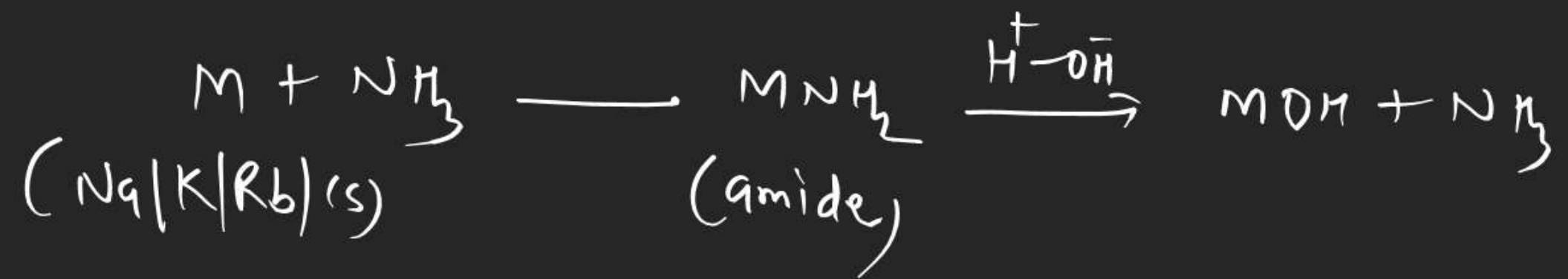
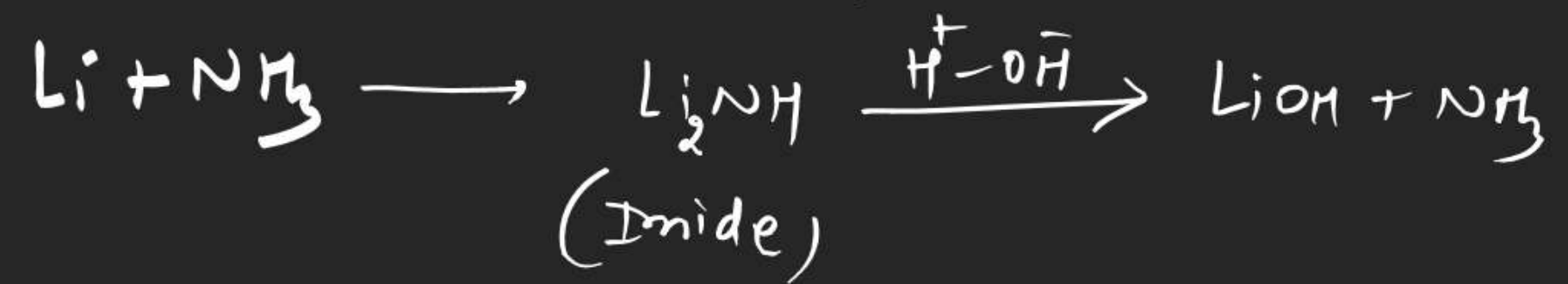
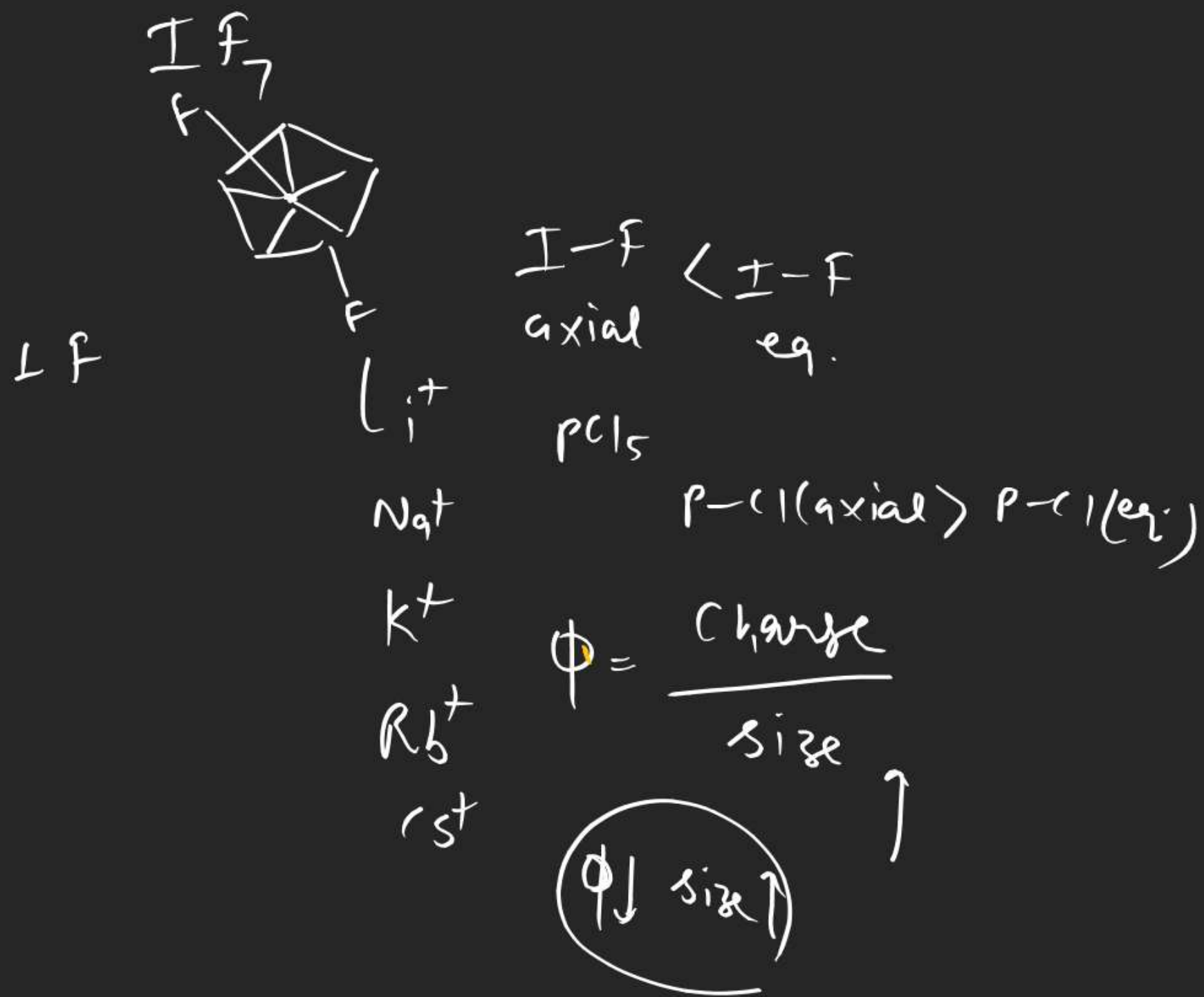


Reaction with $\text{NH}_3(\text{g})$ 



Reaction with liq. NH_3



ammoniated
cation

ammoniated e^-

paramag

Conductor

S.R.A (Strong Reducing agent)

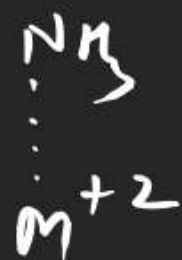
Blue colour



on standing it liberate hydrogen so it becomes
in amide solution but if catalytic impurities
absent $[Fe | Zn | Pt]$ then they are
stable.

If conc. solution of alkali metal in liq. N_2
then paramag behavior decreases and
solution becomes diamag. and
Blue colour changes to bronze.

On boiling this solution metal can be recovered
 in case of alkali metal
 but in case of alkaline earth metal
 ammoniates can be recovered.



ammoniates

Be and Mg \rightarrow Can not form such solution
with liq. NH_3
due to High I.E

flame test

due to low I.E these
metal show colour in flame

Note \Rightarrow Be and mg
do not
show
flame test
due to high I.E

Li = Carmine Red / (crimson Red)

Na = Golden yellow

K = Lilac (pale violet)

Rb = Reddish violet

Cs = Blue

Ca = Brick Red

Str = (crimson Red)

Ba = Apple green

II A

Be
Mg

Ca

Sn

Ba

Ra

① Conf = $n s^2$

② Atomic size ↑ down the group

③ I.E ↓



↓
due to poor S.E
of 4f sub shell

$$D = \frac{M}{V} \uparrow$$

$$D \uparrow$$

$$\text{Be} > \text{mg} > \text{Ca} < \text{Sr} < \text{Ba}$$

$$\underline{\gg \ll}$$

$$m.p \downarrow$$

$$\text{Be} > \text{mg} < \text{Ca} > \text{Sr} > \text{Ba}$$

$$B.p \downarrow$$

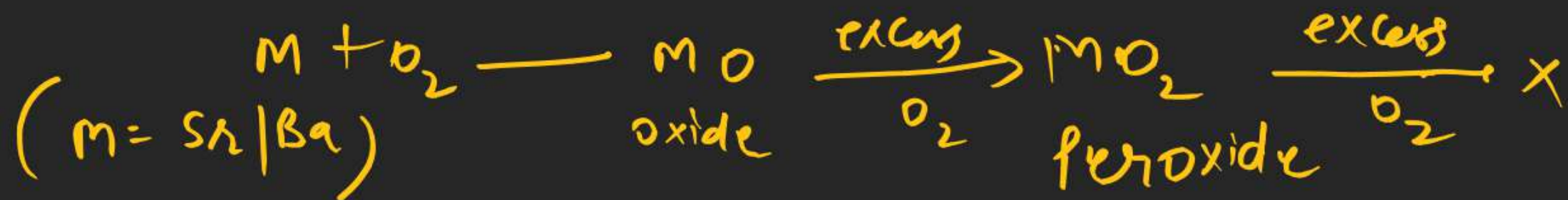
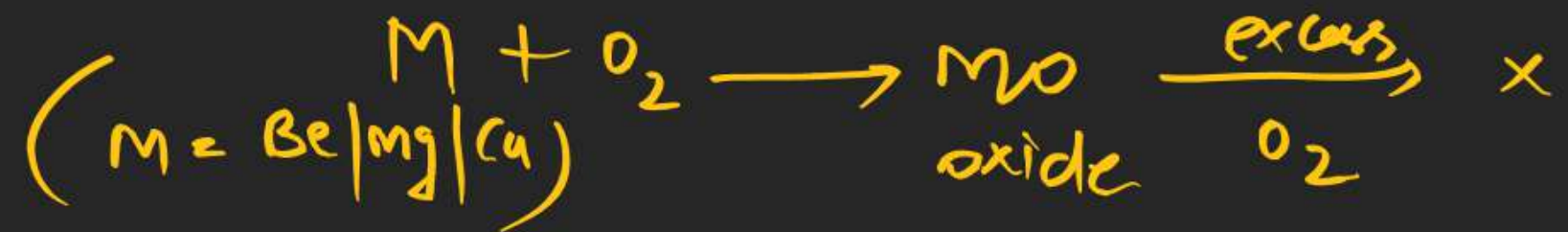
$$\text{Be} > \text{mg} < \text{Ca} > \text{Sr} < \text{Ba}$$

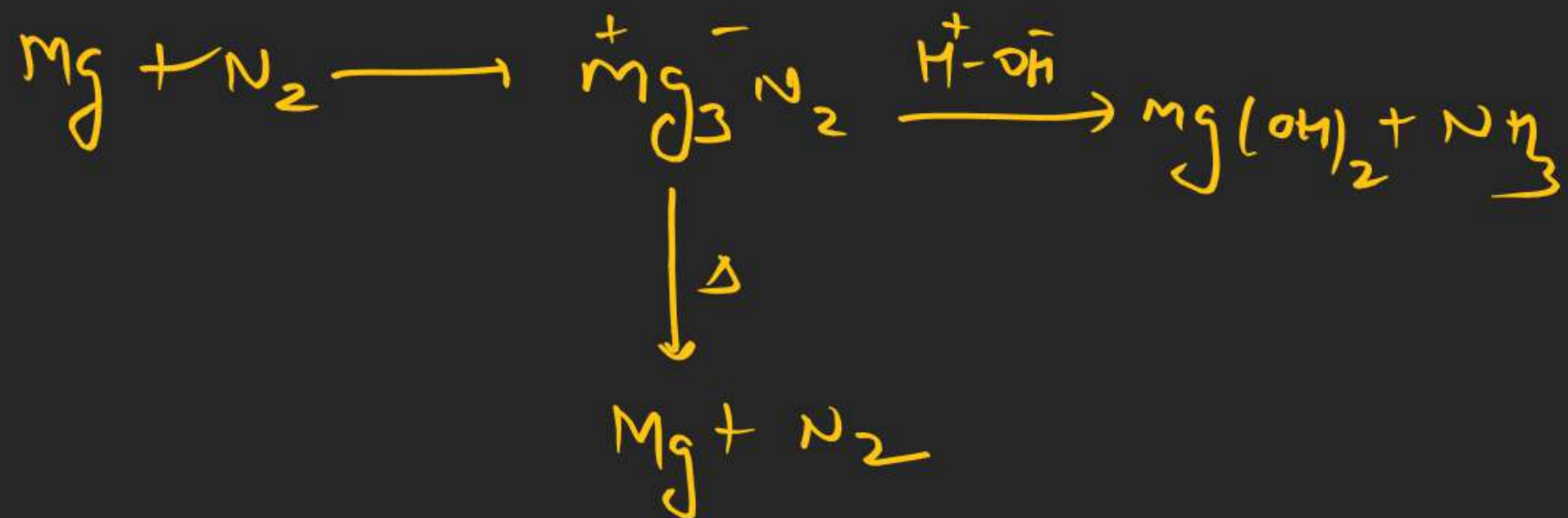
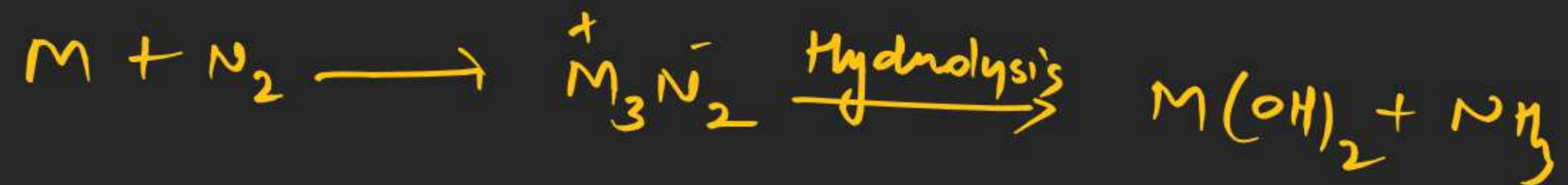
Reducing power



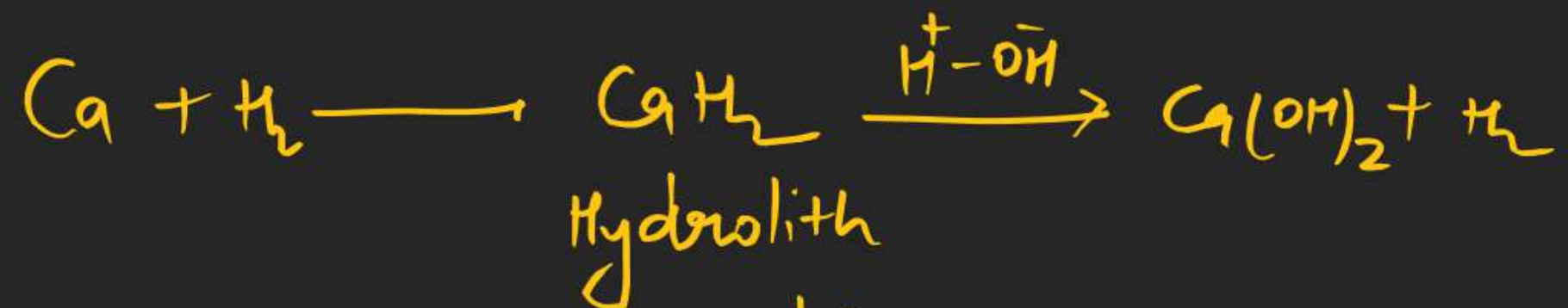
W.R.A

(Weak Reducing agent)

Chemical ReactionReaction with O_2 

Reaction with N_2 

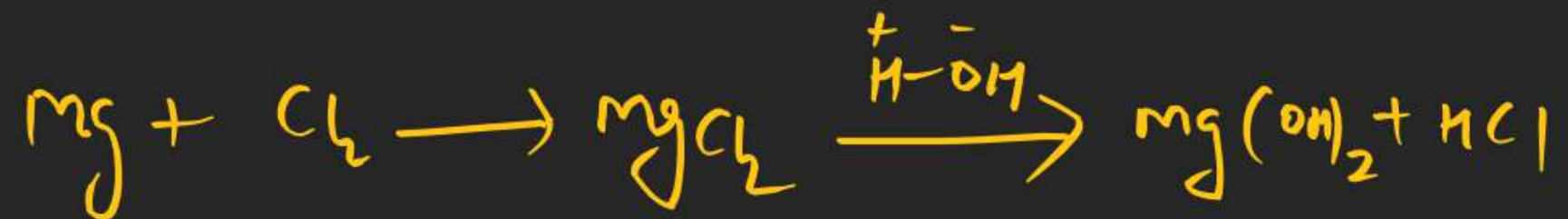
Reaction with H_2



Note \Rightarrow Be does not ^{form} directly



Reaction with Halogen



Note \Rightarrow $BeCl_2$ does not form directly



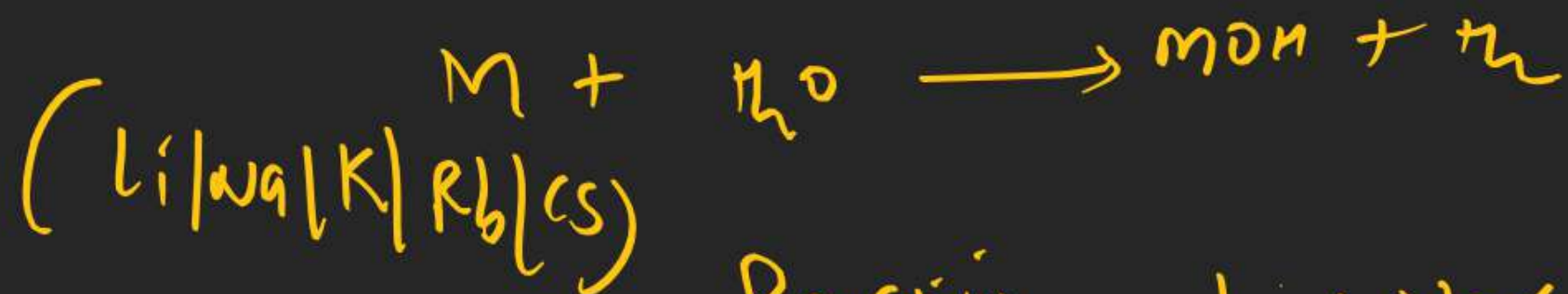
Reaction with H_2O



order of reactivity



but alkali metals reaction with water



order of reactivity

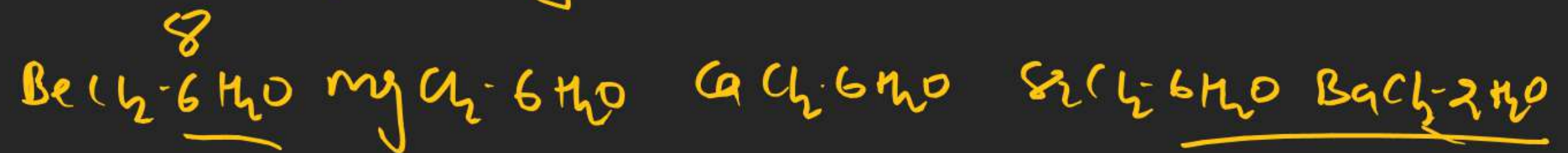


Li = reacts gently with water

Na = vigorously with water

K/Rb/Cs \Rightarrow violently with water

Note \Rightarrow alkaline earth metal
gen. Hydrated.



On heating $\left. \begin{array}{l} \text{BeCl}_2 \cdot 6\text{H}_2\text{O} \\ \text{MgCl}_2 \cdot 6\text{H}_2\text{O} \\ \text{CaCl}_2 \cdot 6\text{H}_2\text{O} \end{array} \right\}$ undergoes in hydrolysis
so do not get anhydrous

$\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$ and $\text{BaCl}_2 \cdot 2\text{H}_2\text{O} \rightarrow$ on heating, we get anhydrous.