Cd_3As_2 Structure: A2B3_tI160_142_deg_3g-001

This structure originally had the label `A2B3_tI160_142_deg_3g`. Calls to that address will be redirected here.

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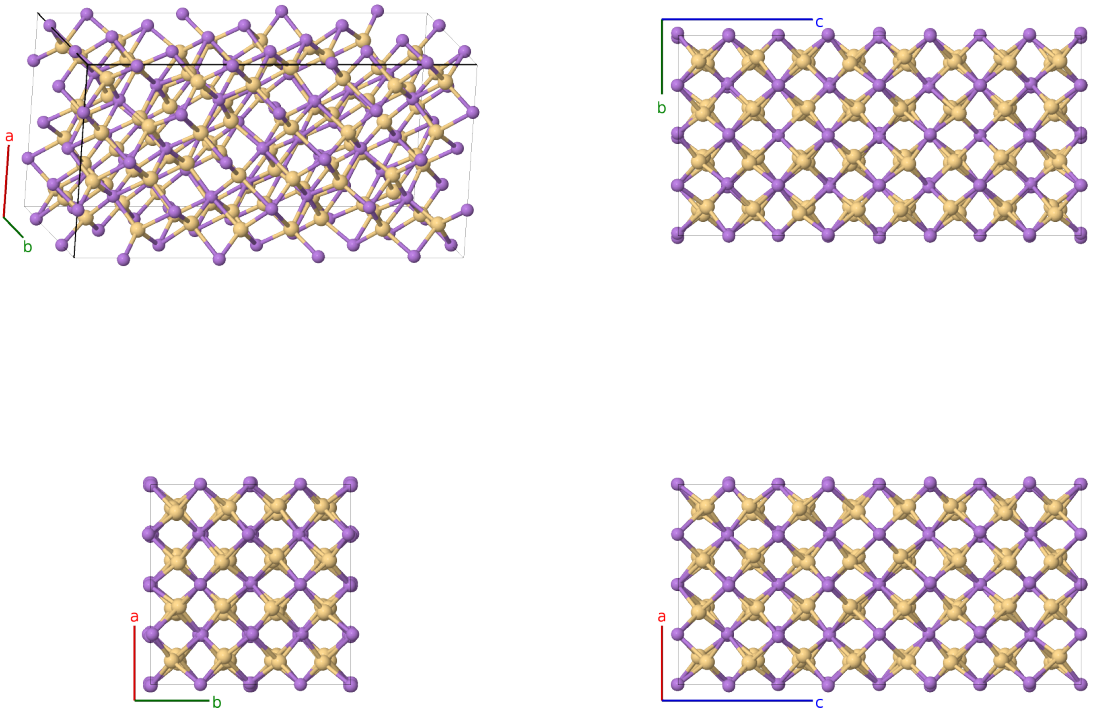
https://aflow.org/p/1P80

https://aflow.org/p/A2B3_tI160_142_deg_3g-001

As
Cd



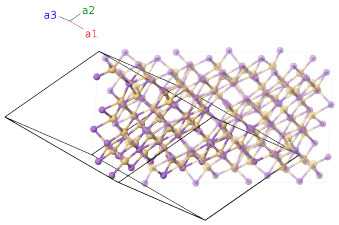
Prototype	As_2Cd_3
AFLOW prototype label	A2B3_tI160_142_deg_3g-001
ICSD	238075
Pearson symbol	tI160
Space group number	142
Space group symbol	$I4_1/acd$
AFLOW prototype command	`aflow --proto=A2B3_tI160_142_deg_3g-001 --params=`$a, c/a, z_1, x_2, x_3, y_3, z_3, x_4, y_4, z_4, x_5, y_5, z_5, x_6, y_6, z_6$

Other compounds with this structure

Zn_3As_2

Body-centered Tetragonal primitive vectors

$$\begin{aligned}\mathbf{a_1} &= -\tfrac{1}{2}a\,\hat{\mathbf{x}} + \tfrac{1}{2}a\,\hat{\mathbf{y}} + \tfrac{1}{2}c\,\hat{\mathbf{z}}\\ \mathbf{a_2} &= \tfrac{1}{2}a\,\hat{\mathbf{x}} - \tfrac{1}{2}a\,\hat{\mathbf{y}} + \tfrac{1}{2}c\,\hat{\mathbf{z}}\\ \mathbf{a_3} &= \tfrac{1}{2}a\,\hat{\mathbf{x}} + \tfrac{1}{2}a\,\hat{\mathbf{y}} - \tfrac{1}{2}c\,\hat{\mathbf{z}}\end{aligned}$$



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$\left(z_1+\frac{1}{4}\right)\mathbf{a}_1 + z_1\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{y}} + cz_1\,\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_2}$	=	$z_1\,\mathbf{a}_1 + \left(z_1+\frac{1}{4}\right)\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + c\left(z_1-\frac{1}{4}\right)\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_3}$	=	$-\left(z_1-\frac{1}{4}\right)\mathbf{a}_1 - \left(z_1-\frac{1}{2}\right)\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} - cz_1\,\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_4}$	=	$-\left(z_1-\frac{1}{2}\right)\mathbf{a}_1 - \left(z_1-\frac{1}{4}\right)\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{y}} - c\left(z_1-\frac{1}{4}\right)\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_5}$	=	$-\left(z_1-\frac{3}{4}\right)\mathbf{a}_1 - z_1\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{y}} - cz_1\,\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_6}$	=	$-z_1\,\mathbf{a}_1 - \left(z_1-\frac{3}{4}\right)\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - \frac{1}{4}a\,\hat{\mathbf{y}} - c\left(z_1-\frac{1}{4}\right)\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_7}$	=	$\left(z_1+\frac{3}{4}\right)\mathbf{a}_1 + \left(z_1+\frac{1}{2}\right)\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{y}} + c\left(z_1+\frac{1}{2}\right)\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_8}$	=	$\left(z_1+\frac{1}{2}\right)\mathbf{a}_1 + \left(z_1+\frac{3}{4}\right)\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + c\left(z_1+\frac{1}{4}\right)\hat{\mathbf{z}}$	(16d)	As I
$\mathbf{B_9}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \left(x_2+\frac{1}{4}\right)\mathbf{a}_2 + x_2\,\mathbf{a}_3$	=	$ax_2\,\hat{\mathbf{x}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{10}}$	=	$\frac{3}{4}\,\mathbf{a}_1 - \left(x_2-\frac{1}{4}\right)\mathbf{a}_2 - \left(x_2-\frac{1}{2}\right)\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{11}}$	=	$\left(x_2+\frac{1}{4}\right)\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + x_2\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + a\left(x_2-\frac{1}{4}\right)\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{12}}$	=	$-\left(x_2-\frac{1}{4}\right)\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - \left(x_2-\frac{1}{2}\right)\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} - a\left(x_2-\frac{1}{4}\right)\hat{\mathbf{y}}$	(16e)	As II
$\mathbf{B_{13}}$	=	$\frac{3}{4}\,\mathbf{a}_1 - \left(x_2-\frac{3}{4}\right)\mathbf{a}_2 - x_2\,\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{3}{4}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{14}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \left(x_2+\frac{3}{4}\right)\mathbf{a}_2 + \left(x_2+\frac{1}{2}\right)\mathbf{a}_3$	=	$a\left(x_2+\frac{1}{2}\right)\hat{\mathbf{x}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{15}}$	=	$-\left(x_2-\frac{3}{4}\right)\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - x_2\,\mathbf{a}_3$	=	$-\frac{1}{4}a\,\hat{\mathbf{x}} - a\left(x_2-\frac{1}{4}\right)\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{16}}$	=	$\left(x_2+\frac{3}{4}\right)\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \left(x_2+\frac{1}{2}\right)\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + a\left(x_2+\frac{1}{4}\right)\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(16e)	As II
$\mathbf{B_{17}}$	=	$(y_3+z_3)\,\mathbf{a}_1 + (x_3+z_3)\,\mathbf{a}_2 + (x_3+y_3)\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} + ay_3\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(32g)	As III
$\mathbf{B_{18}}$	=	$\left(-y_3+z_3+\frac{1}{2}\right)\mathbf{a}_1 - (x_3-z_3)\,\mathbf{a}_2 - \left(x_3+y_3-\frac{1}{2}\right)\mathbf{a}_3$	=	$-ax_3\,\hat{\mathbf{x}} - a\left(y_3-\frac{1}{2}\right)\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(32g)	As III
$\mathbf{B_{19}}$	=	$(x_3+z_3)\,\mathbf{a}_1 + \left(-y_3+z_3+\frac{1}{2}\right)\mathbf{a}_2 + (x_3-y_3)\,\mathbf{a}_3$	=	$-a\left(y_3-\frac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_3-\frac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_3+\frac{1}{4}\right)\hat{\mathbf{z}}$	(32g)	As III
$\mathbf{B_{20}}$	=	$-(x_3-z_3)\,\mathbf{a}_1 + (y_3+z_3)\,\mathbf{a}_2 + \left(-x_3+y_3+\frac{1}{2}\right)\mathbf{a}_3$	=	$a\left(y_3+\frac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_3-\frac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_3-\frac{1}{4}\right)\hat{\mathbf{z}}$	(32g)	As III
$\mathbf{B_{21}}$	=	$(y_3-z_3)\,\mathbf{a}_1 - \left(x_3+z_3-\frac{1}{2}\right)\mathbf{a}_2 + \left(-x_3+y_3+\frac{1}{2}\right)\mathbf{a}_3$	=	$-a\left(x_3-\frac{1}{2}\right)\hat{\mathbf{x}} + ay_3\,\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}}$	(32g)	As III
$\mathbf{B_{22}}$	=	$-\left(y_3+z_3-\frac{1}{2}\right)\mathbf{a}_1 + \left(x_3-z_3+\frac{1}{2}\right)\mathbf{a}_2 + (x_3-y_3)\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} - ay_3\,\hat{\mathbf{y}} - c\left(z_3-\frac{1}{2}\right)\hat{\mathbf{z}}$	(32g)	As III

$$\mathbf{B_{23}} = \left(x_3 - z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + (y_3 - z_3)\,\mathbf{a}_2 + (x_3 + y_3)\,\mathbf{a}_3 = a\left(y_3 - \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_3 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_3 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{24}} = -\left(x_3 + z_3 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_3 + z_3 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_3 + y_3 - \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_3 - \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_3 - \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_3 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{25}} = -(y_3 + z_3)\,\mathbf{a}_1 - (x_3 + z_3)\,\mathbf{a}_2 - (x_3 + y_3)\,\mathbf{a}_3 = -ax_3\,\hat{\mathbf{x}} - ay_3\,\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{26}} = \left(y_3 - z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + (x_3 - z_3)\,\mathbf{a}_2 + \left(x_3 + y_3 + \tfrac{1}{2}\right)\mathbf{a}_3 = ax_3\,\hat{\mathbf{x}} + a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{27}} = -(x_3 + z_3)\,\mathbf{a}_1 + \left(y_3 - z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 - (x_3 - y_3)\,\mathbf{a}_3 = a\left(y_3 + \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_3 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_3 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{28}} = (x_3 - z_3)\,\mathbf{a}_1 - (y_3 + z_3)\,\mathbf{a}_2 + \left(x_3 - y_3 + \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_3 - \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_3 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_3 + \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{29}} = -(y_3 - z_3)\,\mathbf{a}_1 + \left(x_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_3 - y_3 + \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - ay_3\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{30}} = \left(y_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(-x_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 - (x_3 - y_3)\,\mathbf{a}_3 = -ax_3\,\hat{\mathbf{x}} + ay_3\,\hat{\mathbf{y}} + c\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{31}} = \left(-x_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 - (y_3 - z_3)\,\mathbf{a}_2 - (x_3 + y_3)\,\mathbf{a}_3 = -a\left(y_3 + \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_3 - \tfrac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_3 + \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{32}} = \left(x_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_3 + z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_3 + y_3 + \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(y_3 + \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_3 + \tfrac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_3 + \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{As III}$$

$$\mathbf{B_{33}} = (y_4 + z_4)\,\mathbf{a}_1 + (x_4 + z_4)\,\mathbf{a}_2 + (x_4 + y_4)\,\mathbf{a}_3 = ax_4\,\hat{\mathbf{x}} + ay_4\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{34}} = \left(-y_4 + z_4 + \tfrac{1}{2}\right)\mathbf{a}_1 - (x_4 - z_4)\,\mathbf{a}_2 - \left(x_4 + y_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = -ax_4\,\hat{\mathbf{x}} - a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{35}} = (x_4 + z_4)\,\mathbf{a}_1 + \left(-y_4 + z_4 + \tfrac{1}{2}\right)\mathbf{a}_2 + (x_4 - y_4)\,\mathbf{a}_3 = -a\left(y_4 - \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_4 - \tfrac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_4 + \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{36}} = -(x_4 - z_4)\,\mathbf{a}_1 + (y_4 + z_4)\,\mathbf{a}_2 + \left(-x_4 + y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(y_4 + \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_4 - \tfrac{1}{4}\right)\hat{\mathbf{y}} + c\left(z_4 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{37}} = (y_4 - z_4)\,\mathbf{a}_1 - \left(x_4 + z_4 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(-x_4 + y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + ay_4\,\hat{\mathbf{y}} - cz_4\,\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{38}} = -\left(y_4 + z_4 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(x_4 - z_4 + \tfrac{1}{2}\right)\mathbf{a}_2 + (x_4 - y_4)\,\mathbf{a}_3 = ax_4\,\hat{\mathbf{x}} - ay_4\,\hat{\mathbf{y}} - c\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{39}} = \left(x_4 - z_4 + \tfrac{1}{2}\right)\mathbf{a}_1 + (y_4 - z_4)\,\mathbf{a}_2 + (x_4 + y_4)\,\mathbf{a}_3 = a\left(y_4 - \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_4 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_4 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{40}} = -\left(x_4 + z_4 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_4 + z_4 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_4 + y_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_4 - \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_4 - \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_4 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{41}} = -(y_4 + z_4)\,\mathbf{a}_1 - (x_4 + z_4)\,\mathbf{a}_2 - (x_4 + y_4)\,\mathbf{a}_3 = -ax_4\,\hat{\mathbf{x}} - ay_4\,\hat{\mathbf{y}} - cz_4\,\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{42}} = \left(y_4 - z_4 + \tfrac{1}{2}\right)\mathbf{a}_1 + (x_4 - z_4)\,\mathbf{a}_2 + \left(x_4 + y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = ax_4\,\hat{\mathbf{x}} + a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - cz_4\,\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{43}} = -(x_4 + z_4)\,\mathbf{a}_1 + \left(y_4 - z_4 + \tfrac{1}{2}\right)\mathbf{a}_2 - (x_4 - y_4)\,\mathbf{a}_3 = a\left(y_4 + \tfrac{1}{4}\right)\hat{\mathbf{x}} - a\left(x_4 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_4 - \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$$\mathbf{B_{44}} = (x_4 - z_4)\,\mathbf{a}_1 - (y_4 + z_4)\,\mathbf{a}_2 + \left(x_4 - y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_4 - \tfrac{1}{4}\right)\hat{\mathbf{x}} + a\left(x_4 + \tfrac{1}{4}\right)\hat{\mathbf{y}} - c\left(z_4 + \tfrac{1}{4}\right)\hat{\mathbf{z}} \quad (32g) \quad \text{Cd I}$$

$\mathbf{B_{45}}$	=	$-\left(y_4-z_4\right)\,\mathbf{a}_1+\left(x_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_4-y_4+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_4+\frac{1}{2}\right)\,\hat{\mathbf{x}}-ay_4\,\hat{\mathbf{y}}+cz_4\,\hat{\mathbf{z}}$	(32g)	Cd I
$\mathbf{B_{46}}$	=	$\left(y_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_1+\left(-x_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_4-y_4\right)\,\mathbf{a}_3$	=	$-ax_4\,\hat{\mathbf{x}}+ay_4\,\hat{\mathbf{y}}+c\left(z_4+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(32g)	Cd I
$\mathbf{B_{47}}$	=	$\left(-x_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_4-z_4\right)\,\mathbf{a}_2-\left(x_4+y_4\right)\,\mathbf{a}_3$	=	$-a\left(y_4+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_4-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_4+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd I
$\mathbf{B_{48}}$	=	$\left(x_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_4+z_4+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_4+y_4+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_4+\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_4+\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_4+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd I
$\mathbf{B_{49}}$	=	$\left(y_5+z_5\right)\,\mathbf{a}_1+\left(x_5+z_5\right)\,\mathbf{a}_2+\left(x_5+y_5\right)\,\mathbf{a}_3$	=	$ax_5\,\hat{\mathbf{x}}+ay_5\,\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{50}}$	=	$\left(-y_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_1-\left(x_5-z_5\right)\,\mathbf{a}_2-\left(x_5+y_5-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-ax_5\,\hat{\mathbf{x}}-a\left(y_5-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{51}}$	=	$\left(x_5+z_5\right)\,\mathbf{a}_1+\left(-y_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_5-y_5\right)\,\mathbf{a}_3$	=	$-a\left(y_5-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_5-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_5+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{52}}$	=	$-\left(x_5-z_5\right)\,\mathbf{a}_1+\left(y_5+z_5\right)\,\mathbf{a}_2+\left(-x_5+y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_5+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_5-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_5-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{53}}$	=	$\left(y_5-z_5\right)\,\mathbf{a}_1-\left(x_5+z_5-\frac{1}{2}\right)\,\mathbf{a}_2+\left(-x_5+y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_5-\frac{1}{2}\right)\,\hat{\mathbf{x}}+ay_5\,\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{54}}$	=	$-\left(y_5+z_5-\frac{1}{2}\right)\,\mathbf{a}_1+\left(x_5-z_5+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_5-y_5\right)\,\mathbf{a}_3$	=	$ax_5\,\hat{\mathbf{x}}-ay_5\,\hat{\mathbf{y}}-c\left(z_5-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{55}}$	=	$\left(x_5-z_5+\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_5-z_5\right)\,\mathbf{a}_2+\left(x_5+y_5\right)\,\mathbf{a}_3$	=	$a\left(y_5-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_5+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_5-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{56}}$	=	$-\left(x_5+z_5-\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_5+z_5-\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_5+y_5-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_5-\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_5-\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_5-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{57}}$	=	$-\left(y_5+z_5\right)\,\mathbf{a}_1-\left(x_5+z_5\right)\,\mathbf{a}_2-\left(x_5+y_5\right)\,\mathbf{a}_3$	=	$-ax_5\,\hat{\mathbf{x}}-ay_5\,\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{58}}$	=	$\left(y_5-z_5+\frac{1}{2}\right)\,\mathbf{a}_1+\left(x_5-z_5\right)\,\mathbf{a}_2+\left(x_5+y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_5\,\hat{\mathbf{x}}+a\left(y_5+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{59}}$	=	$-\left(x_5+z_5\right)\,\mathbf{a}_1+\left(y_5-z_5+\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_5-y_5\right)\,\mathbf{a}_3$	=	$a\left(y_5+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_5+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_5-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{60}}$	=	$\left(x_5-z_5\right)\,\mathbf{a}_1-\left(y_5+z_5\right)\,\mathbf{a}_2+\left(x_5-y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_5-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_5+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_5+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{61}}$	=	$-\left(y_5-z_5\right)\,\mathbf{a}_1+\left(x_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_5-y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_5+\frac{1}{2}\right)\,\hat{\mathbf{x}}-ay_5\,\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{62}}$	=	$\left(y_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_1+\left(-x_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_5-y_5\right)\,\mathbf{a}_3$	=	$-ax_5\,\hat{\mathbf{x}}+ay_5\,\hat{\mathbf{y}}+c\left(z_5+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{63}}$	=	$\left(-x_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_5-z_5\right)\,\mathbf{a}_2-\left(x_5+y_5\right)\,\mathbf{a}_3$	=	$-a\left(y_5+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_5-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_5+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{64}}$	=	$\left(x_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_5+z_5+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_5+y_5+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_5+\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_5+\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_5+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd II
$\mathbf{B_{65}}$	=	$\left(y_6+z_6\right)\,\mathbf{a}_1+\left(x_6+z_6\right)\,\mathbf{a}_2+\left(x_6+y_6\right)\,\mathbf{a}_3$	=	$ax_6\,\hat{\mathbf{x}}+ay_6\,\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III

$\mathbf{B_{66}}$	=	$\left(-y_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_1-\left(x_6-z_6\right)\,\mathbf{a}_2-\left(x_6+y_6-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-ax_6\,\hat{\mathbf{x}}-a\left(y_6-\frac{1}{2}\right)\,\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{67}}$	=	$\left(x_6+z_6\right)\,\mathbf{a}_1+\left(-y_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_6-y_6\right)\,\mathbf{a}_3$	=	$-a\left(y_6-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_6-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_6+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{68}}$	=	$-\left(x_6-z_6\right)\,\mathbf{a}_1+\left(y_6+z_6\right)\,\mathbf{a}_2+\left(-x_6+y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_6+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_6-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_6-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{69}}$	=	$\left(y_6-z_6\right)\,\mathbf{a}_1-\left(x_6+z_6-\frac{1}{2}\right)\,\mathbf{a}_2+\left(-x_6+y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_6-\frac{1}{2}\right)\,\hat{\mathbf{x}}+ay_6\,\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{70}}$	=	$-\left(y_6+z_6-\frac{1}{2}\right)\,\mathbf{a}_1+\left(x_6-z_6+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_6-y_6\right)\,\mathbf{a}_3$	=	$ax_6\,\hat{\mathbf{x}}-ay_6\,\hat{\mathbf{y}}-c\left(z_6-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{71}}$	=	$\left(x_6-z_6+\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_6-z_6\right)\,\mathbf{a}_2+\left(x_6+y_6\right)\,\mathbf{a}_3$	=	$a\left(y_6-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_6+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_6-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{72}}$	=	$-\left(x_6+z_6-\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_6+z_6-\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_6+y_6-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_6-\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_6-\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_6-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{73}}$	=	$-\left(y_6+z_6\right)\,\mathbf{a}_1-\left(x_6+z_6\right)\,\mathbf{a}_2-\left(x_6+y_6\right)\,\mathbf{a}_3$	=	$-ax_6\,\hat{\mathbf{x}}-ay_6\,\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{74}}$	=	$\left(y_6-z_6+\frac{1}{2}\right)\,\mathbf{a}_1+\left(x_6-z_6\right)\,\mathbf{a}_2+\left(x_6+y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_6\,\hat{\mathbf{x}}+a\left(y_6+\frac{1}{2}\right)\,\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{75}}$	=	$-\left(x_6+z_6\right)\,\mathbf{a}_1+\left(y_6-z_6+\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_6-y_6\right)\,\mathbf{a}_3$	=	$a\left(y_6+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_6+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_6-\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{76}}$	=	$\left(x_6-z_6\right)\,\mathbf{a}_1-\left(y_6+z_6\right)\,\mathbf{a}_2+\left(x_6-y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_6-\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_6+\frac{1}{4}\right)\,\hat{\mathbf{y}}-c\left(z_6+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{77}}$	=	$-\left(y_6-z_6\right)\,\mathbf{a}_1+\left(x_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_6-y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_6+\frac{1}{2}\right)\,\hat{\mathbf{x}}-ay_6\,\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{78}}$	=	$\left(y_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_1+\left(-x_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_2-\left(x_6-y_6\right)\,\mathbf{a}_3$	=	$-ax_6\,\hat{\mathbf{x}}+ay_6\,\hat{\mathbf{y}}+c\left(z_6+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{79}}$	=	$\left(-x_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_1-\left(y_6-z_6\right)\,\mathbf{a}_2-\left(x_6+y_6\right)\,\mathbf{a}_3$	=	$-a\left(y_6+\frac{1}{4}\right)\,\hat{\mathbf{x}}-a\left(x_6-\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_6+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III
$\mathbf{B_{80}}$	=	$\left(x_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_1+\left(y_6+z_6+\frac{1}{2}\right)\,\mathbf{a}_2+\left(x_6+y_6+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_6+\frac{1}{4}\right)\,\hat{\mathbf{x}}+a\left(x_6+\frac{1}{4}\right)\,\hat{\mathbf{y}}+c\left(z_6+\frac{1}{4}\right)\,\hat{\mathbf{z}}$	(32g)	Cd III

References

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