

MPG No. 25.2.92 6mm1' [ Type II, hexagonal ] [G tensor]

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

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

$$G_{xy} = Q_{pz}^{(1)}$$

\* Rank 3 tensor (s).

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ G_{yzx} & 0 & 0 \\ 0 & -G_{yzx} & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$G_{yzx} = -3Q_{du}^{(1)}$$

\* Rank 3 tensor (a).

$$\begin{bmatrix} G_{yzx} & 0 & 0 \\ 0 & G_{yzx} & 0 \\ 0 & 0 & G_{xyz} \end{bmatrix}$$

$$G_{yzx} = -Q_{du}^{(2)} + Q_s^{(1)}$$

$$G_{xyz} = 2Q_{du}^{(2)} + Q_s^{(1)}$$

\* Rank 4 tensor (sss). \* Rank 4 tensor (ssa).

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & G_{xxxx} \\ 0 & 0 & 0 & 0 & 0 & -G_{xxxx} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & G_{yzzx} & 0 \\ 0 & 0 & 0 & -G_{yzzx} & 0 & 0 \\ -G_{xxxx} & G_{xxxx} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$G_{xxxx} = -2Q_{faz}^{(1)} + 2Q_{pz}^{(1)}$$

$$G_{yzzx} = -4Q_{faz}^{(1)} - Q_{pz}^{(1)}$$

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

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

$$G_{yzzx} = -Q_{pz}^{(2)}$$

\* Rank 4 tensor (sa).

$$\begin{bmatrix} 0 & 0 & G_{xxxx} \\ 0 & 0 & G_{xxxx} \\ 0 & 0 & G_{zzyx} \\ 0 & G_{yzzx} & 0 \\ G_{yzzx} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$G_{xxyy} = -Q_{faz}^{(2)} + Q_{pz}^{(3)}$$

$$G_{zzxy} = 2Q_{faz}^{(2)} + Q_{pz}^{(3)} + 2Q_{pz}^{(4)}$$

$$G_{yzzx} = -Q_{faz}^{(2)} + Q_{pz}^{(4)}$$

\* Rank 4 tensor (as).

$$\begin{bmatrix} 0 & 0 & 0 & 0 & G_{yzzx} & 0 \\ 0 & 0 & 0 & G_{yzzx} & 0 & 0 \\ G_{xyxx} & G_{xyxx} & G_{xyzz} & 0 & 0 & 0 \end{bmatrix}$$

$$G_{yzzx} = -Q_{faz}^{(3)} + Q_{pz}^{(6)}$$

$$G_{xyxx} = -Q_{faz}^{(3)} + Q_{pz}^{(5)}$$

$$G_{xyzz} = 2Q_{faz}^{(3)} + Q_{pz}^{(5)} + 2Q_{pz}^{(6)}$$

\* Rank 4 tensor (s).

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & G_{xxyy} & 0 & 0 & G_{xxyx} \\ 0 & 0 & 0 & 0 & 0 & -G_{xxyx} & 0 & 0 & -G_{xxyy} \\ 0 & 0 & 0 & 0 & 0 & G_{zzxy} & 0 & 0 & -G_{zzxy} \\ 0 & 0 & 0 & 0 & G_{yzzx} & 0 & 0 & G_{yzzx} & 0 \\ 0 & 0 & 0 & -G_{yzxx} & 0 & 0 & -G_{yzxx} & 0 & 0 \\ -\frac{G_{xxyy}}{2} - \frac{G_{xxyx}}{2} & \frac{G_{xxyy}}{2} + \frac{G_{xxyx}}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$G_{xxyy} = -2Q_{faz}^{(1)} - Q_{faz}^{(2)} + 2Q_{pz}^{(1)} + Q_{pz}^{(3)}$$

$$G_{xxyx} = -2Q_{faz}^{(1)} + Q_{faz}^{(2)} + 2Q_{pz}^{(1)} - Q_{pz}^{(3)}$$

$$G_{zzxy} = 2Q_{faz}^{(2)} + Q_{pz}^{(3)} + 2Q_{pz}^{(4)}$$

$$G_{yzzx} = -4Q_{faz}^{(1)} - Q_{faz}^{(2)} - Q_{pz}^{(1)} + Q_{pz}^{(4)}$$

$$G_{yzxx} = -4Q_{faz}^{(1)} + Q_{faz}^{(2)} - Q_{pz}^{(1)} - Q_{pz}^{(4)}$$

\* Rank 4 tensor (a).

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

$$G_{yzzx} = -Q_{faz}^{(3)} - Q_{pz}^{(2)} + Q_{pz}^{(6)}$$

$$G_{yzxx} = -Q_{faz}^{(3)} + Q_{pz}^{(2)} + Q_{pz}^{(6)}$$

$$G_{xyxx} = -Q_{faz}^{(3)} + Q_{pz}^{(5)}$$

$$G_{xyzz} = 2Q_{faz}^{(3)} + Q_{pz}^{(5)} + 2Q_{pz}^{(6)}$$

\* Rank 4 tensor (t).