

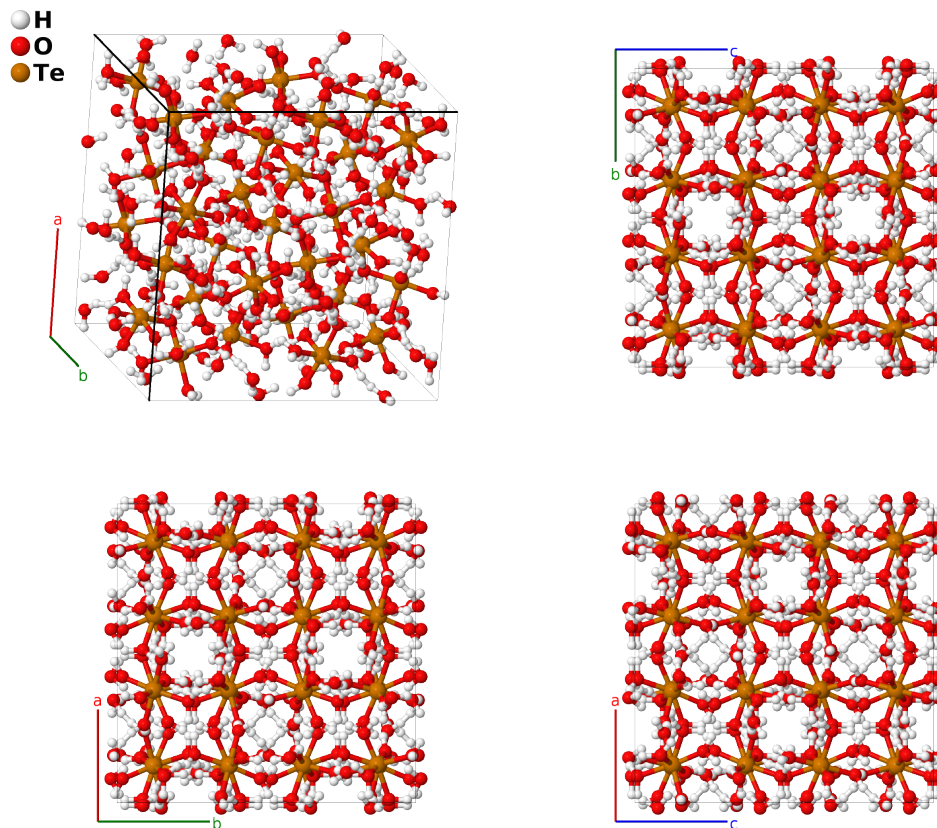
# Te[OH]<sub>6</sub> Structure: A12B6C\_cF608\_210\_4h\_2h\_e-001

This structure originally had the label A12B6C\_cF608\_210\_4h\_2h\_e. Calls to that address will be redirected here.

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<https://aflow.org/p/7K4Q>

[https://aflow.org/p/A12B6C\\_cF608\\_210\\_4h\\_2h\\_e-001](https://aflow.org/p/A12B6C_cF608_210_4h_2h_e-001)



Prototype	H <sub>6</sub> O <sub>6</sub> Te
AFLOW prototype label	A12B6C_cF608_210_4h_2h_e-001
ICSD	16435
Pearson symbol	cF608
Space group number	210
Space group symbol	F <sub>4</sub> 32
AFLOW prototype command	<pre>aflow --proto=A12B6C_cF608_210_4h_2h_e-001 --params=a, x1, x2, y2, z2, x3, y3, z3, x4, y4, z4, x5, y5, z5, x6, y6, z6, x7, y7, z7</pre>

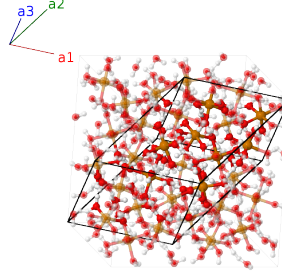
- The hydrogen sites are only half occupied. Presumably this means that there is only one hydrogen atom bound to each oxygen.

- (Kirkpatrick, 1926) originally concluded that  $\text{Te}[\text{OH}]_6$  was in space group  $Fd\bar{3}c$  #228, but they did not find the positions of the hydrogen atoms. The current structure appears to be the correct one.

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### Face-centered Cubic primitive vectors

$$\begin{aligned}\mathbf{a}_1 &= \frac{1}{2}a\hat{\mathbf{y}} + \frac{1}{2}a\hat{\mathbf{z}} \\ \mathbf{a}_2 &= \frac{1}{2}a\hat{\mathbf{x}} + \frac{1}{2}a\hat{\mathbf{z}} \\ \mathbf{a}_3 &= \frac{1}{2}a\hat{\mathbf{x}} + \frac{1}{2}a\hat{\mathbf{y}}\end{aligned}$$




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### Basis vectors

	Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B}_1$	$x_1 \mathbf{a}_1 + x_1 \mathbf{a}_2 + x_1 \mathbf{a}_3$	=	$ax_1 \hat{\mathbf{x}} + ax_1 \hat{\mathbf{y}} + ax_1 \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_2$	$x_1 \mathbf{a}_1 + x_1 \mathbf{a}_2 - 3x_1 \mathbf{a}_3$	=	$-ax_1 \hat{\mathbf{x}} - ax_1 \hat{\mathbf{y}} + ax_1 \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_3$	$x_1 \mathbf{a}_1 - 3x_1 \mathbf{a}_2 + x_1 \mathbf{a}_3$	=	$-ax_1 \hat{\mathbf{x}} + ax_1 \hat{\mathbf{y}} - ax_1 \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_4$	$-3x_1 \mathbf{a}_1 + x_1 \mathbf{a}_2 + x_1 \mathbf{a}_3$	=	$ax_1 \hat{\mathbf{x}} - ax_1 \hat{\mathbf{y}} - ax_1 \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_5$	$-(x_1 - \frac{1}{4}) \mathbf{a}_1 - (x_1 - \frac{1}{4}) \mathbf{a}_2 + (3x_1 + \frac{1}{4}) \mathbf{a}_3$	=	$a(x_1 + \frac{1}{4}) \hat{\mathbf{x}} + a(x_1 + \frac{1}{4}) \hat{\mathbf{y}} - a(x_1 - \frac{1}{4}) \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_6$	$-(x_1 - \frac{1}{4}) \mathbf{a}_1 - (x_1 - \frac{1}{4}) \mathbf{a}_2 - (x_1 - \frac{1}{4}) \mathbf{a}_3$	=	$-a(x_1 - \frac{1}{4}) \hat{\mathbf{x}} - a(x_1 - \frac{1}{4}) \hat{\mathbf{y}} - a(x_1 - \frac{1}{4}) \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_7$	$-(x_1 - \frac{1}{4}) \mathbf{a}_1 + (3x_1 + \frac{1}{4}) \mathbf{a}_2 - (x_1 - \frac{1}{4}) \mathbf{a}_3$	=	$a(x_1 + \frac{1}{4}) \hat{\mathbf{x}} - a(x_1 - \frac{1}{4}) \hat{\mathbf{y}} + a(x_1 + \frac{1}{4}) \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_8$	$(3x_1 + \frac{1}{4}) \mathbf{a}_1 - (x_1 - \frac{1}{4}) \mathbf{a}_2 - (x_1 - \frac{1}{4}) \mathbf{a}_3$	=	$-a(x_1 - \frac{1}{4}) \hat{\mathbf{x}} + a(x_1 + \frac{1}{4}) \hat{\mathbf{y}} + a(x_1 + \frac{1}{4}) \hat{\mathbf{z}}$	(32e)	Te I
$\mathbf{B}_9$	$(-x_2 + y_2 + z_2) \mathbf{a}_1 + (x_2 - y_2 + z_2) \mathbf{a}_2 + (x_2 + y_2 - z_2) \mathbf{a}_3$	=	$ax_2 \hat{\mathbf{x}} + ay_2 \hat{\mathbf{y}} + az_2 \hat{\mathbf{z}}$	(96h)	H I
$\mathbf{B}_{10}$	$(x_2 - y_2 + z_2) \mathbf{a}_1 + (-x_2 + y_2 + z_2) \mathbf{a}_2 - (x_2 + y_2 + z_2) \mathbf{a}_3$	=	$-ax_2 \hat{\mathbf{x}} - ay_2 \hat{\mathbf{y}} + az_2 \hat{\mathbf{z}}$	(96h)	H I
$\mathbf{B}_{11}$	$(x_2 + y_2 - z_2) \mathbf{a}_1 - (x_2 + y_2 + z_2) \mathbf{a}_2 + (-x_2 + y_2 + z_2) \mathbf{a}_3$	=	$-ax_2 \hat{\mathbf{x}} + ay_2 \hat{\mathbf{y}} - az_2 \hat{\mathbf{z}}$	(96h)	H I
$\mathbf{B}_{12}$	$-(x_2 + y_2 + z_2) \mathbf{a}_1 + (x_2 + y_2 - z_2) \mathbf{a}_2 + (x_2 - y_2 + z_2) \mathbf{a}_3$	=	$ax_2 \hat{\mathbf{x}} - ay_2 \hat{\mathbf{y}} - az_2 \hat{\mathbf{z}}$	(96h)	H I
$\mathbf{B}_{13}$	$(x_2 + y_2 - z_2) \mathbf{a}_1 + (-x_2 + y_2 + z_2) \mathbf{a}_2 + (x_2 - y_2 + z_2) \mathbf{a}_3$	=	$az_2 \hat{\mathbf{x}} + ax_2 \hat{\mathbf{y}} + ay_2 \hat{\mathbf{z}}$	(96h)	H I
$\mathbf{B}_{14}$	$-(x_2 + y_2 + z_2) \mathbf{a}_1 + (x_2 - y_2 + z_2) \mathbf{a}_2 + (-x_2 + y_2 + z_2) \mathbf{a}_3$	=	$az_2 \hat{\mathbf{x}} - ax_2 \hat{\mathbf{y}} - ay_2 \hat{\mathbf{z}}$	(96h)	H I



$$\begin{aligned}
\mathbf{B}_{31} &= \begin{pmatrix} (x_2 + y_2 + z_2 + \frac{1}{4}) \mathbf{a}_1 + \\ (x_2 - y_2 - z_2 + \frac{1}{4}) \mathbf{a}_2 - \\ (x_2 - y_2 + z_2 - \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} = -a \left( z_2 - \frac{1}{4} \right) \hat{\mathbf{x}} + a \left( y_2 + \frac{1}{4} \right) \hat{\mathbf{y}} + a \left( x_2 + \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H I} \\
\mathbf{B}_{32} &= \begin{pmatrix} -(x_2 + y_2 - z_2 - \frac{1}{4}) \mathbf{a}_1 - \\ (x_2 - y_2 + z_2 - \frac{1}{4}) \mathbf{a}_2 + \\ (x_2 - y_2 - z_2 + \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} = -a \left( z_2 - \frac{1}{4} \right) \hat{\mathbf{x}} - a \left( y_2 - \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( x_2 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H I} \\
\mathbf{B}_{33} &= \begin{pmatrix} (-x_3 + y_3 + z_3) \mathbf{a}_1 + \\ (x_3 - y_3 + z_3) \mathbf{a}_2 + \\ (x_3 + y_3 - z_3) \mathbf{a}_3 \end{pmatrix} = ax_3 \hat{\mathbf{x}} + ay_3 \hat{\mathbf{y}} + az_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{34} &= \begin{pmatrix} (x_3 - y_3 + z_3) \mathbf{a}_1 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_2 - \\ (x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = -ax_3 \hat{\mathbf{x}} - ay_3 \hat{\mathbf{y}} + az_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{35} &= \begin{pmatrix} (x_3 + y_3 - z_3) \mathbf{a}_1 - \\ (x_3 + y_3 + z_3) \mathbf{a}_2 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = -ax_3 \hat{\mathbf{x}} + ay_3 \hat{\mathbf{y}} - az_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{36} &= \begin{pmatrix} -(x_3 + y_3 + z_3) \mathbf{a}_1 + \\ (x_3 + y_3 - z_3) \mathbf{a}_2 + \\ (x_3 - y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = ax_3 \hat{\mathbf{x}} - ay_3 \hat{\mathbf{y}} - az_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{37} &= \begin{pmatrix} (x_3 + y_3 - z_3) \mathbf{a}_1 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_2 + \\ (x_3 - y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = az_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} + ay_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{38} &= \begin{pmatrix} -(x_3 + y_3 + z_3) \mathbf{a}_1 + \\ (x_3 - y_3 + z_3) \mathbf{a}_2 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = az_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} - ay_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{39} &= \begin{pmatrix} (-x_3 + y_3 + z_3) \mathbf{a}_1 + \\ (x_3 + y_3 - z_3) \mathbf{a}_2 - \\ (x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = -az_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} + ay_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{40} &= \begin{pmatrix} (x_3 - y_3 + z_3) \mathbf{a}_1 - \\ (x_3 + y_3 + z_3) \mathbf{a}_2 + \\ (x_3 + y_3 - z_3) \mathbf{a}_3 \end{pmatrix} = -az_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} - ay_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{41} &= \begin{pmatrix} (x_3 - y_3 + z_3) \mathbf{a}_1 + \\ (x_3 + y_3 - z_3) \mathbf{a}_2 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = ay_3 \hat{\mathbf{x}} + az_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{42} &= \begin{pmatrix} (-x_3 + y_3 + z_3) \mathbf{a}_1 - \\ (x_3 + y_3 + z_3) \mathbf{a}_2 + \\ (x_3 - y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = -ay_3 \hat{\mathbf{x}} + az_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{43} &= \begin{pmatrix} -(x_3 + y_3 + z_3) \mathbf{a}_1 + \\ (-x_3 + y_3 + z_3) \mathbf{a}_2 + \\ (x_3 + y_3 - z_3) \mathbf{a}_3 \end{pmatrix} = ay_3 \hat{\mathbf{x}} - az_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{44} &= \begin{pmatrix} (x_3 + y_3 - z_3) \mathbf{a}_1 + \\ (x_3 - y_3 + z_3) \mathbf{a}_2 - \\ (x_3 + y_3 + z_3) \mathbf{a}_3 \end{pmatrix} = -ay_3 \hat{\mathbf{x}} - az_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{45} &= \begin{pmatrix} (x_3 - y_3 - z_3 + \frac{1}{4}) \mathbf{a}_1 - \\ (x_3 - y_3 + z_3 - \frac{1}{4}) \mathbf{a}_2 + \\ (x_3 + y_3 + z_3 + \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} = a \left( y_3 + \frac{1}{4} \right) \hat{\mathbf{x}} + a \left( x_3 + \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( z_3 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H II} \\
\mathbf{B}_{46} &= \begin{pmatrix} -(x_3 - y_3 + z_3 - \frac{1}{4}) \mathbf{a}_1 + \\ (x_3 - y_3 - z_3 + \frac{1}{4}) \mathbf{a}_2 - \\ (x_3 + y_3 - z_3 - \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} = -a \left( y_3 - \frac{1}{4} \right) \hat{\mathbf{x}} - a \left( x_3 - \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( z_3 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H II}
\end{aligned}$$





$$\begin{aligned}
\mathbf{B}_{79} &= \begin{pmatrix} (x_4 + y_4 + z_4 + \frac{1}{4}) \mathbf{a}_1 + \\ (x_4 - y_4 - z_4 + \frac{1}{4}) \mathbf{a}_2 - \\ (x_4 - y_4 + z_4 - \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} &= -a \left( z_4 - \frac{1}{4} \right) \hat{\mathbf{x}} + a \left( y_4 + \frac{1}{4} \right) \hat{\mathbf{y}} + a \left( x_4 + \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H III} \\
\mathbf{B}_{80} &= \begin{pmatrix} -(x_4 + y_4 - z_4 - \frac{1}{4}) \mathbf{a}_1 - \\ (x_4 - y_4 + z_4 - \frac{1}{4}) \mathbf{a}_2 + \\ (x_4 - y_4 - z_4 + \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} &= -a \left( z_4 - \frac{1}{4} \right) \hat{\mathbf{x}} - a \left( y_4 - \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( x_4 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H III} \\
\mathbf{B}_{81} &= \begin{pmatrix} (-x_5 + y_5 + z_5) \mathbf{a}_1 + \\ (x_5 - y_5 + z_5) \mathbf{a}_2 + \\ (x_5 + y_5 - z_5) \mathbf{a}_3 \end{pmatrix} &= ax_5 \hat{\mathbf{x}} + ay_5 \hat{\mathbf{y}} + az_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{82} &= \begin{pmatrix} (x_5 - y_5 + z_5) \mathbf{a}_1 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_2 - \\ (x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= -ax_5 \hat{\mathbf{x}} - ay_5 \hat{\mathbf{y}} + az_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{83} &= \begin{pmatrix} (x_5 + y_5 - z_5) \mathbf{a}_1 - \\ (x_5 + y_5 + z_5) \mathbf{a}_2 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= -ax_5 \hat{\mathbf{x}} + ay_5 \hat{\mathbf{y}} - az_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{84} &= \begin{pmatrix} -(x_5 + y_5 + z_5) \mathbf{a}_1 + \\ (x_5 + y_5 - z_5) \mathbf{a}_2 + \\ (x_5 - y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= ax_5 \hat{\mathbf{x}} - ay_5 \hat{\mathbf{y}} - az_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{85} &= \begin{pmatrix} (x_5 + y_5 - z_5) \mathbf{a}_1 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_2 + \\ (x_5 - y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= az_5 \hat{\mathbf{x}} + ax_5 \hat{\mathbf{y}} + ay_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{86} &= \begin{pmatrix} -(x_5 + y_5 + z_5) \mathbf{a}_1 + \\ (x_5 - y_5 + z_5) \mathbf{a}_2 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= az_5 \hat{\mathbf{x}} - ax_5 \hat{\mathbf{y}} - ay_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{87} &= \begin{pmatrix} (-x_5 + y_5 + z_5) \mathbf{a}_1 + \\ (x_5 + y_5 - z_5) \mathbf{a}_2 - \\ (x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= -az_5 \hat{\mathbf{x}} - ax_5 \hat{\mathbf{y}} + ay_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{88} &= \begin{pmatrix} (x_5 - y_5 + z_5) \mathbf{a}_1 - \\ (x_5 + y_5 + z_5) \mathbf{a}_2 + \\ (x_5 + y_5 - z_5) \mathbf{a}_3 \end{pmatrix} &= -az_5 \hat{\mathbf{x}} + ax_5 \hat{\mathbf{y}} - ay_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{89} &= \begin{pmatrix} (x_5 - y_5 + z_5) \mathbf{a}_1 + \\ (x_5 + y_5 - z_5) \mathbf{a}_2 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= ay_5 \hat{\mathbf{x}} + az_5 \hat{\mathbf{y}} + ax_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{90} &= \begin{pmatrix} (-x_5 + y_5 + z_5) \mathbf{a}_1 - \\ (x_5 + y_5 + z_5) \mathbf{a}_2 + \\ (x_5 - y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= -ay_5 \hat{\mathbf{x}} + az_5 \hat{\mathbf{y}} - ax_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{91} &= \begin{pmatrix} -(x_5 + y_5 + z_5) \mathbf{a}_1 + \\ (-x_5 + y_5 + z_5) \mathbf{a}_2 + \\ (x_5 + y_5 - z_5) \mathbf{a}_3 \end{pmatrix} &= ay_5 \hat{\mathbf{x}} - az_5 \hat{\mathbf{y}} - ax_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{92} &= \begin{pmatrix} (x_5 + y_5 - z_5) \mathbf{a}_1 + \\ (x_5 - y_5 + z_5) \mathbf{a}_2 - \\ (x_5 + y_5 + z_5) \mathbf{a}_3 \end{pmatrix} &= -ay_5 \hat{\mathbf{x}} - az_5 \hat{\mathbf{y}} + ax_5 \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{93} &= \begin{pmatrix} (x_5 - y_5 - z_5 + \frac{1}{4}) \mathbf{a}_1 - \\ (x_5 - y_5 + z_5 - \frac{1}{4}) \mathbf{a}_2 + \\ (x_5 + y_5 + z_5 + \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} &= a \left( y_5 + \frac{1}{4} \right) \hat{\mathbf{x}} + a \left( x_5 + \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( z_5 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H IV} \\
\mathbf{B}_{94} &= \begin{pmatrix} -(x_5 - y_5 + z_5 - \frac{1}{4}) \mathbf{a}_1 + \\ (x_5 - y_5 - z_5 + \frac{1}{4}) \mathbf{a}_2 - \\ (x_5 + y_5 - z_5 - \frac{1}{4}) \mathbf{a}_3 \end{pmatrix} &= -a \left( y_5 - \frac{1}{4} \right) \hat{\mathbf{x}} - a \left( x_5 - \frac{1}{4} \right) \hat{\mathbf{y}} - a \left( z_5 - \frac{1}{4} \right) \hat{\mathbf{z}} & (96h) & \text{H IV}
\end{aligned}$$









$$\begin{aligned}
\mathbf{B}_{143} &= -\left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_1 + &= a\left(y_7 + \frac{1}{4}\right) \hat{\mathbf{x}} - a\left(x_7 - \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_2 - \\
&\quad \left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{144} &= \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_1 - &= -a\left(y_7 - \frac{1}{4}\right) \hat{\mathbf{x}} + a\left(x_7 + \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_2 + \\
&\quad \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{145} &= -\left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_1 + &= a\left(x_7 + \frac{1}{4}\right) \hat{\mathbf{x}} + a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{y}} - a\left(y_7 - \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_2 + \\
&\quad \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{146} &= \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_1 - &= -a\left(x_7 - \frac{1}{4}\right) \hat{\mathbf{x}} + a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(y_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_2 - \\
&\quad \left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{147} &= \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_1 - &= -a\left(x_7 - \frac{1}{4}\right) \hat{\mathbf{x}} - a\left(z_7 - \frac{1}{4}\right) \hat{\mathbf{y}} - a\left(y_7 - \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_2 - \\
&\quad \left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{148} &= -\left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_1 + &= a\left(x_7 + \frac{1}{4}\right) \hat{\mathbf{x}} - a\left(z_7 - \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(y_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_2 + \\
&\quad \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{149} &= -\left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_1 - &= a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{x}} + a\left(y_7 + \frac{1}{4}\right) \hat{\mathbf{y}} - a\left(x_7 - \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_2 + \\
&\quad \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{150} &= \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_1 + &= a\left(z_7 + \frac{1}{4}\right) \hat{\mathbf{x}} - a\left(y_7 - \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(x_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_2 - \\
&\quad \left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{151} &= \left(x_7 + y_7 + z_7 + \frac{1}{4}\right) \mathbf{a}_1 + &= -a\left(z_7 - \frac{1}{4}\right) \hat{\mathbf{x}} + a\left(y_7 + \frac{1}{4}\right) \hat{\mathbf{y}} + a\left(x_7 + \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_2 - \\
&\quad \left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_3 \\
\mathbf{B}_{152} &= -\left(x_7 + y_7 - z_7 - \frac{1}{4}\right) \mathbf{a}_1 - &= -a\left(z_7 - \frac{1}{4}\right) \hat{\mathbf{x}} - a\left(y_7 - \frac{1}{4}\right) \hat{\mathbf{y}} - a\left(x_7 - \frac{1}{4}\right) \hat{\mathbf{z}} & (96h) & \text{O II} \\
&\quad \left(x_7 - y_7 + z_7 - \frac{1}{4}\right) \mathbf{a}_2 + \\
&\quad \left(x_7 - y_7 - z_7 + \frac{1}{4}\right) \mathbf{a}_3
\end{aligned}$$

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