

MPG No. 3.1.6 2 [ Type I, monoclinic ] [T tensor]

\* Rank 0 tensor.

$$[T]$$

$$T = T_s^{(1)}$$

\* Rank 1 tensor.

$$[0 \quad T_y \quad 0]$$

$$T_y = T_{py}^{(1)}$$

\* Rank 2 tensor (s).

$$\begin{bmatrix} T_{xx} & 0 & T_{xz} \\ 0 & T_{yy} & 0 \\ T_{xz} & 0 & T_{zz} \end{bmatrix}$$

$$T_{xx} = -T_{du}^{(1)} + T_{dv}^{(1)} + T_s^{(1)}$$

$$T_{xz} = T_{dxz}^{(1)}$$

$$T_{yy} = -T_{du}^{(1)} - T_{dv}^{(1)} + T_s^{(1)}$$

$$T_{zz} = 2T_{du}^{(1)} + T_s^{(1)}$$

\* Rank 2 tensor (a).

$$\begin{bmatrix} 0 & 0 & T_{xz} \\ 0 & 0 & 0 \\ -T_{xz} & 0 & 0 \end{bmatrix}$$

$$T_{xz} = -M_{py}^{(1)}$$

\* Rank 3 tensor (s).

$$\begin{bmatrix} 0 & T_{xxy} & 0 \\ 0 & T_{yyy} & 0 \\ 0 & T_{zzy} & 0 \\ T_{yxx} & 0 & T_{yzz} \\ 0 & T_{zxy} & 0 \\ T_{xyx} & 0 & T_{xyz} \end{bmatrix}$$

$$T_{xxy} = 2M_{dxz}^{(1)} - T_{fay}^{(1)} - T_{fbz}^{(1)} + T_{py}^{(1)}$$

$$T_{yyy} = 2T_{fay}^{(1)} + T_{py}^{(1)} + 2T_{py}^{(2)}$$

$$T_{zzy} = -2M_{dxz}^{(1)} - T_{fay}^{(1)} + T_{fbz}^{(1)} + T_{py}^{(1)}$$

$$T_{yxx} = -3M_{du}^{(1)} - M_{dv}^{(1)} + T_{f3}^{(1)}$$

$$T_{yzz} = M_{dxz}^{(1)} - T_{fay}^{(1)} + T_{fbz}^{(1)} + T_{py}^{(2)}$$

$$T_{zxy} = 3M_{du}^{(1)} - M_{dv}^{(1)} + T_{f3}^{(1)}$$

$$T_{xyx} = -M_{dxz}^{(1)} - T_{fay}^{(1)} - T_{fbz}^{(1)} + T_{py}^{(2)}$$

$$T_{xyz} = 2M_{dv}^{(1)} + T_{f3}^{(1)}$$

\* Rank 3 tensor (a).

$$\begin{bmatrix} T_{yxx} & 0 & T_{yzz} \\ 0 & T_{zxy} & 0 \\ T_{xyx} & 0 & T_{xyz} \end{bmatrix}$$

$$T_{yzx} = -M_{du}^{(2)} + M_{dv}^{(2)} + M_s^{(1)}$$

$$T_{yzz} = M_{dxz}^{(2)} - T_{py}^{(3)}$$

$$T_{zxy} = -M_{du}^{(2)} - M_{dv}^{(2)} + M_s^{(1)}$$

$$T_{xyx} = M_{dxz}^{(2)} + T_{py}^{(3)}$$

$$T_{xyz} = 2M_{du}^{(2)} + M_s^{(1)}$$

\* Rank 4 tensor (sss).

$$\begin{bmatrix} T_{xxxx} & T_{xxyy} & T_{xxzz} & 0 & T_{xxzx} & 0 \\ T_{xxyy} & T_{yyyy} & T_{yyzz} & 0 & T_{yyzx} & 0 \\ T_{xxzz} & T_{yyzz} & T_{zzzz} & 0 & T_{zzzx} & 0 \\ 0 & 0 & 0 & T_{yzyz} & 0 & T_{yzxy} \\ T_{xxzx} & T_{yyzx} & T_{zzzx} & 0 & T_{zxzx} & 0 \\ 0 & 0 & 0 & T_{yzxy} & 0 & T_{xyxy} \end{bmatrix}$$

$$T_{xxxx} = -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)}$$

$$T_{xxyy} = -2T_{du}^{(1)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{xxzz} = T_{du}^{(1)} + T_{dv}^{(1)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{xxzx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{yyyy} = -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)}$$

$$T_{yyzz} = T_{du}^{(1)} - T_{dv}^{(1)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{yyzx} = T_{dxz}^{(1)} + 2T_{gby}^{(1)}$$

$$T_{zzzz} = 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)}$$

$$T_{zzzx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{yzyz} = T_{du}^{(2)} - T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)}$$

$$T_{yzxy} = T_{dxz}^{(2)} + 2T_{gby}^{(1)}$$

$$T_{zxzx} = T_{du}^{(2)} + T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)}$$

$$T_{xyxy} = -2T_{du}^{(2)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(2)}$$

\* Rank 4 tensor (ssa).

$$\begin{bmatrix} 0 & T_{xxyy} & T_{xxzz} & 0 & T_{xxzx} & 0 \\ -T_{xxyy} & 0 & T_{yyzz} & 0 & T_{yyzx} & 0 \\ -T_{xxzz} & -T_{yyzz} & 0 & 0 & T_{zzzx} & 0 \\ 0 & 0 & 0 & 0 & 0 & T_{yzxy} \\ -T_{xxzx} & -T_{yyzx} & -T_{zzzx} & 0 & 0 & 0 \\ 0 & 0 & 0 & -T_{yzxy} & 0 & 0 \end{bmatrix}$$

$$T_{xxyy} = 4M_{f3}^{(1)} - 2T_{dv}^{(3)}$$

$$T_{xxzz} = -4M_{f3}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(3)}$$

$$T_{xxzx} = 2M_{fay}^{(1)} + 2M_{fb}^{(1)} - 2M_{py}^{(1)} + T_{dxz}^{(3)}$$

$$T_{yyzz} = 4M_{f3}^{(1)} + 3T_{du}^{(3)} + T_{dv}^{(3)}$$

$$T_{yyzx} = -4M_{fb}^{(1)} + T_{dxz}$$

$$T_{zzzx} = -2M_{fay}^{(1)} + 2M_{fb}^{(1)} + 2M_{py}^{(1)} + T_{dxz}^{(3)}$$

$$T_{yzxy} = 4M_{fay}^{(1)} + M_{py}^{(1)}$$

\* Rank 4 tensor (aas).

$$\begin{bmatrix} T_{zyz} & 0 & T_{yzxy} \\ 0 & T_{zxzx} & 0 \\ T_{yzxy} & 0 & T_{xyxy} \end{bmatrix}$$

$$T_{yzyz} = -2T_{du}^{(4)} + 2T_{dv}^{(4)} + T_s^{(3)}$$

$$T_{yzxy} = 2T_{dxz}^{(4)}$$

$$T_{zxzx} = -2T_{du}^{(4)} - 2T_{dv}^{(4)} + T_s^{(3)}$$

$$T_{xyxy} = 4T_{du}^{(4)} + T_s^{(3)}$$

\* Rank 4 tensor (aaa).

$$\begin{bmatrix} 0 & 0 & T_{yzxy} \\ 0 & 0 & 0 \\ -T_{yzxy} & 0 & 0 \end{bmatrix}$$

$$T_{yzxy} = M_{py}^{(2)}$$

\* Rank 4 tensor (sa).

$$\begin{bmatrix} 0 & T_{xxzx} & 0 \\ 0 & T_{yyzx} & 0 \\ 0 & T_{zzzx} & 0 \\ T_{yzyz} & 0 & T_{yzxy} \\ 0 & T_{zxzx} & 0 \\ T_{xyyz} & 0 & T_{xyxy} \end{bmatrix}$$

$$T_{xxzx} = -M_{fay}^{(2)} - M_{fbg}^{(2)} + M_{py}^{(3)} + 2T_{dxz}^{(5)}$$

$$T_{yyzx} = 2M_{fay}^{(2)} + M_{py}^{(3)} + 2M_{py}^{(4)}$$

$$T_{zzzx} = -M_{fay}^{(2)} + M_{fbg}^{(2)} + M_{py}^{(3)} - 2T_{dxz}^{(5)}$$

$$T_{yzyz} = M_{f3}^{(2)} - 3T_{du}^{(5)} - T_{dv}^{(5)}$$

$$T_{yzxy} = -M_{fay}^{(2)} + M_{fbg}^{(2)} + M_{py}^{(4)} + T_{dxz}^{(5)}$$

$$T_{zxzx} = M_{f3}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(5)}$$

$$T_{xyyz} = -M_{fay}^{(2)} - M_{fbg}^{(2)} + M_{py}^{(4)} - T_{dxz}^{(5)}$$

$$T_{xyxy} = M_{f3}^{(2)} + 2T_{dv}^{(5)}$$

\* Rank 4 tensor (as).

$$\begin{bmatrix} 0 & 0 & 0 & T_{yzyz} & 0 & T_{yzxy} \\ T_{zxzx} & T_{zxxy} & T_{zxzz} & 0 & T_{zxzx} & 0 \\ 0 & 0 & 0 & T_{xyyz} & 0 & T_{xyxy} \end{bmatrix}$$

$$T_{yzyz} = M_{f3}^{(3)} - 3T_{du}^{(6)} - T_{dv}^{(6)}$$

$$T_{yzxy} = -M_{fay}^{(3)} - M_{fbg}^{(3)} + M_{py}^{(6)} - T_{dxz}^{(6)}$$

$$T_{zxzx} = -M_{fay}^{(3)} - M_{fbg}^{(3)} + M_{py}^{(5)} + 2T_{dxz}^{(6)}$$

$$T_{zxxy} = 2M_{fay}^{(3)} + M_{py}^{(5)} + 2M_{py}^{(6)}$$

$$T_{zxzz} = -M_{fay}^{(3)} + M_{fbg}^{(3)} + M_{py}^{(5)} - 2T_{dxz}^{(6)}$$

$$T_{zxzx} = M_{f3}^{(3)} + 3T_{du}^{(6)} - T_{dv}^{(6)}$$

$$T_{xyyz} = -M_{fay}^{(3)} + M_{fbg}^{(3)} + M_{py}^{(6)} + T_{dxz}^{(6)}$$

$$T_{xyxy} = M_{f3}^{(3)} + 2T_{dv}^{(6)}$$

\* Rank 4 tensor (s).

$$\begin{bmatrix} T_{xxxx} & T_{xxyy} & T_{xzzz} & 0 & T_{xxzx} & 0 & 0 & T_{xxxz} & 0 \\ T_{yyxx} & T_{yyyy} & T_{yyzz} & 0 & T_{yyzx} & 0 & 0 & T_{yyxz} & 0 \\ T_{zzxx} & T_{zzyy} & T_{zzzz} & 0 & T_{zzzx} & 0 & 0 & T_{zzxz} & 0 \\ 0 & 0 & 0 & T_{yzyz} & 0 & T_{yzxy} & T_{yzyy} & 0 & T_{yzyx} \\ T_{zxzx} & T_{zxxy} & T_{zxzz} & 0 & T_{zxzx} & 0 & 0 & T_{zxzx} & 0 \\ 0 & 0 & 0 & T_{xyyz} & 0 & T_{xyxy} & T_{xyzy} & 0 & T_{xyyx} \end{bmatrix}$$

$$\begin{aligned}
T_{xxxx} &= -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)} \\
T_{xxyy} &= 4M_{f3}^{(1)} - 2T_{du}^{(1)} - 2T_{dv}^{(3)} + 2T_{qu}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{xxzz} &= -4M_{f3}^{(1)} + T_{du}^{(1)} + 3T_{du}^{(3)} + T_{dv}^{(1)} - T_{dv}^{(3)} - T_{gu}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{xxzx} &= 2M_{fay}^{(1)} - M_{fay}^{(2)} + 2M_{fbay}^{(1)} - M_{fbay}^{(2)} - 2M_{py}^{(1)} + M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{xxxz} &= 2M_{fay}^{(1)} + M_{fay}^{(2)} + 2M_{fbay}^{(1)} + M_{fbay}^{(2)} - 2M_{py}^{(1)} - M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{yyxx} &= -4M_{f3}^{(1)} - 2T_{du}^{(1)} + 2T_{dv}^{(3)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{yyyy} &= -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)} \\
T_{yyzz} &= 4M_{f3}^{(1)} + T_{du}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{yyzx} &= 2M_{fay}^{(2)} - 4M_{fbay}^{(1)} + M_{py}^{(3)} + 2M_{py}^{(4)} + T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)} \\
T_{yyxz} &= -2M_{fay}^{(2)} - 4M_{fbay}^{(1)} - M_{py}^{(3)} - 2M_{py}^{(4)} + T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)} \\
T_{zzxx} &= 4M_{f3}^{(1)} + T_{du}^{(1)} - 3T_{du}^{(3)} + T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{zzyy} &= -4M_{f3}^{(1)} + T_{du}^{(1)} - 3T_{du}^{(3)} - T_{dv}^{(1)} - T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{zzzz} &= 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_g^{(1)} + T_s^{(1)} + 2T_s^{(2)} \\
T_{zzzx} &= -2M_{fay}^{(1)} - M_{fay}^{(2)} + 2M_{fbay}^{(1)} + M_{fbay}^{(2)} + 2M_{py}^{(1)} + M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{zzxz} &= -2M_{fay}^{(1)} + M_{fay}^{(2)} + 2M_{fbay}^{(1)} - M_{fbay}^{(2)} + 2M_{py}^{(1)} - M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{yzyz} &= M_{f3}^{(2)} + T_{du}^{(2)} - 3T_{du}^{(5)} - T_{dv}^{(2)} - T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)} \\
T_{yzxy} &= 4M_{fay}^{(1)} - M_{fay}^{(2)} + M_{fbay}^{(1)} + M_{py}^{(1)} + M_{py}^{(4)} + T_{dxz}^{(2)} + T_{dxz}^{(5)} + 2T_{gby}^{(1)} \\
T_{yzzy} &= -M_{f3}^{(2)} + T_{du}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)} \\
T_{yzyx} &= 4M_{fay}^{(1)} + M_{fay}^{(2)} - M_{fbay}^{(1)} + M_{py}^{(1)} - M_{py}^{(4)} + T_{dxz}^{(2)} - T_{dxz}^{(5)} + 2T_{gby}^{(1)} \\
T_{zxxx} &= -2M_{fay}^{(1)} - 2M_{fbay}^{(1)} + 2M_{py}^{(1)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} - T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{zxyy} &= 4M_{fbay}^{(1)} + T_{dxz}^{(1)} - T_{dxz}^{(3)} + 2T_{gby}^{(1)} \\
T_{zxzz} &= 2M_{fay}^{(1)} - 2M_{fbay}^{(1)} - 2M_{py}^{(1)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} + T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{zxzx} &= M_{f3}^{(2)} + T_{du}^{(2)} + 3T_{du}^{(5)} + T_{dv}^{(2)} - T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)} \\
T_{zxzx} &= -M_{f3}^{(2)} + T_{du}^{(2)} - 3T_{du}^{(5)} + T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(2)} \\
T_{xyyz} &= -4M_{fay}^{(1)} - M_{fay}^{(2)} - M_{fbay}^{(1)} - M_{py}^{(1)} + M_{py}^{(4)} + T_{dxz}^{(2)} - T_{dxz}^{(5)} + 2T_{gby}^{(1)} \\
T_{xyxy} &= M_{f3}^{(2)} - 2T_{du}^{(2)} + 2T_{dv}^{(5)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(2)} \\
T_{xyzy} &= -4M_{fay}^{(1)} + M_{fay}^{(2)} + M_{fbay}^{(1)} - M_{py}^{(1)} - M_{py}^{(4)} + T_{dxz}^{(2)} + T_{dxz}^{(5)} + 2T_{gby}^{(1)} \\
T_{xyyx} &= -M_{f3}^{(2)} - 2T_{du}^{(2)} - 2T_{dv}^{(5)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(2)}
\end{aligned}$$

\* Rank 4 tensor (a).

$$\begin{bmatrix}
0 & 0 & 0 & T_{yzyz} & 0 & T_{yzyy} & T_{yzyz} & 0 & T_{yzyx} \\
T_{zxxx} & T_{zxyy} & T_{zxzz} & 0 & T_{zxzx} & 0 & T_{zxzx} & 0 & 0 \\
0 & 0 & 0 & T_{xyyz} & 0 & T_{xyxy} & T_{xyzy} & 0 & T_{xyyx}
\end{bmatrix}$$

$$\begin{aligned}
T_{yzyz} &= M_{f3}^{(3)} - 2T_{du}^{(4)} - 3T_{du}^{(6)} + 2T_{dv}^{(4)} - T_{dv}^{(6)} + T_s^{(3)} \\
T_{yzxy} &= -M_{fay}^{(3)} - M_{fbg}^{(3)} + M_{py}^{(2)} + M_{py}^{(6)} + 2T_{dxz}^{(4)} - T_{dxz}^{(6)} \\
T_{yzyy} &= M_{f3}^{(3)} + 2T_{du}^{(4)} - 3T_{du}^{(6)} - 2T_{dv}^{(4)} - T_{dv}^{(6)} - T_s^{(3)} \\
T_{yzyx} &= -M_{fay}^{(3)} - M_{fbg}^{(3)} - M_{py}^{(2)} + M_{py}^{(6)} - 2T_{dxz}^{(4)} - T_{dxz}^{(6)} \\
T_{zxxx} &= -M_{fay}^{(3)} - M_{fbg}^{(3)} + M_{py}^{(5)} + 2T_{dxz}^{(6)} \\
T_{zxyy} &= 2M_{fay}^{(3)} + M_{py}^{(5)} + 2M_{py}^{(6)} \\
T_{zxzz} &= -M_{fay}^{(3)} + M_{fbg}^{(3)} + M_{py}^{(5)} - 2T_{dxz}^{(6)} \\
T_{zxzx} &= M_{f3}^{(3)} - 2T_{du}^{(4)} + 3T_{du}^{(6)} - 2T_{dv}^{(4)} - T_{dv}^{(6)} + T_s^{(3)} \\
T_{zxzx} &= M_{f3}^{(3)} + 2T_{du}^{(4)} + 3T_{du}^{(6)} + 2T_{dv}^{(4)} - T_{dv}^{(6)} - T_s^{(3)} \\
T_{xyyz} &= -M_{fay}^{(3)} + M_{fbg}^{(3)} - M_{py}^{(2)} + M_{py}^{(6)} + 2T_{dxz}^{(4)} + T_{dxz}^{(6)} \\
T_{xyxy} &= M_{f3}^{(3)} + 4T_{du}^{(4)} + 2T_{dv}^{(6)} + T_s^{(3)} \\
T_{xyzy} &= -M_{fay}^{(3)} + M_{fbg}^{(3)} + M_{py}^{(2)} + M_{py}^{(6)} - 2T_{dxz}^{(4)} + T_{dxz}^{(6)} \\
T_{xyyx} &= M_{f3}^{(3)} - 4T_{du}^{(4)} + 2T_{dv}^{(6)} - T_s^{(3)}
\end{aligned}$$

\* Rank 4 tensor (t).

$$\left[ \begin{array}{ccc} T_{xxxx} & 0 & T_{xxzz} \\ 0 & T_{yyyy} & 0 \\ T_{zzzx} & 0 & T_{zzzz} \\ T_{yyxx} & 0 & T_{yyzz} \\ T_{zzxx} & 0 & T_{zzxz} \\ 0 & T_{xxyy} & 0 \\ 0 & T_{yzyy} & 0 \\ T_{zxxx} & 0 & T_{zxzx} \\ T_{xyyy} + T_{yyzz} - T_{yzyy} - T_{zxxx} + T_{zzxx} & 0 & T_{xyyz} \\ 0 & T_{xyyz} + \frac{T_{zzxz}}{2} - \frac{T_{zzxx}}{2} & 0 \end{array} \right]$$

$$\begin{aligned}
T_{xxxx} &= -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)} \\
T_{xxxx} &= T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{yyyy} &= -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)} \\
T_{zzzx} &= T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{zzzz} &= 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)} \\
T_{yyzx} &= T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)} \\
T_{yyzz} &= T_{du}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{zxxx} &= T_{du}^{(1)} - 3T_{du}^{(3)} + T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{zzxz} &= T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{xxyy} &= -2T_{du}^{(1)} - 2T_{dv}^{(3)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{yzyy} &= T_{du}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{zxxx} &= T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} - T_{gay}^{(1)} - T_{gby}^{(1)} \\
T_{zxxx} &= T_{du}^{(2)} - 3T_{du}^{(5)} + T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)} \\
T_{xyyz} &= T_{dxz}^{(2)} - T_{dxz}^{(5)} + 2T_{gby}^{(1)}
\end{aligned}$$