

MPG No. 36.3.146  $\bar{3}'m$  (-3'1m setting) [ Type III, trigonal ] [M tensor]

\* Rank 0 tensor. \* Rank 1 tensor. \* Rank 2 tensor (s). \* Rank 2 tensor (a).

$$\begin{bmatrix} 0 & M_{xy} & 0 \\ -M_{xy} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$M_{xy} = T_{pz}^{(1)}$$

\* Rank 3 tensor (s). \* Rank 3 tensor (a). \* Rank 4 tensor (sss).

$$\begin{bmatrix} 0 & 0 & 0 & M_{xxyz} & 0 & 0 \\ 0 & 0 & 0 & -M_{xxyz} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ M_{xxyz} & -M_{xxyz} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & M_{xxyz} \\ 0 & 0 & 0 & 0 & M_{xxyz} & 0 \end{bmatrix}$$

$$M_{xxyz} = M_{gb}^{(1)}$$

\* Rank 4 tensor (ssa).

$$\begin{bmatrix} 0 & 0 & 0 & M_{xxyz} & 0 & M_{xxxy} \\ 0 & 0 & 0 & -M_{xxyz} & 0 & -M_{xxxy} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -M_{xxyz} & M_{xxyz} & 0 & 0 & M_{yzzx} & 0 \\ 0 & 0 & 0 & -M_{yzzx} & 0 & -M_{xxyz} \\ -M_{xxxy} & M_{xxxy} & 0 & 0 & M_{xxyz} & 0 \end{bmatrix}$$

$$M_{xxyz} = 2T_{f2}^{(1)}$$

$$M_{xxxy} = -2T_{faz}^{(1)} + 2T_{pz}^{(1)}$$

$$M_{yzzx} = -4T_{faz}^{(1)} - T_{pz}^{(1)}$$

\* Rank 4 tensor (aas). \* Rank 4 tensor (aaa).

$$\begin{bmatrix} 0 & M_{yzzx} & 0 \\ -M_{yzzx} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$M_{yzzx} = -T_{pz}^{(2)}$$

\* Rank 4 tensor (sa).

$$\begin{bmatrix} M_{xxyz} & 0 & M_{xxxy} \\ -M_{xxyz} & 0 & M_{xxxy} \\ 0 & 0 & M_{zzxy} \\ 0 & M_{yzzx} & 0 \\ M_{yzzx} & 0 & 0 \\ 0 & -M_{xxyz} & 0 \end{bmatrix}$$

$$M_{xxyz} = T_{f2}^{(2)}$$

$$M_{xxxy} = -T_{faz}^{(2)} + T_{pz}^{(3)}$$

$$M_{zzxy} = 2T_{faz}^{(2)} + T_{pz}^{(3)} + 2T_{pz}^{(4)}$$

$$M_{yzzx} = -T_{faz}^{(2)} + T_{pz}^{(4)}$$

\* Rank 4 tensor (as).

$$\begin{bmatrix} M_{yzxx} & -M_{yzxx} & 0 & 0 & M_{yzzx} & 0 \\ 0 & 0 & M_{yzzx} & 0 & 0 & -M_{yzxx} \\ M_{xyxx} & M_{xyxx} & M_{xyzz} & 0 & 0 & 0 \end{bmatrix}$$

$$M_{yzxx} = T_{f2}^{(3)}$$

$$M_{yzzx} = -T_{faz}^{(3)} + T_{pz}^{(6)}$$

$$M_{xyxx} = -T_{faz}^{(3)} + T_{pz}^{(5)}$$

$$M_{xyzz} = 2T_{faz}^{(3)} + T_{pz}^{(5)} + 2T_{pz}^{(6)}$$

\* Rank 4 tensor (s).

$$\begin{bmatrix} 0 & 0 & 0 & M_{xxyz} & 0 & M_{xxxy} & M_{xxzy} & 0 & M_{xxyx} \\ 0 & 0 & 0 & -M_{xxyz} & 0 & -M_{xxxy} & -M_{xxzy} & 0 & -M_{xxyx} \\ 0 & 0 & 0 & 0 & 0 & M_{zzyx} & 0 & 0 & -M_{zzyx} \\ M_{yzxx} & -M_{yzxx} & 0 & 0 & M_{yzzx} & 0 & 0 & M_{yzzx} & 0 \\ 0 & 0 & 0 & -M_{yzzx} & 0 & M_{yzzx} & -M_{yzzx} & 0 & M_{yzzx} \\ -\frac{M_{xxyy}}{2} - \frac{M_{xxyx}}{2} & \frac{M_{xxyy}}{2} + \frac{M_{xxyx}}{2} & 0 & 0 & M_{xxzy} & 0 & 0 & M_{xxyz} & 0 \end{bmatrix}$$

$$M_{xxyz} = M_{gb}^{(1)} + 2T_{f2}^{(1)} + T_{f2}^{(2)}$$

$$M_{xxxy} = -2T_{faz}^{(1)} - T_{faz}^{(2)} + 2T_{pz}^{(1)} + T_{pz}^{(3)}$$

$$M_{xxzy} = M_{gb}^{(1)} + 2T_{f2}^{(1)} - T_{f2}^{(2)}$$

$$M_{xxyx} = -2T_{faz}^{(1)} + T_{faz}^{(2)} + 2T_{pz}^{(1)} - T_{pz}^{(3)}$$

$$M_{zzyy} = 2T_{faz}^{(2)} + T_{pz}^{(3)} + 2T_{pz}^{(4)}$$

$$M_{yzzx} = M_{gb}^{(1)} - 2T_{f2}^{(1)}$$

$$M_{yzzx} = -4T_{faz}^{(1)} - T_{faz}^{(2)} - T_{pz}^{(1)} + T_{pz}^{(4)}$$

$$M_{yzzx} = -4T_{faz}^{(1)} + T_{faz}^{(2)} - T_{pz}^{(1)} - T_{pz}^{(4)}$$

\* Rank 4 tensor (a).

$$\begin{bmatrix} M_{yzxx} & -M_{yzxx} & 0 & 0 & M_{yzzx} & 0 & 0 & M_{yzzx} & 0 \\ 0 & 0 & 0 & M_{yzzx} & 0 & -M_{yzxx} & M_{yzzx} & 0 & -M_{yzxx} \\ M_{xyxx} & M_{xyxx} & M_{xyzz} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$M_{yzxx} = T_{f2}^{(3)}$$

$$M_{yzzx} = -T_{faz}^{(3)} - T_{pz}^{(2)} + T_{pz}^{(6)}$$

$$M_{yzzx} = -T_{faz}^{(3)} + T_{pz}^{(2)} + T_{pz}^{(6)}$$

$$M_{xyxx} = -T_{faz}^{(3)} + T_{pz}^{(5)}$$

$$M_{xyzz} = 2T_{faz}^{(3)} + T_{pz}^{(5)} + 2T_{pz}^{(6)}$$

\* Rank 4 tensor (t).

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & M_{yyyz} \\ 0 & 0 & 0 \\ 0 & M_{yyyz} & 0 \\ 0 & 0 & 0 \\ 0 & 0 & -M_{yyyz} \\ 0 & 0 & 0 \\ 0 & -M_{yyyz} & 0 \\ 0 & 0 & 0 \\ -M_{yyyz} & 0 & 0 \end{bmatrix}$$

$$M_{yyyz} = -M_{gb}^{(1)}$$