

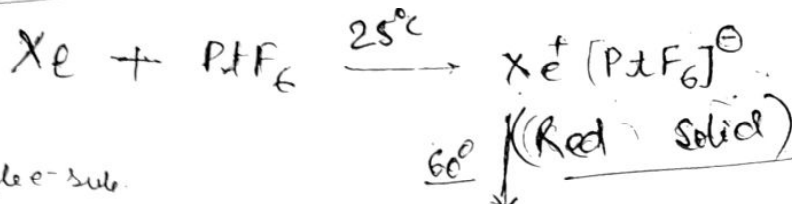
Unhybridised e^- π -bond बनाने के लिए चाहिए | Xe 5414

53

Xenon Compounds

(*) Net

First rare gas compound is prepared by
1962 Bartlett & Lohman



Xenon hexa
fluoroplatinate

* halogen - single e^- sub.

* oxygen - one H_2O unhybrid d -sub. $[\text{XeF}]^+ [\text{Pt}_2\text{F}_{11}]^-$

$\rightarrow$ π Bond बनाने के लिए unhybridised e^- चाहिए (12)

Nomenclature last highest e^- N. Name

Compounds

Molecular formulae

XeF_2

{ No. of
F, O, N
Xe

name

O.N.

Hybridisation state of
Xe

XeF_2 / Linear 3

Xenon difluoride + 2

sp^3d

XeF_4 2

Xenon tetrafluoride + 4

sp^3d^2

XeF_6 1

Xenon hexafluoride + 6

sp^3d^3

XeO_2F_2 1

Xenon dioxydifluoride + 6

sp^3d

XeOF_4 1

Xenon oxytetrafluoride + 6

sp^3d^2

XeO_3 1

Xenon trioxide + 6

sp^3

XeO_4 Nil

Xenon tetroxide + 8

sp^3

$[\text{XeO}_4]^-$

Xenate ion

+ 6

sp^3d

e.g. $\text{Na}[\text{XeO}_4]$

$[\text{XeO}_6]^{4-}$

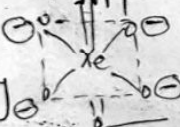
Peroxenate ion

+ 8

sp^3d^2

e.g.

$\text{Ba}_2(\text{XeO}_6)$



KMnO_4

max. $\rightarrow$ highest O.N.

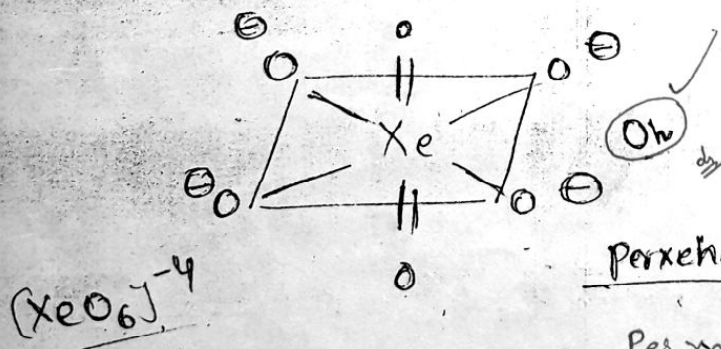
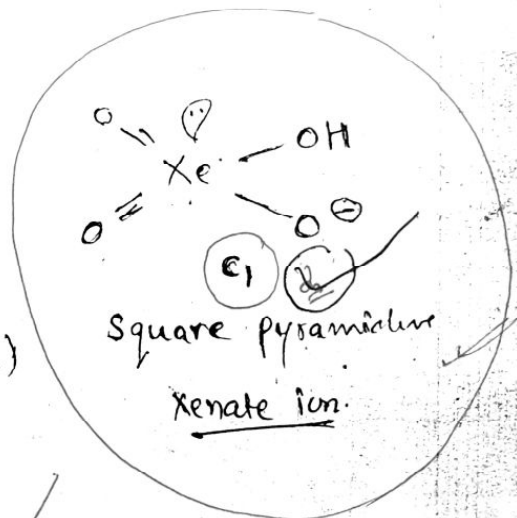
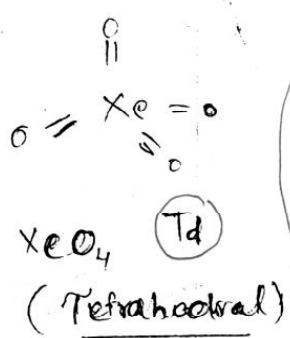
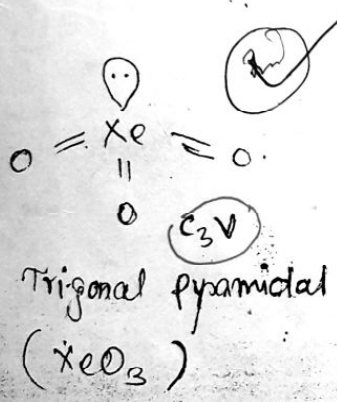
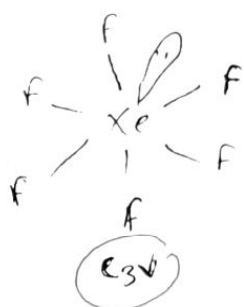
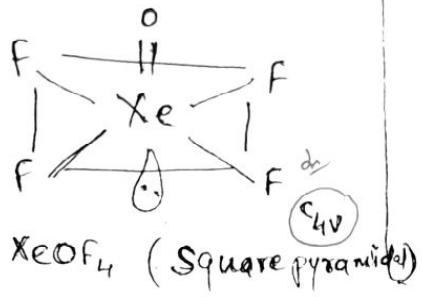
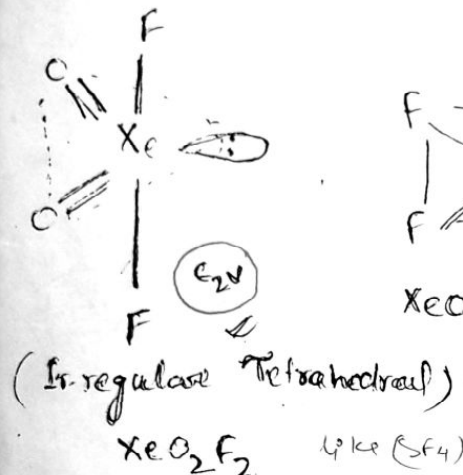
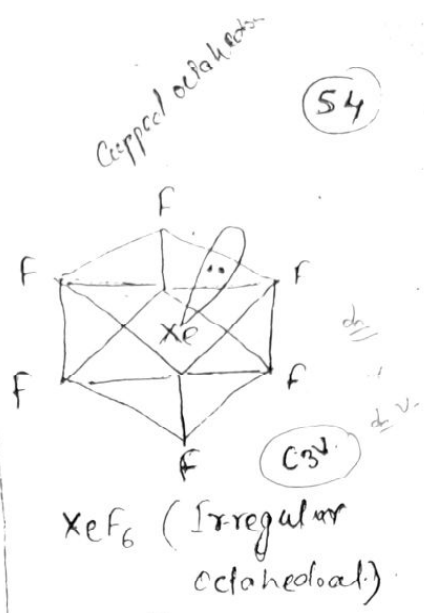
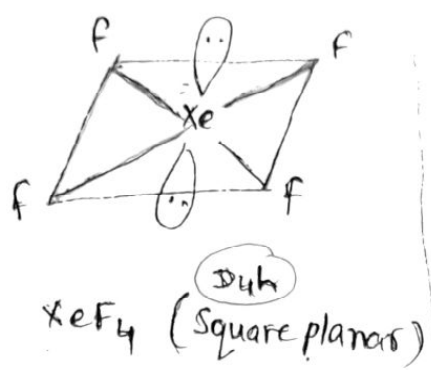
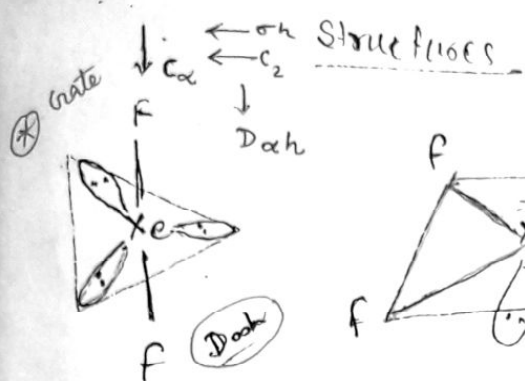
XeO_6^{4-}

Net
(*)

(C3)

(C1)

(Oh)

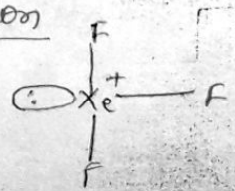


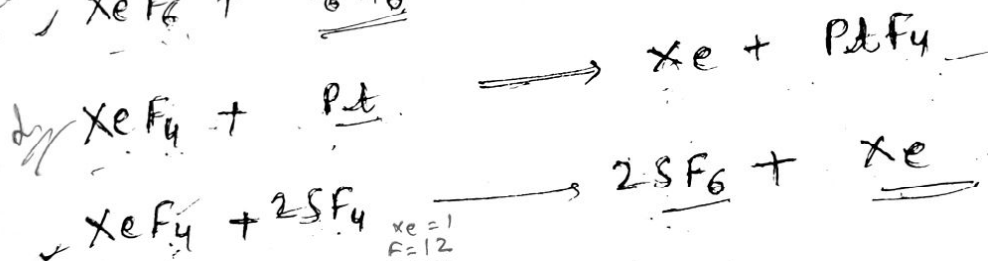
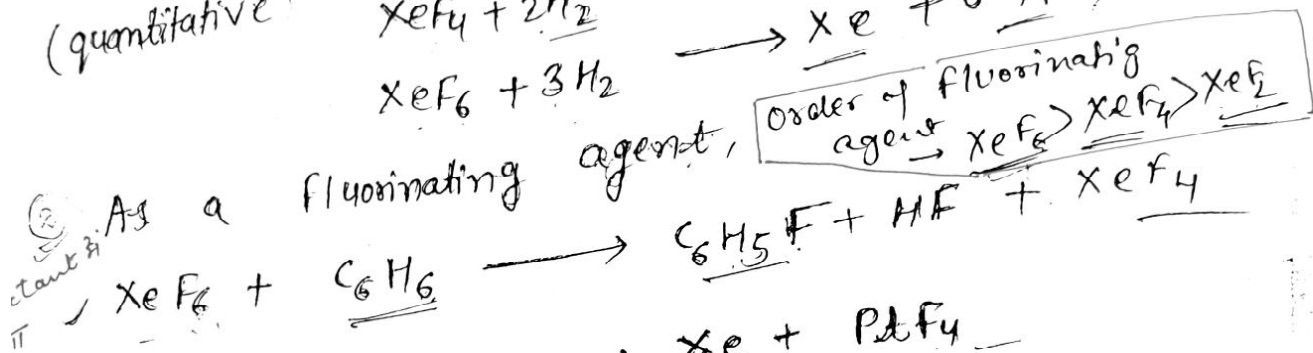
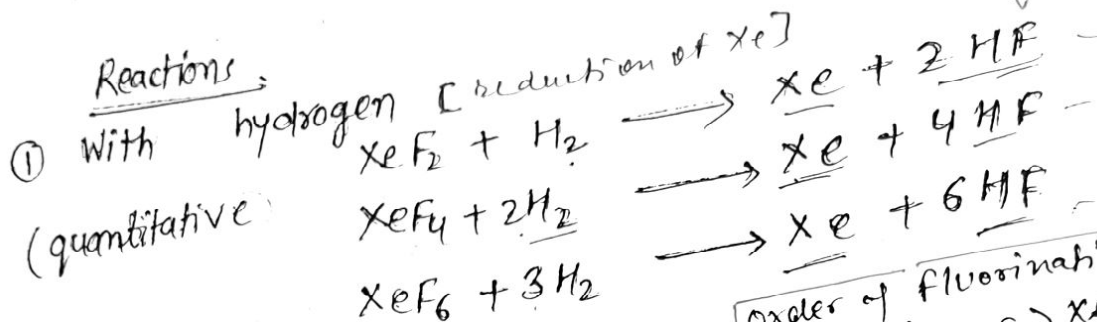
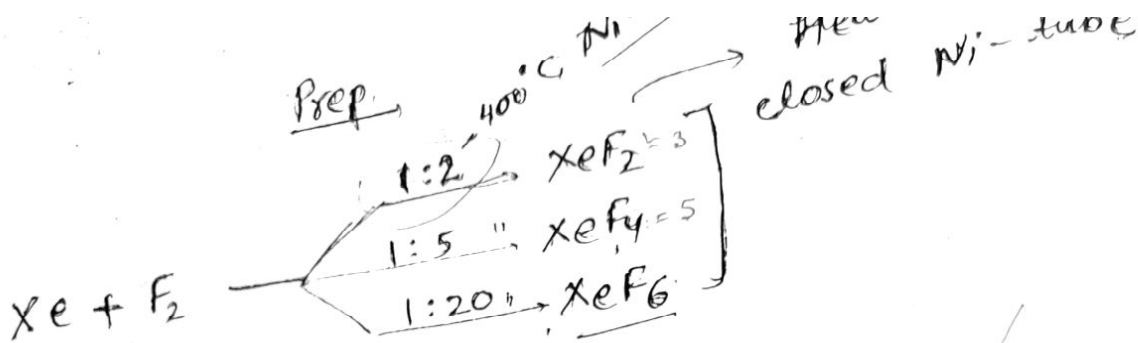
perxenate ion

Perxenate ion

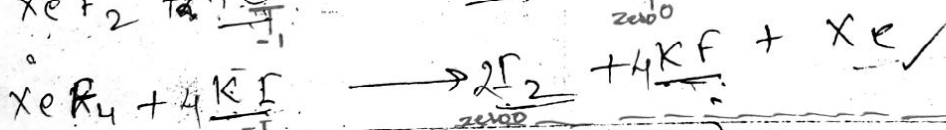
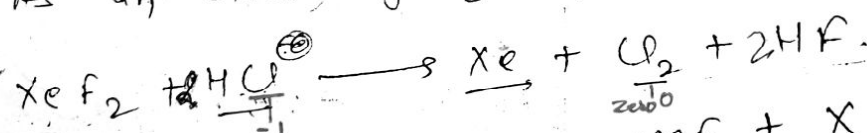
XeF_3^+ - C_{2v} - trigonal T-shape

XeF_5^+ - pentagonal planar



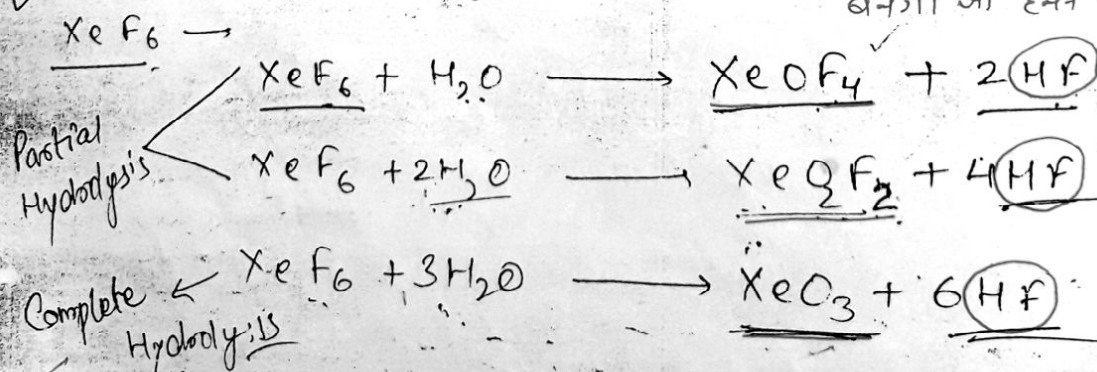


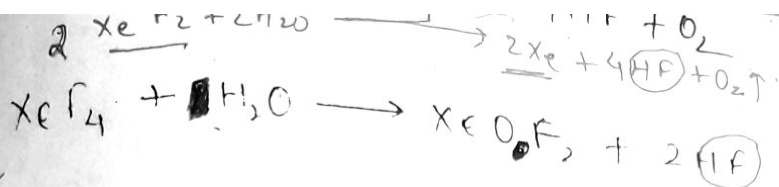
③ As an oxidising agent



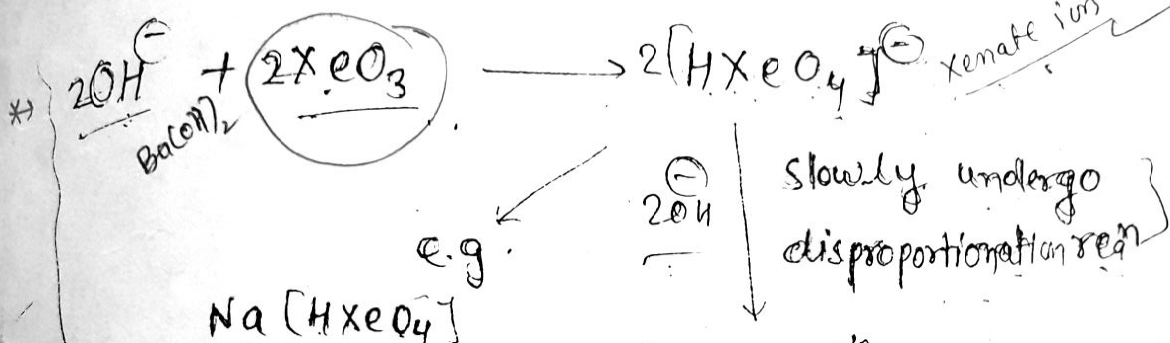
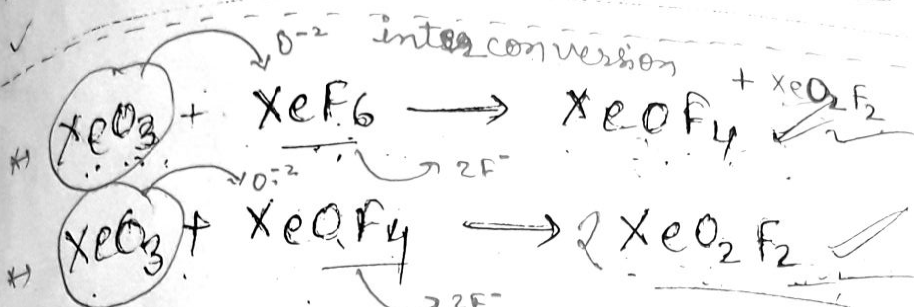
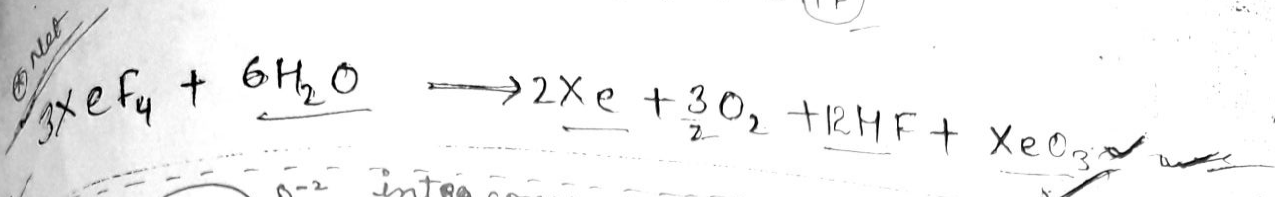
Hydrolysis (Reaction)

④ Reaction में oxy. वाला वही compd. बनेगा जो हमने पढ़े है। Page 33



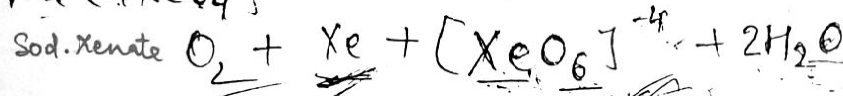


56



$\text{Na}[\text{HXeO}_4]$
Sodium xenite

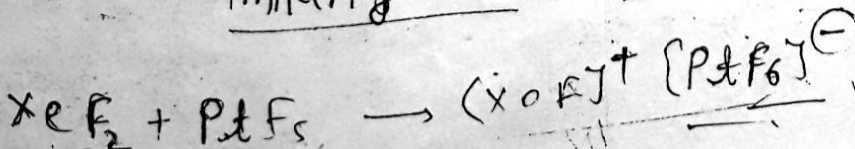
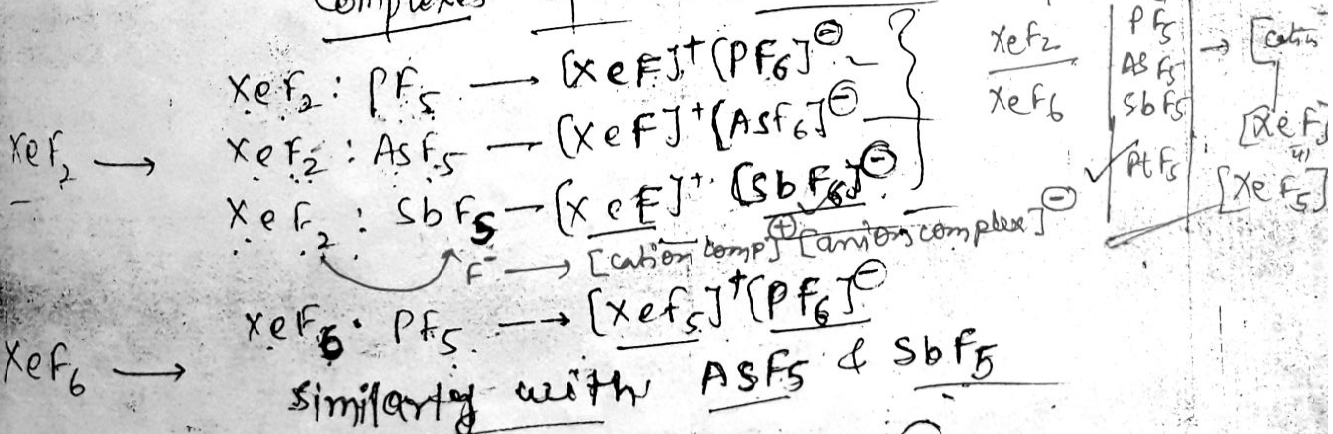
xenate ion



(Barium perxenate)

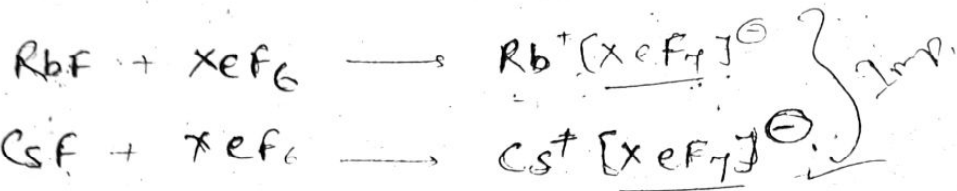


like coordination isomerism.
Complexes of Xenon fluorides -

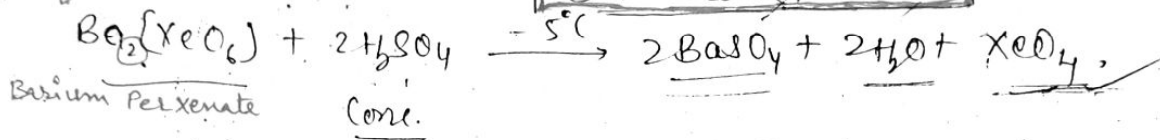


u.p P (pt)

* Same reaction in which XeF_6 accept fluoride

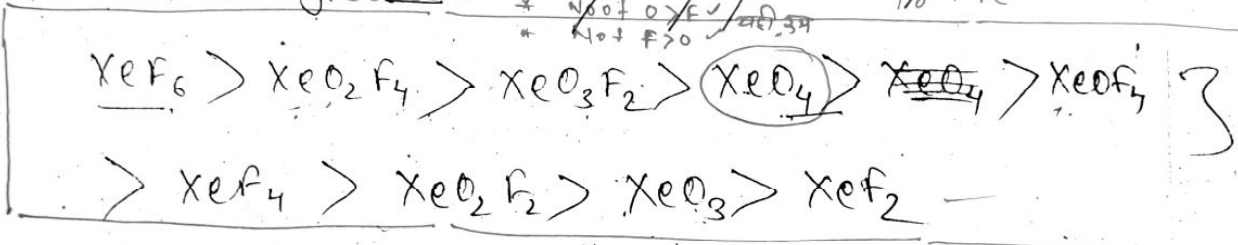


* Prep. of XeO_4



- ① Atomic structure
 - ② metal carbonyl
 - ③ p-Block

Relative acidity order - * 2 F / भारी पड़ते 2 Oxygen पर
 * No of O > F
 * No of F > O



Imp. reactions →
 $\text{XeF}_6 \xrightarrow{\text{No of oxygen 2, 3, 4, 1}} \text{XeF}_4 \xrightarrow{\text{2, 3}} \text{XeF}_2$
 reduce 2F atom on increasing one oxygen
 $\text{PH}_2\text{S} + \text{XeF}_2 \longrightarrow \text{PH}_2\text{SF}_2 + \text{Xe}$

