

PG No. 36  $D_{3d}(1)$   $\bar{3}m$  (-31m setting) [ trigonal ]

\* generator :  $3_{001}^+$ ,  $2_{1-10}$ ,  $-1$

\* conjugacy class

[1] : 1  
 $[2_{120}]$  :  $2_{120}$ ,  $2_{210}$ ,  $2_{1-10}$   
 $[3_{001}^+]$  :  $3_{001}^+$ ,  $3_{001}^-$   
 $[-1]$  :  $-1$   
 $[m_{120}]$  :  $m_{120}$ ,  $m_{210}$ ,  $m_{1-10}$   
 $[-3_{001}^+]$  :  $-3_{001}^+$ ,  $-3_{001}^-$

\* symmetry operation

Table 1: Symmetry operations for 3d polar vector.

No.	tag	matrix (polar)	det
1	1	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
2	$3_{001}^+$	$\begin{bmatrix} 0 & -1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
3	$3_{001}^-$	$\begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
4	$2_{1-10}$	$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	1
5	$2_{120}$	$\begin{bmatrix} -1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	1
6	$2_{210}$	$\begin{bmatrix} 1 & 0 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	1
7	$-1$	$\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
8	$-3_{001}^+$	$\begin{bmatrix} 0 & 1 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
9	$-3_{001}^-$	$\begin{bmatrix} 1 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
10	$m_{1-10}$	$\begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	-1
11	$m_{120}$	$\begin{bmatrix} 1 & -1 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	-1

*continued ...*

Table 1

No.	tag	matrix (polar)	det
12	m <sub>210</sub>	$\begin{bmatrix} -1 & 0 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	-1