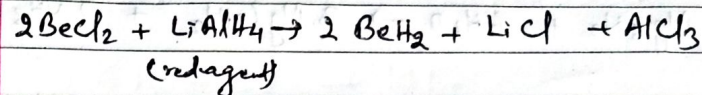
Reaction with Hydrogen

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- * Except Be all the alkaline metals forms MH_2 type hydrides, ($\text{MgH}_2, \text{CaH}_2, \text{SrH}_2, \text{BaH}_2$) on heating directly with H_2 .

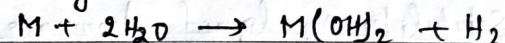
- * BeH_2 is prepared by action of BeCl_2 with LiAlH_4



- * BeH_2 and MgH_2 are covalent, other are ionic.

Reaction with water

- * These metals reacts slowly with water gives H_2 and metals hydroxides.



- * Be does not reacts with water.

- * Mg reacts only with hot water

- * Ca, Sr, Ba reacts with cold water but not as energetically as alkali metals.

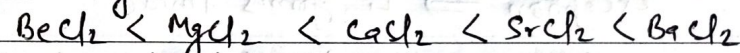
- * From $\text{Be}(\text{OH})_2$ to $\text{Ba}(\text{OH})_2$ basic nature increases.

- * ~~Alkaline metals reacts with X (Halogen)~~

Reaction with Halides

- * Alkaline metals reacts with X (Halogen) to form MX_2 .

- * Order of ionic nature



- * Hydrolysis tendency to these halides decreases from BeCl_2 to BaCl_2 due to decrease in covalent nature.

- * BeCl_2 and MgCl_2 are covalent in nature.