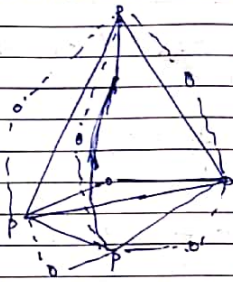


B. M. A. College Bahari  
DARBHANGA.  
C. CHAUDHARY. CHEMISTRY.

TOPIC:- Nitrogen Family

$P_2O_3$ :- Phosphorous trioxide exists in dimeric form  $P_4O_6$ . Oxidation No. of Phosphorous in  $P_2O_3$  is +3. Its structure is represented as

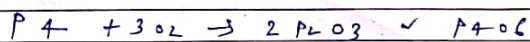


In  $P_4O_6$   
Four "P" atoms are at four apex of four tetrahedron

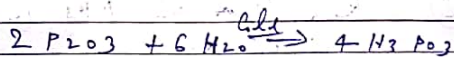
Six "O" atoms are

on six sides of tetrahedral molecule from outside sides

$O_2$  in limited amount on heating with P4 we get  $P_4O_6$



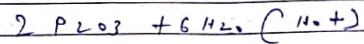
Properties: (i)  $P_2O_3$  on reaction with water gives phosphoric acid



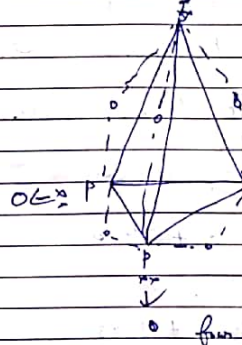
This reaction takes place in cold condition.

(ii)  $P_2O_3$  on reaction with hot water

gives  $PH_3$  (PHOSPHENE) Gas.



$P_2O_5$ :- It exists in dimeric form  $P_4O_{10}$ . Its structure is represented as

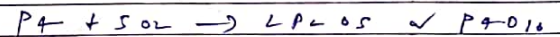


Basic difference

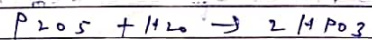
in structure of  $P_4O_6$  and  $P_4O_{10}$  is that in  $P_4O_6$

each "P" atom forms coordinate bond with four "O" atoms.

(1) White "P" on heating with excess  $O_2$  we get  $P_4O_{10}$



Properties:-  $P_2O_5$  reacts with  $H_2O$  and gives  $HPO_3$



"Meta Phosphoric acid"

$P_2O_5$  acts as weak oxidizing agent.

$P_2O_5$  on reaction with  $HNO_2$  gives  $HNO_3$

