

**Structure/Geometry of the Following Molecules/Ions
are Given on Pages Shown Against Each Species**

Group 1 (IA)

H_2 - 495, 559; H_2^+ - 560; Li_2 - 560; H_2^- - 569

Group 2 (II A)

Be_2 - 560; BeF_2 - 512; $BeCl_2$ - 506

Group 13 (III A)

B_2 - 560; BF_3 - 513, 564; BCl_3 - 508; BO_3^{3-} - 514; BH_4^- - 517; BF_4^- - 452; $B_3N_3H_6$
(Borazine or borazole) - 930; BN - 930

Group 14 (IV A)

(i) C_2 - 561; CH_4 - 510; CO - 453, 536, 563, 568; CO_2 - 538; C_2^{2-} (Acetylide ion) - 990; C_3^{4-}
(Allylide ion) - 991; CO_3^{2-} - 539; $SnCl_2$ - 515

Group 15 (V A)

(i) N_2 - 487, 499, 561; N_2^+ - 569; NH_3 - 497, 519; NH_4^+ - 453, 518;
 PF_5 - 523; NF_3 - 564; NH_2-NH_2 or N_2H_4 - 1063; HN_3 - 1064, 1065; N_3^- - 567, 1064, 1086;

(ii) N_2O - 1073, 1089, 1090; NO - 563, 1073; NO^+ (Nitrosonium ion) - 563, 1097;
 N_2O_3 - 1074; NO_2 - 1074, 1091, 1096; NO_2^+ - 566, 1096; N_2O_4 - 1074; N_2O_5 - 1075

(iii) $H_2N_2O_2$ and $N_2O_2^{2-}$ - 1083; HNO_2 - 1083; NO_2^- - 566, 1083, 1096; HNO_3 - 1084;
 NO_3^- - 564, 1084; HNO_4 - 1084;

(iv) $N(CH_3)_3$ (Trimethylamine) and $N(SiH_3)_3$ (Trisilylamine) - 1084; NH_2^- (Amide ion)
- 1085; $N_2H_5^+$ (Hydrazinium ion) and $N_2H_6^{2+}$ (Hydrazonium ion) - 1088

(v) P_2O_3 or P_4O_6 - 1105; P_2O_5 or P_4O_{10} - 1107;

(vi) H_3PO_2 - 1117; H_3PO_3 - 1117; H_3PO_4 - 1117, 1125; $H_4P_2O_6$ - 1118; $H_4P_2O_7$ - 1118;
 HPO_3 - 1118; $[(PO_3)_3]^{3-}$ - 1124; $[(PO_3)_4]^{4-}$ - 1124; $[(PO_3)_n]^n$ - 1124; H_3PO_5 - 1119; $H_4P_2O_8$ -
1119;

(vii) PCl_3 - 1120; PCl_5 - 1121; $[PCl_4]^+$ - 1121; $[PCl_6]^-$ - 1121; $[PBr_4]^+$ - 1127; $[PI_4]^+$ -
1127; $POCl_3$ - 1121

Group 16 (VIA)

(i) O_2 - 487, 499, 562; O_2^- (Superoxide ion) - 562; O_2^{2-} (Peroxide ion) - 569; O_2^+ - 569; O_3
- 452, 542; S_8 - 1131; H_2O - 496, 520; H_3O^+ - 453; H_2O_2 - 451.

(vii)

(ii) SF_4 - 525, 564; SF_6 - 529; SCL_2 - 1136; S_2Cl_2 - 1137

(iii) SO_2 - 452, 544, 1138; SO_3 (Gaseous) - 452, 547, 1140; SO_3 (Solid) - 549; SO_3 (Solid α , β and γ forms) - 1141; SeO_2 (Solid) - 1138; O_2F_2 - 1137

(iv) H_2SO_4 - 1161; SO_3^{2-} - 564; SO_4^{2-} - 452, 1161; $\text{H}_2\text{S}_2\text{O}_3$ - 1165; $\text{S}_2\text{O}_3^{2-}$ - 1165; $\text{S}_2\text{O}_7^{2-}$ - 1166; $\text{H}_2\text{S}_2\text{O}_6$ - 1168; $\text{S}_2\text{O}_6^{2-}$ - 1168; $\text{H}_2\text{S}_3\text{O}_6$, $\text{S}_3\text{O}_6^{2-}$, $\text{H}_2\text{S}_4\text{O}_6$, $\text{S}_4\text{O}_6^{2-}$, $\text{H}_2\text{S}_5\text{O}_6$, $\text{S}_5\text{O}_6^{2-}$, $\text{H}_2\text{S}_6\text{O}_6$, $\text{S}_6\text{O}_6^{2-}$ - 1171, 1172; H_2SO_5 , $\text{H}_2\text{S}_2\text{O}_8$ - 1174; SO_5^{2-} , $\text{S}_2\text{O}_8^{2-}$ - 1175

(v) SOCl_2 - 1176; SO_2Cl_2 - 1177

Group 17 (VII A)

(i) F_2 - 497, 562; HF - 495; HF_2^- - 1198

(ii) ICl - 522; ClF_3 - 526; IF_5 - 530; IF_7 - 533

(iii) I_3^+ - 1255; ICl_2^+ - 521; IF_4^+ - 526; I_3^- - 528; ICl_2^- - 528; IBr_2^- - 1282; ICl_4^- - 1282

(iv) O_2F_2 - 1137; Cl_2O - 1223; ClO_2 - 1224; Cl_2O_6 - 1238; Cl_2O_7 - 1225; I_2O_4 - 1237; I_2O_5 - 1238; I_4O_9 - 1237

(v) ClO^- - 1227; ClO_2^- - 1234; ClO_3^- - 1234; ClO_4^- - 1236; BrO_3^- - 564, 1282; CaOCl_2 or $\text{Ca}(\text{OCl})\text{Cl}$ (Breaching powder) - 1231

(vi) CN^- (Cyanide ion) - 1255; NC^- (Isocyanide ion) - 1255; OCN^- (Cyanate or oxycyanide ion) - 1255; NCO^- (Isocyanate ion) - 1255; SCN^- (Thiocyanate ion) - 1255; NCS^- (Isothiocyanate ion) - 1255; $\text{C}^+\text{N}^-\text{O}^-$ (Fulminate ion) - 1255

Group 18 (Zero)

He_2 - 560; Ne_2 - 562; XeO_3 - 564; XeO_4 - 1281; XeF_2 - 528; XeF_4 - 531, 564; XeF_6 - 534; XeOF_4 - 1276; XeOF_2 - 1282; XeO_2F_2 - 1282; XeO_3F_2 - 1282; XeO_2F_4 - 1282