TABLE C.2 Some common point groups

Point group	*Diagnostic elements*	*Other elements*	*Examples*
$\mathbf{C_1}$	E only		SiHClBrI
$\mathbf{C_s}$	E, σ only		SiH_2ClBr
$\mathbf{C_i}$	E, i only		*trans*-HClBrSiSiBrClH
$\mathbf{C_2}$	E, C_2 only		H_2O_2 (non-planar)
$\mathbf{C_{2v}}$	E, C_2, $2\sigma_v$		H_2O, SiH_2Cl_2
$\mathbf{C_{3v}}$	E, C_3, $3\sigma_v$		NH_3, $SiHCl_3$
$\mathbf{C_{4v}}$	E, C_4, $4\sigma_v$	$C_2 = C_4^2$	BrF_5, SF_5Cl
$\mathbf{C_{2h}}$	E, C_2, σ_h	i	*trans*-$C_6H_2Cl_2Br_2$
$\mathbf{C_{3h}}$	E, C_3, σ_h		$B(OH)_3$ in form
$\mathbf{D_2}$	E, C_2, $2C_2$		
$\mathbf{D_{2d}}$	E, C_2, $2C_2$, $2\sigma_v$	S_4	$H_2C{=}C{=}CH_2$
$\mathbf{D_{3d}}$	E, C_3, $3C_2$, $3\sigma_v$	i, S_6	C_2H_6, Si_2Cl_6 (staggered)
$\mathbf{D_{4d}}$	E, C_4, $4C_2$, $4\sigma_v$	$C_2 = C_4^2$, S_8	S_8 (puckered ring)
$\mathbf{D_{5d}}$	E, C_5, $5C_2$, $5\sigma_v$	i, S_{10}	$(C_5H_5)_2Fe$ (staggered)
$\mathbf{D_{2h}}$	E, C_2, $2C_2$, σ_h	i, $2\sigma_v$	B_2Cl_4, *trans*-$A_2B_2C_2M$, ethylene
$\mathbf{D_{3h}}$	E, C_3, $3C_2$, σ_h	S_3, $3\sigma_v$	BF_3, PF_5
$\mathbf{D_{4h}}$	E, C_4, $4C_2$, σ_h	i, S_4, C_2, $4\sigma_v$	$PtCl_4^{2-}$, *trans*-A_2B_4M
$\mathbf{D_{5h}}$	E, C_5, $5C_2$, σ_h	S_5, $5\sigma_v$	C_5H_5, $(C_5H_5)_2Ru$ (eclipsed)
$\mathbf{D_{6h}}$	E, C_6, $6C_2$, σ_h	i, S_6, S_3, C_3, C_2, $6\sigma_v$	C_6H_6
$\mathbf{T_d}$	E, $4C_3$, $3C_2$, $3S_4$, and $6\sigma_v$		SiH_4, $GeCl_4$, $TiCl_4$
$\mathbf{O_h}$	E, $3C_4$, $4C_3$, $6C_2$, i, $3S_4$, $4S_6$, $3\sigma_h$, $6\sigma_v$		SF_6, ML_6, PF_6^-
$\mathbf{I_h}$	E, $6C_5$, $10C_3$, $15C_2$, i, $10S_6$, $6S_{10}$, 15σ		$B_{12}H_{12}^{2-}$, B_{12} (Fig. 17.7d)