

MPG No. 36.5.148  $\bar{3}m'$  (-31m' setting) [ Type III, trigonal ]

\* symmetry operation

Table 1: Symmetry operations for 3d polar vector.

| No. | tag          | matrix (polar)   | det | TR |
|-----|--------------|--|-----|----|
| 1   | 1            | $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$    | 1   | 1  |
| 2   | $3_{001}^+$  | $\begin{bmatrix} 0 & -1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$  | 1   | 1  |
| 3   | $3_{001}^-$  | $\begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$  | 1   | 1  |
| 4   | -1           | $\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ | -1  | 1  |
| 5   | $-3_{001}^+$ | $\begin{bmatrix} 0 & 1 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$  | -1  | 1  |
| 6   | $-3_{001}^-$ | $\begin{bmatrix} 1 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$  | -1  | 1  |
| 7   | $2_{1-10}'$  | $\begin{bmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ | 1   | -1 |
| 8   | $2_{120}'$   | $\begin{bmatrix} -1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$  | 1   | -1 |
| 9   | $2_{210}'$   | $\begin{bmatrix} 1 & 0 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$  | 1   | -1 |
| 10  | $m_{1-10}'$  | $\begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$    | -1  | -1 |
| 11  | $m_{120}'$   | $\begin{bmatrix} 1 & -1 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$  | -1  | -1 |
| 12  | $m_{210}'$   | $\begin{bmatrix} -1 & 0 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$  | -1  | -1 |