

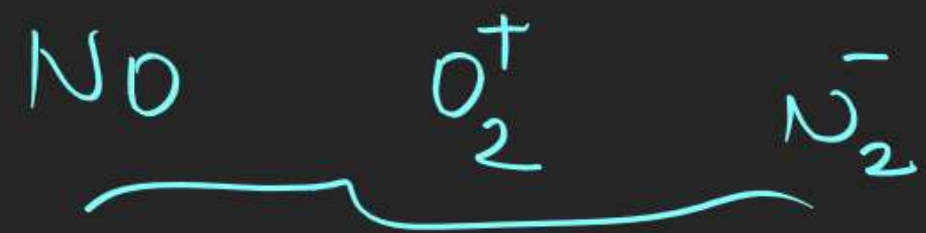
CHEMICAL BONDING

que find the bond order

Ans = $\bar{C}N$ NO^+ N_2 CO O_2^{+2}
Key point \rightarrow isoelectronic species have same bond order

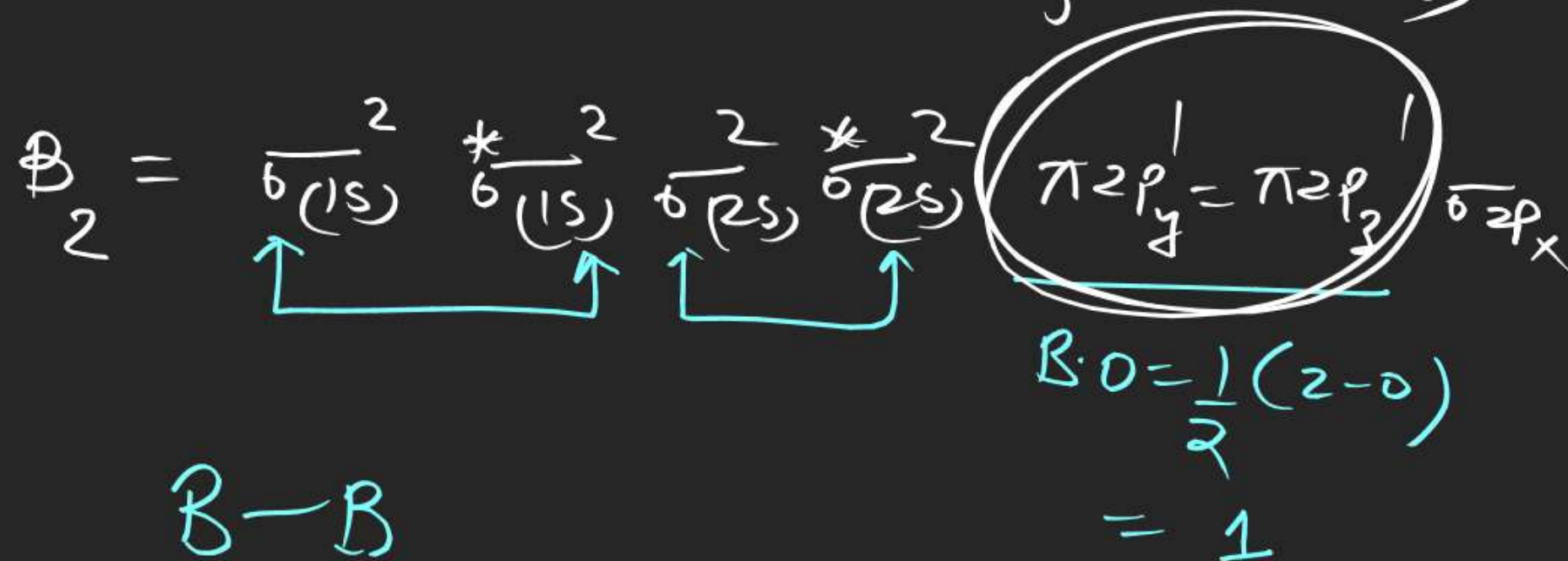
que find the bond order

Ans = O_2 N_2^{-2} NO^-
2

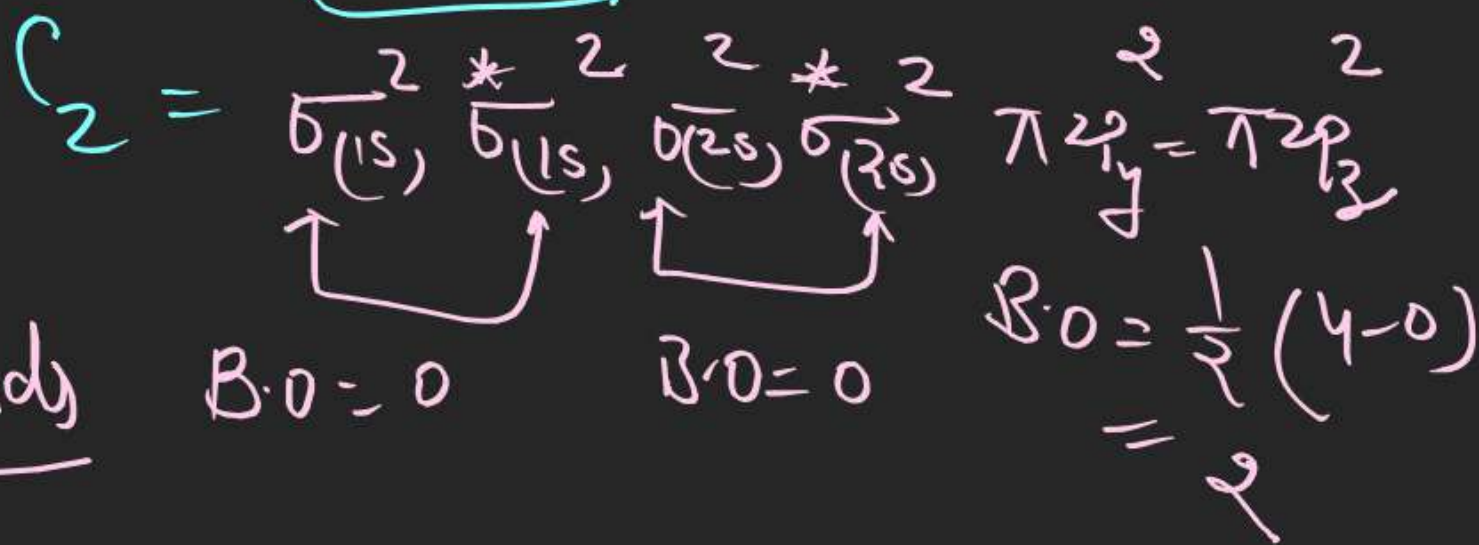


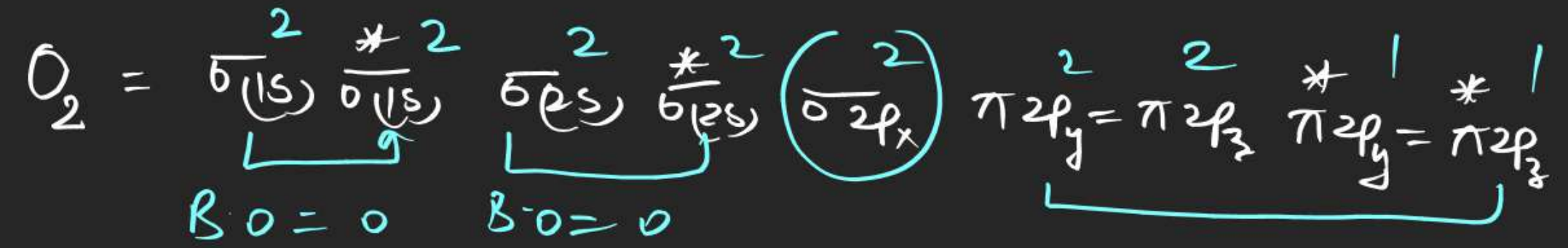
$$B.O = \underline{2.5}$$

Ques find the number of π bonds in B_2 and C_2



two π bonds





$$B.O = \frac{1}{2}(2-0)$$

$$= 1$$

$$B.O = \frac{1}{2}(4-2)$$

$$= \frac{1}{2} \times 2$$

$$= 1$$

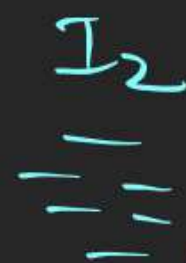
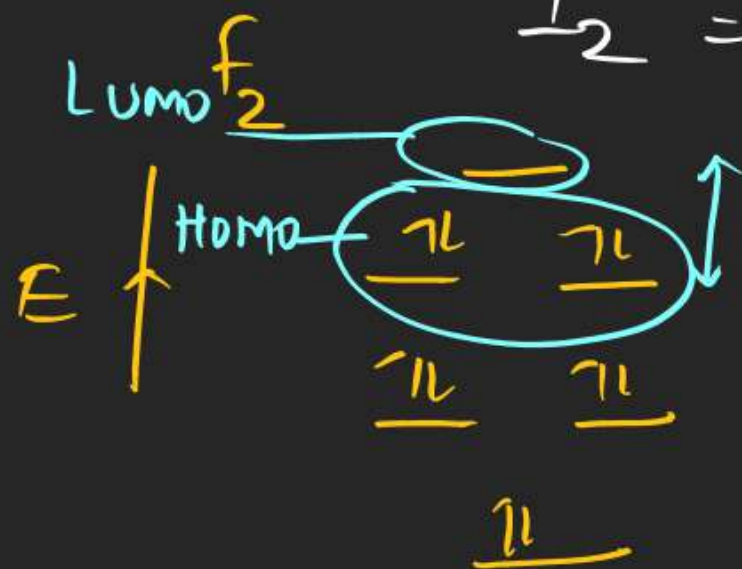
$$O = 0$$

(1 σ , 1 π bond)

$$E = \frac{hc}{\lambda}$$

$F_2 \Rightarrow$ Pale yellow
 $Cl_2 =$ greenish yellow
 $Br_2 =$ Reddish Brown

$I_2 =$ Violet



When size \uparrow gap between HOMO LUMO \downarrow

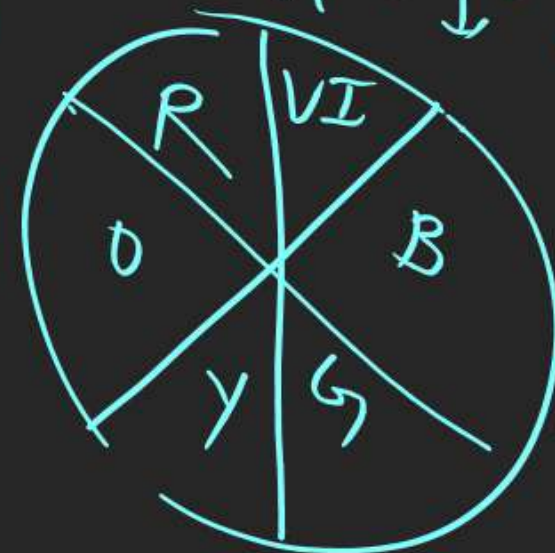
ans

Halogens molecules are diamag and colourful
 explain why?

Ans = due to HOMO LUMO transition

V I B G Y O R

\uparrow V \downarrow E \downarrow



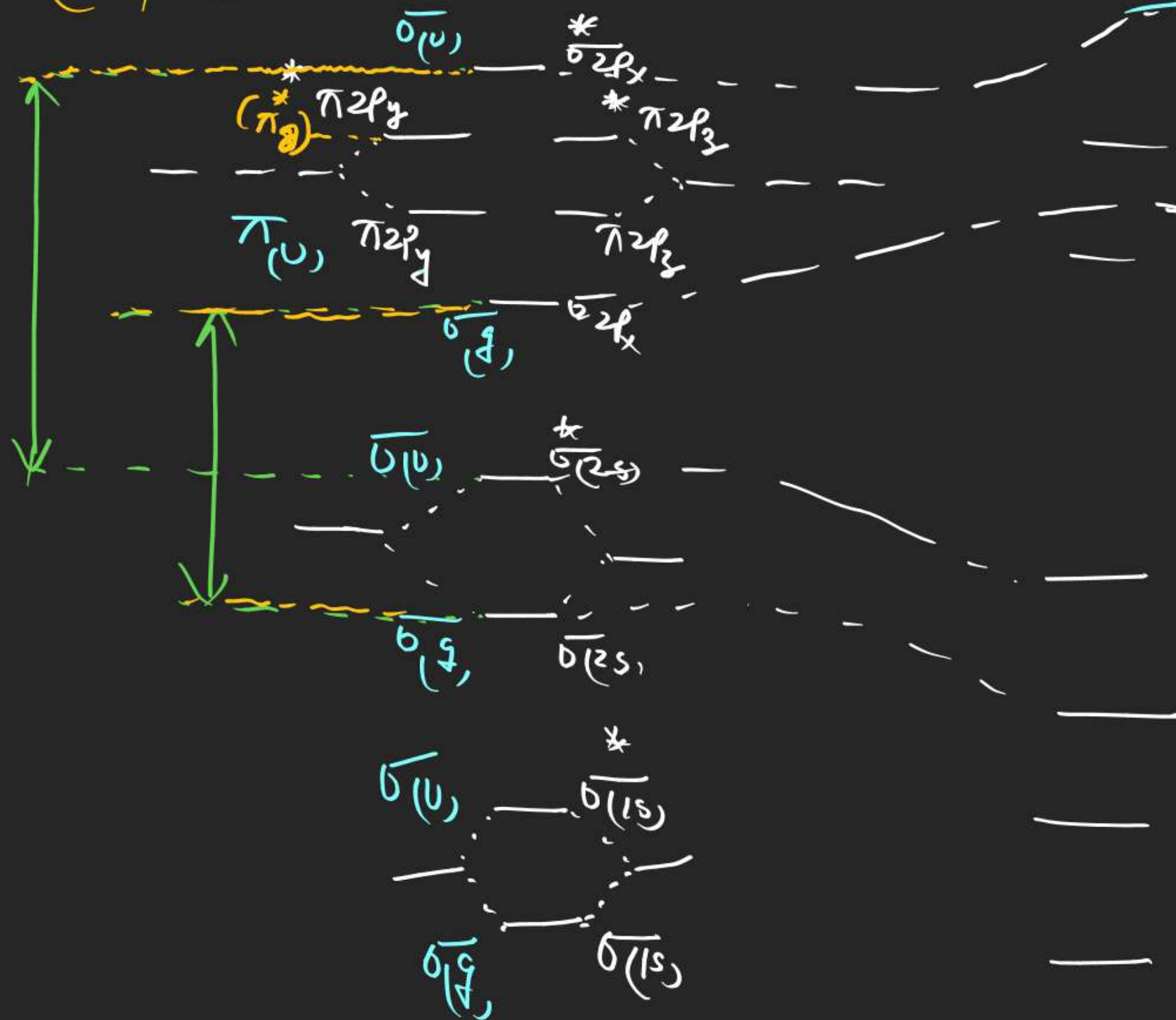
Orbital mixing [sp mixing]

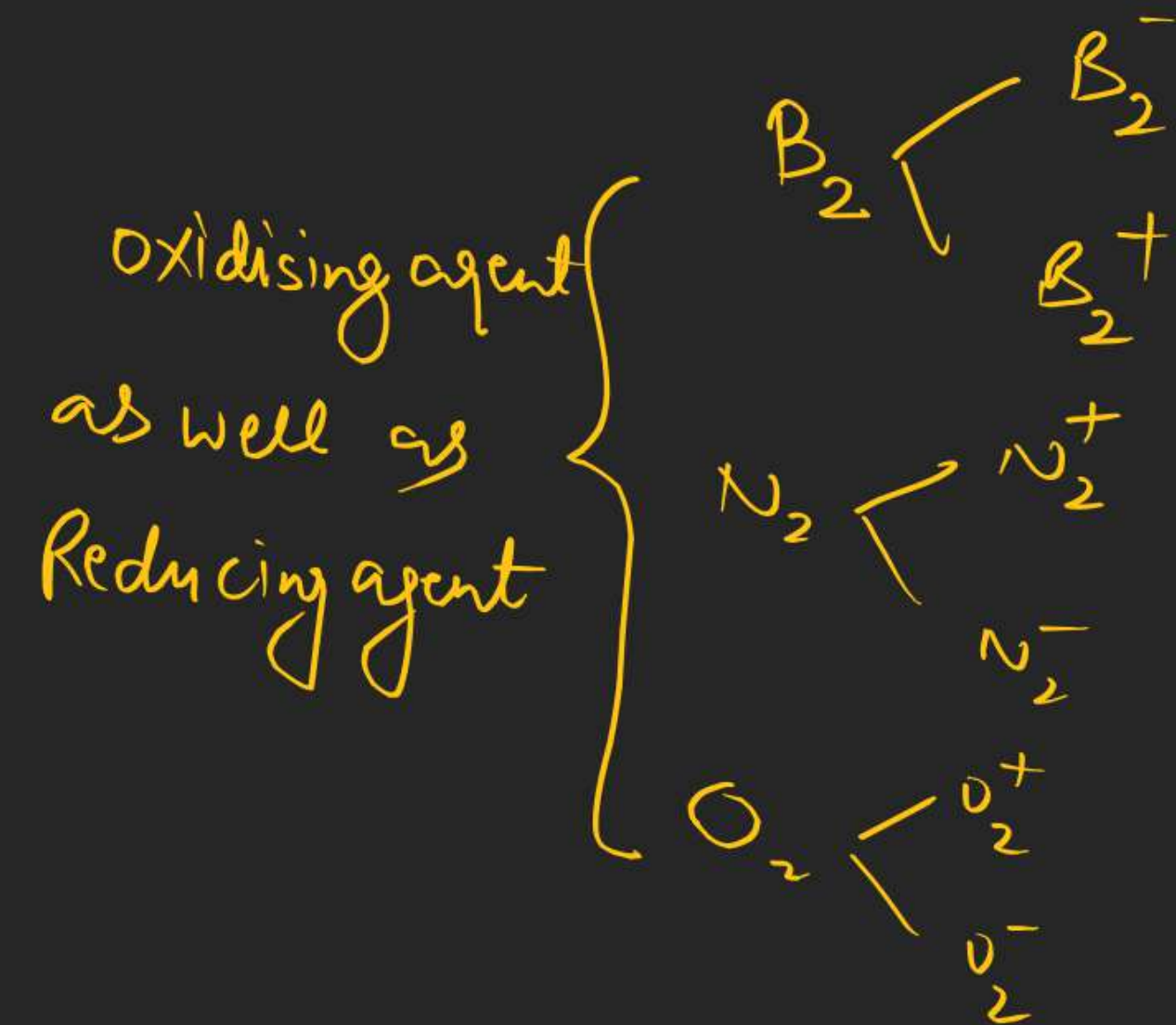
non crossing theory
of Q. M

≤ 14

B₂, C₂, N₂
(sp mixing diag.)

(O₂, F₂)





$B.O =$ number of covalent bond

$$B.O = \frac{1}{2}(N_B - N_A)$$

Note \Rightarrow B.O can be +ive, neg.
zero and fractional

If B.O becomes zero or neg.
then molecule does not exist.



$$\underline{B.O = 0}$$

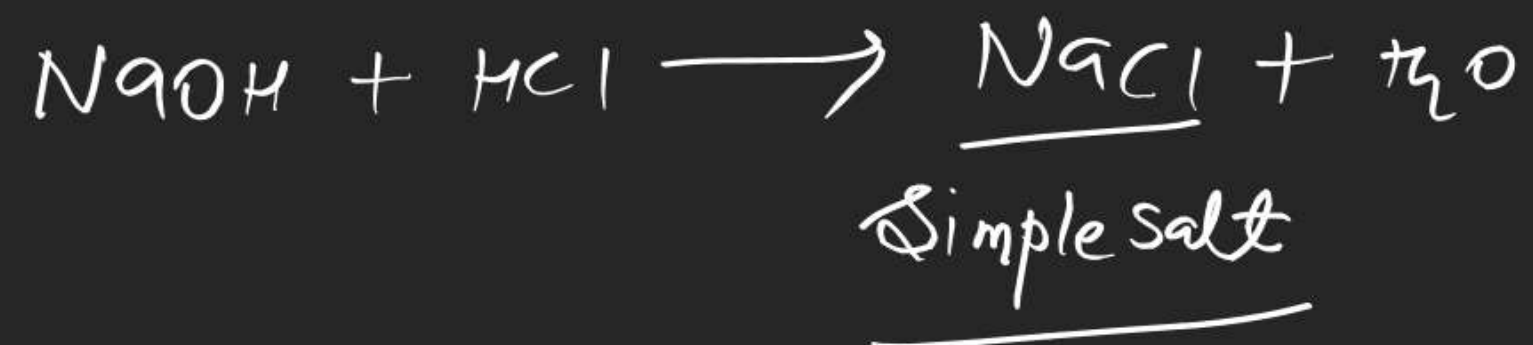
Note \Rightarrow if B.O becomes fractional
then molecule itself unstable
but relatively it is more stable



Co-ordination chemistry

In inorganic chemistry compounds are divided in three parts

① Simple salt



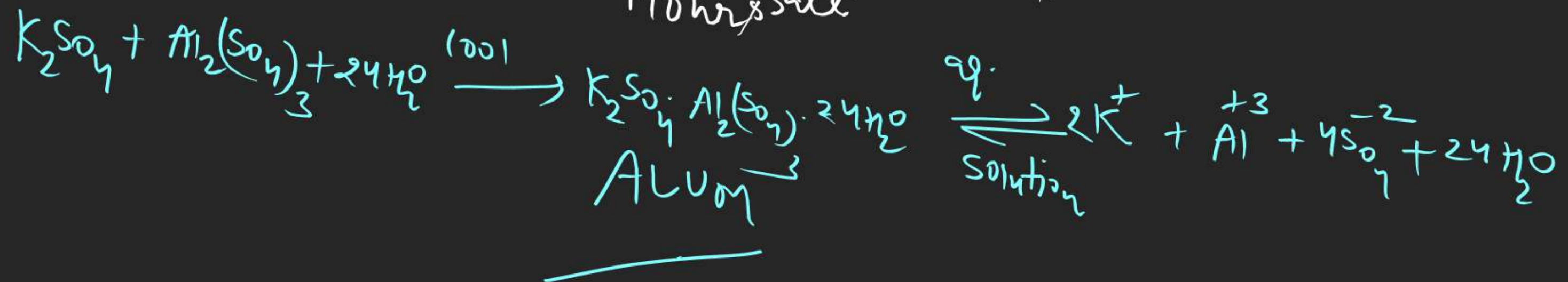
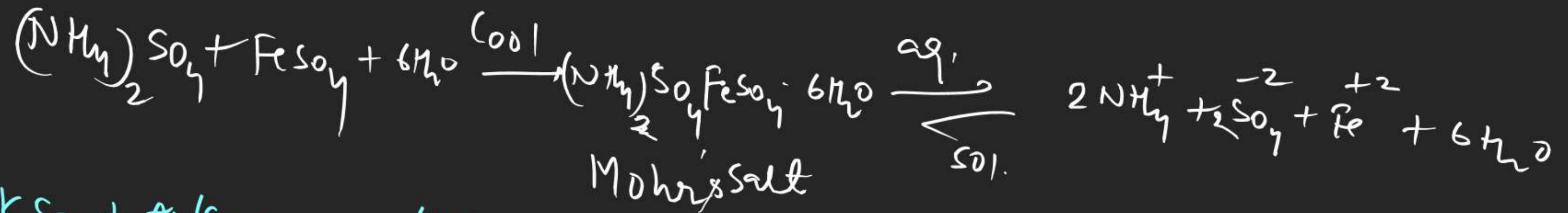
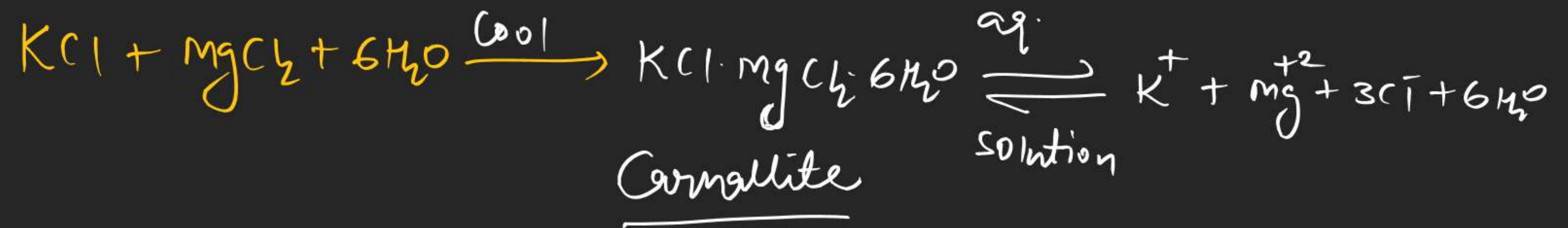
Molecular addition compound.

When two or more than two simple salts are chemically combined in fix proportion by weight then they are called molecular addition compound.

① Double Salt

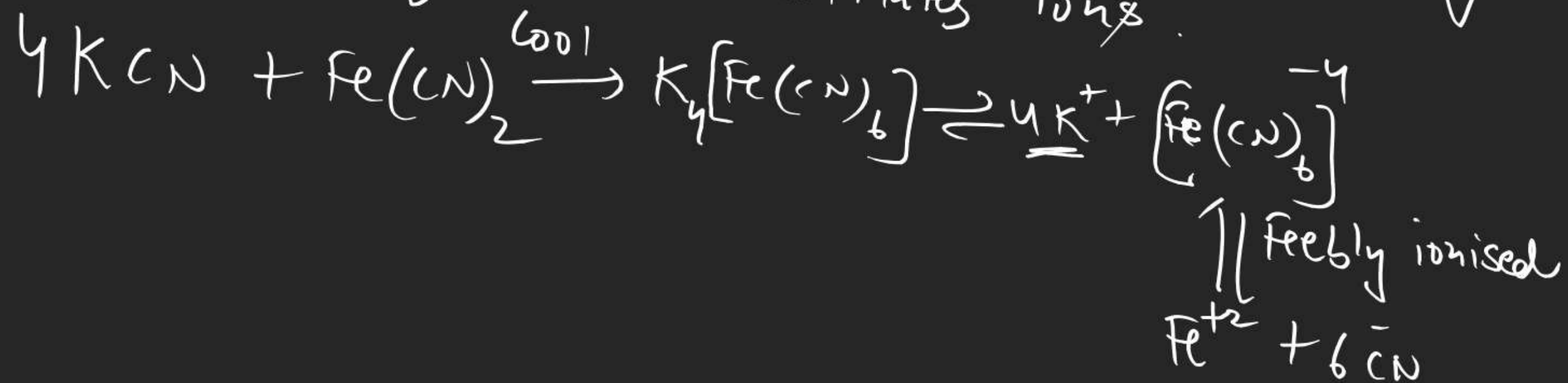
② Complex Compound

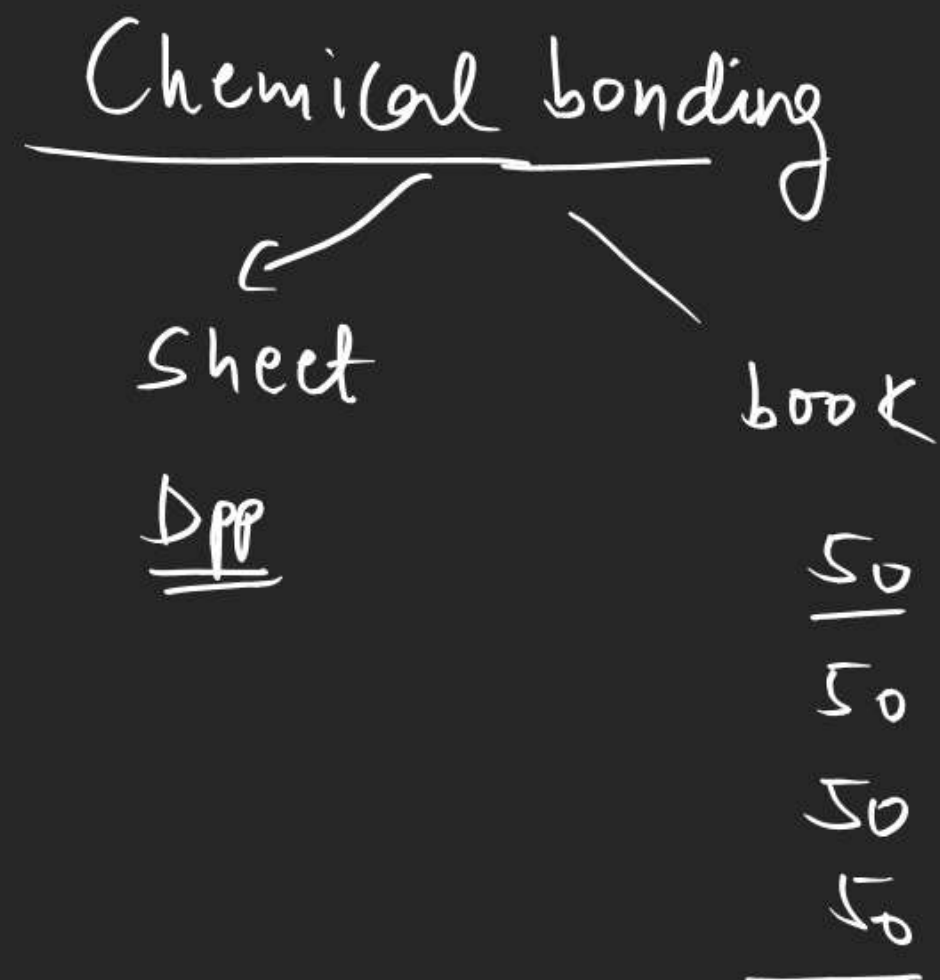
① Double Salt \rightarrow



Complex Compound / Co-ordination Compound

molecular addition compound which do not give test of its all constituents ions in their aq. solution. they do not lose their own identity but lose identity of their constituents ions.





$\begin{cases} \underline{C_2(\text{solid})} \text{ does not exist} \\ B_2(\text{solid}) \text{ does not exist} \end{cases}$

$\begin{cases} C_2(\text{vap.}) \\ B_2(\text{vap.}) \end{cases} \text{ exist acc. to MOT}$