

$T_d \rightarrow$	T_d	E	$8C_3$	$3C_2$	$6S_4$	$6\sigma_d$	
A_1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_2	1	1	1	-1	-1	1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E	2	-1	2	0	0	0	(R_x, R_y, R_z)
T_1	3	0	-1	1	1	-1	(R_x, R_y, R_z)
T_2	3	0	-1	-1	-1	1	(x, y, z)

$T_d \rightarrow$	T_d	E	$8C_3$	$3C_2$	$6S_4$	$6\sigma_d$	
A_1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_2	1	1	1	-1	-1	1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E	2	-1	2	0	0	0	(R_x, R_y, R_z)
T_1	3	0	-1	1	1	-1	$(R_x, R_y, R_z); (x, y, z)$
T_2	3	0	-1	-1	-1	1	(x, y, z)

$O \rightarrow$	O	E	$6C_4$	$3C_2(=C_4^2)$	$8C_3$	$6C_2$	
A_1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_2	1	-1	1	1	1	-1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E	2	0	2	-1	0	0	(x, y, z)
T_1	3	1	-1	-1	0	-1	$(R_x, R_y, R_z); (x, y, z)$
T_2	3	-1	-1	-1	0	1	(x, y, z)

$O \rightarrow$	O	E	$8C_3$	$6C_2$	$6C_4$	$3C_2(=C_4^2)$	i	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$	
A_{1g}	1	1	1	1	1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_{2g}	1	1	-1	-1	1	1	1	-1	-1	1	-1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E_g	2	-1	0	0	2	2	2	0	0	-1	2	(x, y, z)
T_{1g}	3	0	-1	1	-1	-1	3	1	0	-1	-1	(R_x, R_y, R_z)
T_{2g}	3	0	1	-1	-1	-1	3	-1	0	-1	1	(R_x, R_y, R_z)
A_{1u}	1	1	1	1	1	1	-1	-1	-1	-1	-1	(x, y, z)
A_{2u}	1	1	1	-1	-1	-1	-1	-1	-1	-1	1	(x, y, z)
E_u	2	-1	0	0	2	2	-2	0	1	-2	0	(x, y, z)
T_{1u}	3	0	-1	1	-1	-1	-3	-1	0	1	1	(x, y, z)
T_{2u}	3	0	1	-1	-1	-1	-3	1	0	1	-1	(x, y, z)

$O_h \rightarrow$	O_h	E	$8C_3$	$6C_2$	$6C_4$	$3C_2(=C_4^2)$	i	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$	
A_{1g}	1	1	1	1	1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_{2g}	1	1	-1	-1	1	1	1	-1	-1	1	-1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E_g	2	-1	0	0	2	2	2	0	0	-1	2	(x, y, z)
T_{1g}	3	0	-1	1	-1	-1	3	1	0	-1	-1	(R_x, R_y, R_z)
T_{2g}	3	0	1	-1	-1	-1	3	-1	0	-1	1	(R_x, R_y, R_z)
A_{1u}	1	1	1	1	1	1	-1	-1	-1	-1	-1	(x, y, z)
A_{2u}	1	1	1	-1	-1	-1	-1	-1	-1	-1	1	(x, y, z)
E_u	2	-1	0	0	2	2	-2	0	1	-2	0	(x, y, z)
T_{1u}	3	0	-1	1	-1	-1	-3	-1	0	1	1	(x, y, z)
T_{2u}	3	0	1	-1	-1	-1	-3	1	0	1	-1	(x, y, z)

$O_h \rightarrow$	O_h	E	$8C_3$	$6C_2$	$6C_4$	$3C_2(=C_4^2)$	i	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$	
A_{1g}	1	1	1	1	1	1	1	1	1	1	1	$x^2 + y^2 + z^2$
A_{2g}	1	1	-1	-1	1	1	1	-1	-1	1	-1	$(2z^2 - x^2 - y^2, x^2 - y^2)$
E_g	2	-1	0	0	2	2	2	0	0	-1	2	(x, y, z)
T_{1g}	3	0	-1	1	-1	-1	3	1	0	-1	-1	(R_x, R_y, R_z)
T_{2g}	3	0	1	-1	-1	-1	3	-1	0	-1	1	(R_x, R_y, R_z)
A_{1u}	1	1	1	1	1	1	-1	-1	-1	-1	-1	(x, y, z)
A_{2u}	1	1	1	-1	-1	-1	-1	-1	-1	-1	1	(x, y, z)
E_u	2	-1	0	0	2	2	-2	0	1	-2	0	(x, y, z)
T_{1u}	3	0	-1	1	-1	-1	-3	-1	0	1	1	(x, y, z)
T_{2u}	3	0	1	-1	-1	-1	-3	1	0	1	-1	(x, y, z)