Epididymite ($BeHNaO_8Si_3$, $S4_7$) Structure: ABCD8E3_oP112_62_d_2c_d_4c6d_3d-001

This structure previously used the label(s) `ABCD8E3_oP112_62_d_2c_d_4c6d_3d`. Calls to these addresses will be redirected here.

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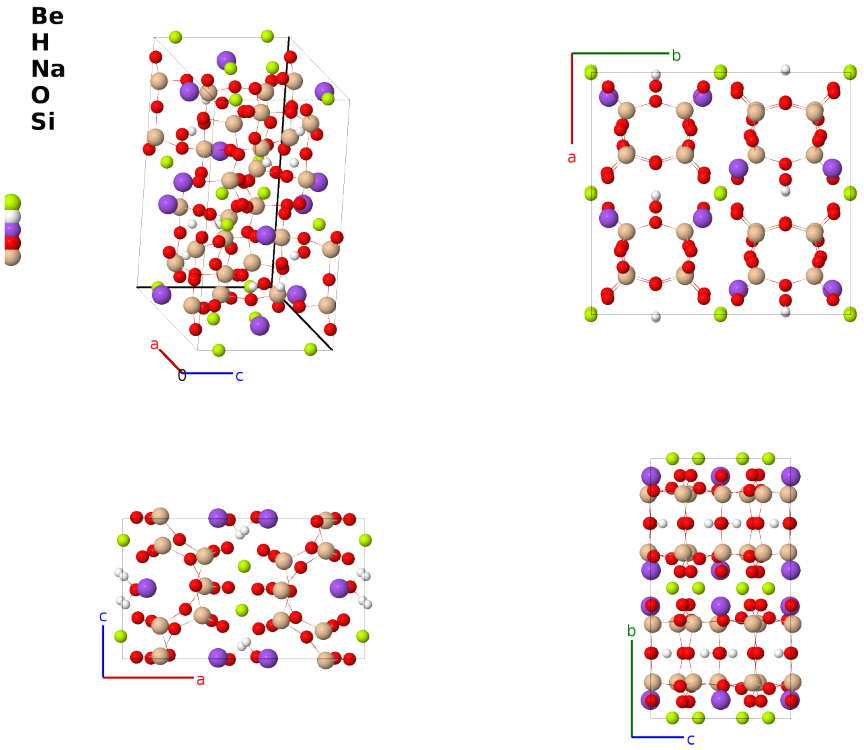
https://aflow.org/prototype-encyclopedia/QQ21

https://aflow.org/prototype-encyclopedia/ABCD8E3_oP112_62_d_2c_d_4c6d_3d-001



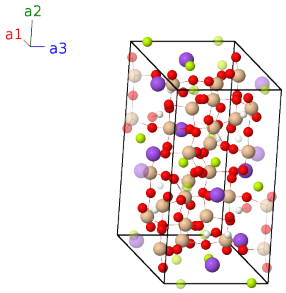
Prototype	$BeHNaO_8Si_3$
AFLOW prototype label	ABCD8E3_oP112_62_d_2c_d_4c6d_3d-001
***Strukturbericht* designation**	$S4_7$
Mineral name	epididymite
ICSD	160817
CCDC	1677231
Pearson symbol	oP112
Space group number	62
Space group symbol	*Pnma*

AFLOW prototype command `aflow --proto=ABCD8E3_oP112_62_d_2c_d_4c6d_3d-001 --params=`$a, b/a, c/a, x_1, z_1, x_2, z_2, x_3, z_3, x_4, z_4, x_5, z_5, x_6, z_6, x_7, y_7, z_7, x_8, y_8, z_8, x_9, y_9, z_9, x_{10}, y_{10}, z_{10}, x_{11}, y_{11}, z_{11}, x_{12}, y_{12}, z_{12}, x_{13}, y_{13}, z_{13}, x_{14}, y_{14}, z_{14}, x_{15}, y_{15}, z_{15}, x_{16}, y_{16}, z_{16}, x_{17}, y_{17}, z_{17}$

- (Ito, 1934)'s original determination of the epididymite structure, designated as $S4_7$ by (Gottfried, 1937), was flawed, even in the author's estimation. In particular, both the Si-O and Si-Be distances are very small, with Si-Be less than 1Å.
- Ito and many later authors assumed that the hydrogen atoms formed OH radicals, but (Gatta, 2008) found that the hydrogen atoms were actually a part of a water molecule.
- Since the (Ito, 1934) structure is not even suitable for starting first-principles calculations and the (Gatta, 2008) structure maintains the *Pnma* #62 space group, we have dropped the former and designate the later as $S4_7$.
- Epididymite and its diomorph, eudidymite, are two forms of hydrated sodium beryllium silicate which are stable under ambient conditions. (Gatta, 2008)

Simple Orthorhombic primitive vectors

$$\mathbf{a_1} = a\,\hat{\mathbf{x}}$$
$$\mathbf{a_2} = b\,\hat{\mathbf{y}}$$
$$\mathbf{a_3} = c\,\hat{\mathbf{z}}$$



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$x_1\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + z_1\,\mathbf{a}_3$	=	$ax_1\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} + cz_1\,\hat{\mathbf{z}}$	(4c)	H I
$\mathbf{B_2}$	=	$-\left(x_1 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \left(z_1 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_1 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} + c\left(z_1 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	H I
$\mathbf{B_3}$	=	$-x_1\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 - z_1\,\mathbf{a}_3$	=	$-ax_1\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} - cz_1\,\hat{\mathbf{z}}$	(4c)	H I
$\mathbf{B_4}$	=	$\left(x_1 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - \left(z_1 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_1 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} - c\left(z_1 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	H I
$\mathbf{B_5}$	=	$x_2\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + z_2\,\mathbf{a}_3$	=	$ax_2\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} + cz_2\,\hat{\mathbf{z}}$	(4c)	H II
$\mathbf{B_6}$	=	$-\left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \left(z_2 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_2 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} + c\left(z_2 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	H II
$\mathbf{B_7}$	=	$-x_2\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 - z_2\,\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} - cz_2\,\hat{\mathbf{z}}$	(4c)	H II
$\mathbf{B_8}$	=	$\left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - \left(z_2 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_2 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} - c\left(z_2 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	H II
$\mathbf{B_9}$	=	$x_3\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_{10}}$	=	$-\left(x_3 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \left(z_3 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_3 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} + c\left(z_3 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_{11}}$	=	$-x_3\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 - z_3\,\mathbf{a}_3$	=	$-ax_3\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_{12}}$	=	$\left(x_3 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - \left(z_3 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_3 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} - c\left(z_3 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_{13}}$	=	$x_4\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$ax_4\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(4c)	O II

$\mathbf{B_{14}}$	$=$	$-\left(x_4-\frac{1}{2}\right)\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2+\left(z_4+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_4-\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}+c\left(z_4+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O II
$\mathbf{B_{15}}$	$=$	$-x_4\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2-z_4\,\mathbf{a}_3$	$=$	$-ax_4\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}-cz_4\,\hat{\mathbf{z}}$	(4c)	O II
$\mathbf{B_{16}}$	$=$	$\left(x_4+\frac{1}{2}\right)\,\mathbf{a}_1+\frac{1}{4}\,\mathbf{a}_2-\left(z_4-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_4+\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{1}{4}b\,\hat{\mathbf{y}}-c\left(z_4-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O II
$\mathbf{B_{17}}$	$=$	$x_5\,\mathbf{a}_1+\frac{1}{4}\,\mathbf{a}_2+z_5\,\mathbf{a}_3$	$=$	$ax_5\,\hat{\mathbf{x}}+\frac{1}{4}b\,\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}}$	(4c)	O III
$\mathbf{B_{18}}$	$=$	$-\left(x_5-\frac{1}{2}\right)\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2+\left(z_5+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_5-\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}+c\left(z_5+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O III
$\mathbf{B_{19}}$	$=$	$-x_5\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2-z_5\,\mathbf{a}_3$	$=$	$-ax_5\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}}$	(4c)	O III
$\mathbf{B_{20}}$	$=$	$\left(x_5+\frac{1}{2}\right)\,\mathbf{a}_1+\frac{1}{4}\,\mathbf{a}_2-\left(z_5-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_5+\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{1}{4}b\,\hat{\mathbf{y}}-c\left(z_5-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O III
$\mathbf{B_{21}}$	$=$	$x_6\,\mathbf{a}_1+\frac{1}{4}\,\mathbf{a}_2+z_6\,\mathbf{a}_3$	$=$	$ax_6\,\hat{\mathbf{x}}+\frac{1}{4}b\,\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}}$	(4c)	O IV
$\mathbf{B_{22}}$	$=$	$-\left(x_6-\frac{1}{2}\right)\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2+\left(z_6+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_6-\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}+c\left(z_6+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O IV
$\mathbf{B_{23}}$	$=$	$-x_6\,\mathbf{a}_1+\frac{3}{4}\,\mathbf{a}_2-z_6\,\mathbf{a}_3$	$=$	$-ax_6\,\hat{\mathbf{x}}+\frac{3}{4}b\,\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}}$	(4c)	O IV
$\mathbf{B_{24}}$	$=$	$\left(x_6+\frac{1}{2}\right)\,\mathbf{a}_1+\frac{1}{4}\,\mathbf{a}_2-\left(z_6-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_6+\frac{1}{2}\right)\,\hat{\mathbf{x}}+\frac{1}{4}b\,\hat{\mathbf{y}}-c\left(z_6-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(4c)	O IV
$\mathbf{B_{25}}$	$=$	$x_7\,\mathbf{a}_1+y_7\,\mathbf{a}_2+z_7\,\mathbf{a}_3$	$=$	$ax_7\,\hat{\mathbf{x}}+by_7\,\hat{\mathbf{y}}+cz_7\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{26}}$	$=$	$-\left(x_7-\frac{1}{2}\right)\,\mathbf{a}_1-y_7\,\mathbf{a}_2+\left(z_7+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_7-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_7\,\hat{\mathbf{y}}+c\left(z_7+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{27}}$	$=$	$-x_7\,\mathbf{a}_1+\left(y_7+\frac{1}{2}\right)\,\mathbf{a}_2-z_7\,\mathbf{a}_3$	$=$	$-ax_7\,\hat{\mathbf{x}}+b\left(y_7+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_7\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{28}}$	$=$	$\left(x_7+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_7-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_7-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_7+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_7-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_7-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{29}}$	$=$	$-x_7\,\mathbf{a}_1-y_7\,\mathbf{a}_2-z_7\,\mathbf{a}_3$	$=$	$-ax_7\,\hat{\mathbf{x}}-by_7\,\hat{\mathbf{y}}-cz_7\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{30}}$	$=$	$\left(x_7+\frac{1}{2}\right)\,\mathbf{a}_1+y_7\,\mathbf{a}_2-\left(z_7-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_7+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_7\,\hat{\mathbf{y}}-c\left(z_7-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{31}}$	$=$	$x_7\,\mathbf{a}_1-\left(y_7-\frac{1}{2}\right)\,\mathbf{a}_2+z_7\,\mathbf{a}_3$	$=$	$ax_7\,\hat{\mathbf{x}}-b\left(y_7-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_7\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{32}}$	$=$	$-\left(x_7-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_7+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_7+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_7-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_7+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_7+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Be I
$\mathbf{B_{33}}$	$=$	$x_8\,\mathbf{a}_1+y_8\,\mathbf{a}_2+z_8\,\mathbf{a}_3$	$=$	$ax_8\,\hat{\mathbf{x}}+by_8\,\hat{\mathbf{y}}+cz_8\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{34}}$	$=$	$-\left(x_8-\frac{1}{2}\right)\,\mathbf{a}_1-y_8\,\mathbf{a}_2+\left(z_8+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_8-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_8\,\hat{\mathbf{y}}+c\left(z_8+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{35}}$	$=$	$-x_8\,\mathbf{a}_1+\left(y_8+\frac{1}{2}\right)\,\mathbf{a}_2-z_8\,\mathbf{a}_3$	$=$	$-ax_8\,\hat{\mathbf{x}}+b\left(y_8+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_8\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{36}}$	$=$	$\left(x_8+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_8-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_8-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_8+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_8-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_8-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{37}}$	$=$	$-x_8\,\mathbf{a}_1-y_8\,\mathbf{a}_2-z_8\,\mathbf{a}_3$	$=$	$-ax_8\,\hat{\mathbf{x}}-by_8\,\hat{\mathbf{y}}-cz_8\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{38}}$	$=$	$\left(x_8+\frac{1}{2}\right)\,\mathbf{a}_1+y_8\,\mathbf{a}_2-\left(z_8-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_8+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_8\,\hat{\mathbf{y}}-c\left(z_8-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{39}}$	$=$	$x_8\,\mathbf{a}_1-\left(y_8-\frac{1}{2}\right)\,\mathbf{a}_2+z_8\,\mathbf{a}_3$	$=$	$ax_8\,\hat{\mathbf{x}}-b\left(y_8-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_8\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{40}}$	$=$	$-\left(x_8-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_8+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_8+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_8-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_8+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_8+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Na I
$\mathbf{B_{41}}$	$=$	$x_9\,\mathbf{a}_1+y_9\,\mathbf{a}_2+z_9\,\mathbf{a}_3$	$=$	$ax_9\,\hat{\mathbf{x}}+by_9\,\hat{\mathbf{y}}+cz_9\,\hat{\mathbf{z}}$	(8d)	O V
$\mathbf{B_{42}}$	$=$	$-\left(x_9-\frac{1}{2}\right)\,\mathbf{a}_1-y_9\,\mathbf{a}_2+\left(z_9+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_9-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_9\,\hat{\mathbf{y}}+c\left(z_9+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O V
$\mathbf{B_{43}}$	$=$	$-x_9\,\mathbf{a}_1+\left(y_9+\frac{1}{2}\right)\,\mathbf{a}_2-z_9\,\mathbf{a}_3$	$=$	$-ax_9\,\hat{\mathbf{x}}+b\left(y_9+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_9\,\hat{\mathbf{z}}$	(8d)	O V
$\mathbf{B_{44}}$	$=$	$\left(x_9+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_9-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_9-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_9+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_9-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_9-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O V
$\mathbf{B_{45}}$	$=$	$-x_9\,\mathbf{a}_1-y_9\,\mathbf{a}_2-z_9\,\mathbf{a}_3$	$=$	$-ax_9\,\hat{\mathbf{x}}-by_9\,\hat{\mathbf{y}}-cz_9\,\hat{\mathbf{z}}$	(8d)	O V
$\mathbf{B_{46}}$	$=$	$\left(x_9+\frac{1}{2}\right)\,\mathbf{a}_1+y_9\,\mathbf{a}_2-\left(z_9-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_9+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_9\,\hat{\mathbf{y}}-c\left(z_9-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O V

$$
\begin{array}{lcccccc}
\mathbf{B_{47}} & = & x_9\,\mathbf{a}_1-\left(y_9-\frac{1}{2}\right)\,\mathbf{a}_2+z_9\,\mathbf{a}_3 & = & ax_9\,\hat{\mathbf{x}}-b\left(y_9-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_9\,\hat{\mathbf{z}} & \text{(8d)} & \text{O V}\\
\mathbf{B_{48}} & = & -\left(x_9-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_9+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_9+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_9-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_9+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_9+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O V}\\
\mathbf{B_{49}} & = & x_{10}\,\mathbf{a}_1+y_{10}\,\mathbf{a}_2+z_{10}\,\mathbf{a}_3 & = & ax_{10}\,\hat{\mathbf{x}}+by_{10}\,\hat{\mathbf{y}}+cz_{10}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{50}} & = & -\left(x_{10}-\frac{1}{2}\right)\,\mathbf{a}_1-y_{10}\,\mathbf{a}_2+\left(z_{10}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{10}-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_{10}\,\hat{\mathbf{y}}+c\left(z_{10}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{51}} & = & -x_{10}\,\mathbf{a}_1+\left(y_{10}+\frac{1}{2}\right)\,\mathbf{a}_2-z_{10}\,\mathbf{a}_3 & = & -ax_{10}\,\hat{\mathbf{x}}+b\left(y_{10}+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_{10}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{52}} & = & \left(x_{10}+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_{10}-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_{10}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{10}+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_{10}-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_{10}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{53}} & = & -x_{10}\,\mathbf{a}_1-y_{10}\,\mathbf{a}_2-z_{10}\,\mathbf{a}_3 & = & -ax_{10}\,\hat{\mathbf{x}}-by_{10}\,\hat{\mathbf{y}}-cz_{10}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{54}} & = & \left(x_{10}+\frac{1}{2}\right)\,\mathbf{a}_1+y_{10}\,\mathbf{a}_2-\left(z_{10}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{10}+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_{10}\,\hat{\mathbf{y}}-c\left(z_{10}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{55}} & = & x_{10}\,\mathbf{a}_1-\left(y_{10}-\frac{1}{2}\right)\,\mathbf{a}_2+z_{10}\,\mathbf{a}_3 & = & ax_{10}\,\hat{\mathbf{x}}-b\left(y_{10}-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_{10}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{56}} & = & -\left(x_{10}-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_{10}+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_{10}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{10}-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_{10}+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_{10}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VI}\\
\mathbf{B_{57}} & = & x_{11}\,\mathbf{a}_1+y_{11}\,\mathbf{a}_2+z_{11}\,\mathbf{a}_3 & = & ax_{11}\,\hat{\mathbf{x}}+by_{11}\,\hat{\mathbf{y}}+cz_{11}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{58}} & = & -\left(x_{11}-\frac{1}{2}\right)\,\mathbf{a}_1-y_{11}\,\mathbf{a}_2+\left(z_{11}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{11}-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_{11}\,\hat{\mathbf{y}}+c\left(z_{11}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{59}} & = & -x_{11}\,\mathbf{a}_1+\left(y_{11}+\frac{1}{2}\right)\,\mathbf{a}_2-z_{11}\,\mathbf{a}_3 & = & -ax_{11}\,\hat{\mathbf{x}}+b\left(y_{11}+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_{11}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{60}} & = & \left(x_{11}+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_{11}-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_{11}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{11}+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_{11}-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_{11}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{61}} & = & -x_{11}\,\mathbf{a}_1-y_{11}\,\mathbf{a}_2-z_{11}\,\mathbf{a}_3 & = & -ax_{11}\,\hat{\mathbf{x}}-by_{11}\,\hat{\mathbf{y}}-cz_{11}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{62}} & = & \left(x_{11}+\frac{1}{2}\right)\,\mathbf{a}_1+y_{11}\,\mathbf{a}_2-\left(z_{11}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{11}+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_{11}\,\hat{\mathbf{y}}-c\left(z_{11}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{63}} & = & x_{11}\,\mathbf{a}_1-\left(y_{11}-\frac{1}{2}\right)\,\mathbf{a}_2+z_{11}\,\mathbf{a}_3 & = & ax_{11}\,\hat{\mathbf{x}}-b\left(y_{11}-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_{11}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{64}} & = & -\left(x_{11}-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_{11}+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_{11}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{11}-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_{11}+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_{11}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VII}\\
\mathbf{B_{65}} & = & x_{12}\,\mathbf{a}_1+y_{12}\,\mathbf{a}_2+z_{12}\,\mathbf{a}_3 & = & ax_{12}\,\hat{\mathbf{x}}+by_{12}\,\hat{\mathbf{y}}+cz_{12}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{66}} & = & -\left(x_{12}-\frac{1}{2}\right)\,\mathbf{a}_1-y_{12}\,\mathbf{a}_2+\left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_{12}\,\hat{\mathbf{y}}+c\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{67}} & = & -x_{12}\,\mathbf{a}_1+\left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_2-z_{12}\,\mathbf{a}_3 & = & -ax_{12}\,\hat{\mathbf{x}}+b\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_{12}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{68}} & = & \left(x_{12}+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{69}} & = & -x_{12}\,\mathbf{a}_1-y_{12}\,\mathbf{a}_2-z_{12}\,\mathbf{a}_3 & = & -ax_{12}\,\hat{\mathbf{x}}-by_{12}\,\hat{\mathbf{y}}-cz_{12}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{70}} & = & \left(x_{12}+\frac{1}{2}\right)\,\mathbf{a}_1+y_{12}\,\mathbf{a}_2-\left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}}+by_{12}\,\hat{\mathbf{y}}-c\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{71}} & = & x_{12}\,\mathbf{a}_1-\left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_2+z_{12}\,\mathbf{a}_3 & = & ax_{12}\,\hat{\mathbf{x}}-b\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_{12}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{72}} & = & -\left(x_{12}-\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_2+\left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}}+b\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}}+c\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O VIII}\\
\mathbf{B_{73}} & = & x_{13}\,\mathbf{a}_1+y_{13}\,\mathbf{a}_2+z_{13}\,\mathbf{a}_3 & = & ax_{13}\,\hat{\mathbf{x}}+by_{13}\,\hat{\mathbf{y}}+cz_{13}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O IX}\\
\mathbf{B_{74}} & = & -\left(x_{13}-\frac{1}{2}\right)\,\mathbf{a}_1-y_{13}\,\mathbf{a}_2+\left(z_{13}+\frac{1}{2}\right)\,\mathbf{a}_3 & = & -a\left(x_{13}-\frac{1}{2}\right)\,\hat{\mathbf{x}}-by_{13}\,\hat{\mathbf{y}}+c\left(z_{13}+\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O IX}\\
\mathbf{B_{75}} & = & -x_{13}\,\mathbf{a}_1+\left(y_{13}+\frac{1}{2}\right)\,\mathbf{a}_2-z_{13}\,\mathbf{a}_3 & = & -ax_{13}\,\hat{\mathbf{x}}+b\left(y_{13}+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_{13}\,\hat{\mathbf{z}} & \text{(8d)} & \text{O IX}\\
\mathbf{B_{76}} & = & \left(x_{13}+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_{13}-\frac{1}{2}\right)\,\mathbf{a}_2-\left(z_{13}-\frac{1}{2}\right)\,\mathbf{a}_3 & = & a\left(x_{13}+\frac{1}{2}\right)\,\hat{\mathbf{x}}-b\left(y_{13}-\frac{1}{2}\right)\,\hat{\mathbf{y}}-c\left(z_{13}-\frac{1}{2}\right)\,\hat{\mathbf{z}} & \text{(8d)} & \text{O IX}
\end{array}
$$

$\mathbf{B_{77}}$	$-x_{13}\,\mathbf{a}_1 - y_{13}\,\mathbf{a}_2 - z_{13}\,\mathbf{a}_3$	$=$	$-ax_{13}\,\hat{\mathbf{x}} - by_{13}\,\hat{\mathbf{y}} - cz_{13}\,\hat{\mathbf{z}}$	(8d)	O IX
$\mathbf{B_{78}}$	$\left(x_{13}+\frac{1}{2}\right)\,\mathbf{a}_1 + y_{13}\,\mathbf{a}_2 - \left(z_{13}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{13}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + by_{13}\,\hat{\mathbf{y}} - c\left(z_{13}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O IX
$\mathbf{B_{79}}$	$x_{13}\,\mathbf{a}_1 - \left(y_{13}-\frac{1}{2}\right)\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3$	$=$	$ax_{13}\,\hat{\mathbf{x}} - b\left(y_{13}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{13}\,\hat{\mathbf{z}}$	(8d)	O IX
$\mathbf{B_{80}}$	$-\left(x_{13}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{13}+\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{13}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{13}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{13}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{13}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O IX
$\mathbf{B_{81}}$	$x_{14}\,\mathbf{a}_1 + y_{14}\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3$	$=$	$ax_{14}\,\hat{\mathbf{x}} + by_{14}\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{82}}$	$-\left(x_{14}-\frac{1}{2}\right)\,\mathbf{a}_1 - y_{14}\,\mathbf{a}_2 + \left(z_{14}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{14}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - by_{14}\,\hat{\mathbf{y}} + c\left(z_{14}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{83}}$	$-x_{14}\,\mathbf{a}_1 + \left(y_{14}+\frac{1}{2}\right)\,\mathbf{a}_2 - z_{14}\,\mathbf{a}_3$	$=$	$-ax_{14}\,\hat{\mathbf{x}} + b\left(y_{14}+\frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_{14}\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{84}}$	$\left(x_{14}+\frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{14}-\frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{14}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{14}+\frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{14}-\frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_{14}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{85}}$	$-x_{14}\,\mathbf{a}_1 - y_{14}\,\mathbf{a}_2 - z_{14}\,\mathbf{a}_3$	$=$	$-ax_{14}\,\hat{\mathbf{x}} - by_{14}\,\hat{\mathbf{y}} - cz_{14}\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{86}}$	$\left(x_{14}+\frac{1}{2}\right)\,\mathbf{a}_1 + y_{14}\,\mathbf{a}_2 - \left(z_{14}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{14}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + by_{14}\,\hat{\mathbf{y}} - c\left(z_{14}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{87}}$	$x_{14}\,\mathbf{a}_1 - \left(y_{14}-\frac{1}{2}\right)\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3$	$=$	$ax_{14}\,\hat{\mathbf{x}} - b\left(y_{14}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{88}}$	$-\left(x_{14}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{14}+\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{14}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{14}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{14}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{14}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	O X
$\mathbf{B_{89}}$	$x_{15}\,\mathbf{a}_1 + y_{15}\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3$	$=$	$ax_{15}\,\hat{\mathbf{x}} + by_{15}\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{90}}$	$-\left(x_{15}-\frac{1}{2}\right)\,\mathbf{a}_1 - y_{15}\,\mathbf{a}_2 + \left(z_{15}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{15}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - by_{15}\,\hat{\mathbf{y}} + c\left(z_{15}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{91}}$	$-x_{15}\,\mathbf{a}_1 + \left(y_{15}+\frac{1}{2}\right)\,\mathbf{a}_2 - z_{15}\,\mathbf{a}_3$	$=$	$-ax_{15}\,\hat{\mathbf{x}} + b\left(y_{15}+\frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_{15}\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{92}}$	$\left(x_{15}+\frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{15}-\frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{15}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{15}+\frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{15}-\frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_{15}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{93}}$	$-x_{15}\,\mathbf{a}_1 - y_{15}\,\mathbf{a}_2 - z_{15}\,\mathbf{a}_3$	$=$	$-ax_{15}\,\hat{\mathbf{x}} - by_{15}\,\hat{\mathbf{y}} - cz_{15}\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{94}}$	$\left(x_{15}+\frac{1}{2}\right)\,\mathbf{a}_1 + y_{15}\,\mathbf{a}_2 - \left(z_{15}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{15}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + by_{15}\,\hat{\mathbf{y}} - c\left(z_{15}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{95}}$	$x_{15}\,\mathbf{a}_1 - \left(y_{15}-\frac{1}{2}\right)\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3$	$=$	$ax_{15}\,\hat{\mathbf{x}} - b\left(y_{15}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{96}}$	$-\left(x_{15}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{15}+\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{15}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{15}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{15}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{15}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si I
$\mathbf{B_{97}}$	$x_{16}\,\mathbf{a}_1 + y_{16}\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3$	$=$	$ax_{16}\,\hat{\mathbf{x}} + by_{16}\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{98}}$	$-\left(x_{16}-\frac{1}{2}\right)\,\mathbf{a}_1 - y_{16}\,\mathbf{a}_2 + \left(z_{16}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{16}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - by_{16}\,\hat{\mathbf{y}} + c\left(z_{16}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{99}}$	$-x_{16}\,\mathbf{a}_1 + \left(y_{16}+\frac{1}{2}\right)\,\mathbf{a}_2 - z_{16}\,\mathbf{a}_3$	$=$	$-ax_{16}\,\hat{\mathbf{x}} + b\left(y_{16}+\frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_{16}\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{100}}$	$\left(x_{16}+\frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{16}-\frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{16}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{16}+\frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{16}-\frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_{16}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{101}}$	$-x_{16}\,\mathbf{a}_1 - y_{16}\,\mathbf{a}_2 - z_{16}\,\mathbf{a}_3$	$=$	$-ax_{16}\,\hat{\mathbf{x}} - by_{16}\,\hat{\mathbf{y}} - cz_{16}\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{102}}$	$\left(x_{16}+\frac{1}{2}\right)\,\mathbf{a}_1 + y_{16}\,\mathbf{a}_2 - \left(z_{16}-\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$a\left(x_{16}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + by_{16}\,\hat{\mathbf{y}} - c\left(z_{16}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{103}}$	$x_{16}\,\mathbf{a}_1 - \left(y_{16}-\frac{1}{2}\right)\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3$	$=$	$ax_{16}\,\hat{\mathbf{x}} - b\left(y_{16}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{104}}$	$-\left(x_{16}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{16}+\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{16}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{16}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{16}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{16}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si II
$\mathbf{B_{105}}$	$x_{17}\,\mathbf{a}_1 + y_{17}\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3$	$=$	$ax_{17}\,\hat{\mathbf{x}} + by_{17}\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}}$	(8d)	Si III
$\mathbf{B_{106}}$	$-\left(x_{17}-\frac{1}{2}\right)\,\mathbf{a}_1 - y_{17}\,\mathbf{a}_2 + \left(z_{17}+\frac{1}{2}\right)\,\mathbf{a}_3$	$=$	$-a\left(x_{17}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - by_{17}\,\hat{\mathbf{y}} + c\left(z_{17}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8d)	Si III

$$\mathbf{B_{107}} = -x_{17}\,\mathbf{a}_1 + \left(y_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_2 - z_{17}\,\mathbf{a}_3 = -ax_{17}\,\hat{\mathbf{x}} + b\left(y_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} - cz_{17}\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

$$\mathbf{B_{108}} = \left(x_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_3 = a\left(x_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

$$\mathbf{B_{109}} = -x_{17}\,\mathbf{a}_1 - y_{17}\,\mathbf{a}_2 - z_{17}\,\mathbf{a}_3 = -ax_{17}\,\hat{\mathbf{x}} - by_{17}\,\hat{\mathbf{y}} - cz_{17}\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

$$\mathbf{B_{110}} = \left(x_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_1 + y_{17}\,\mathbf{a}_2 - \left(z_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_3 = a\left(x_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + by_{17}\,\hat{\mathbf{y}} - c\left(z_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

$$\mathbf{B_{111}} = x_{17}\,\mathbf{a}_1 - \left(y_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3 = ax_{17}\,\hat{\mathbf{x}} - b\left(y_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

$$\mathbf{B_{112}} = -\left(x_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_3 = -a\left(x_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{z}} \quad \text{(8d)} \quad \text{Si III}$$

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