

YCd₆ Structure:

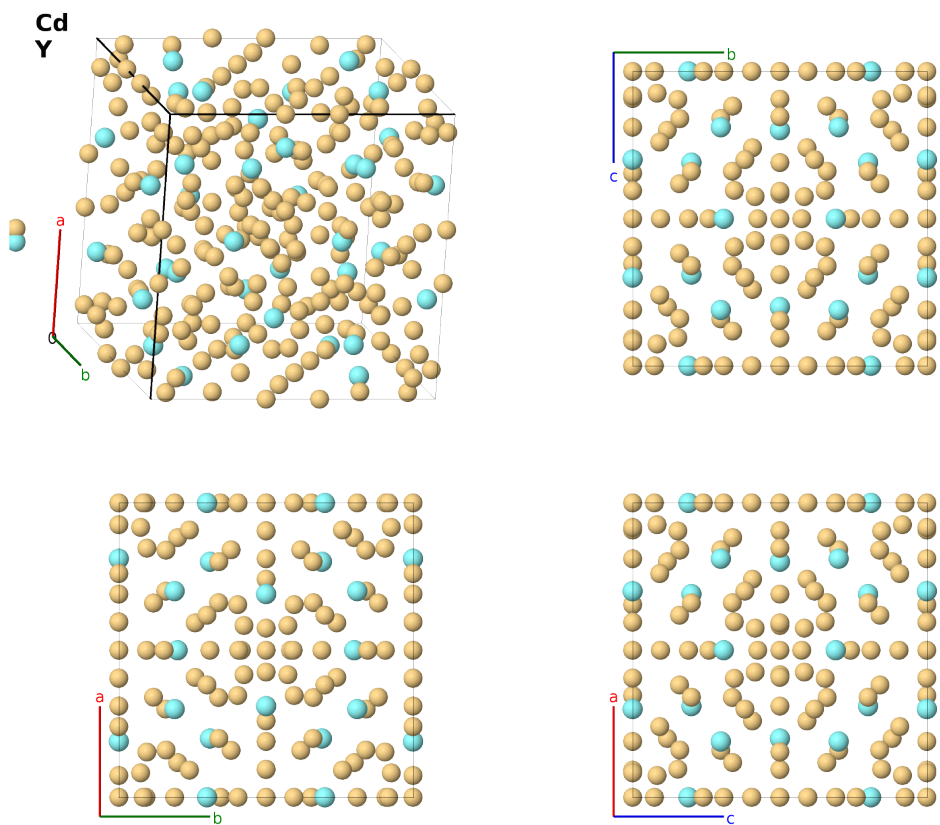
A20B3_cI184_204_def3gh_g-001

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- D. Hicks, M. J. Mehl, M. Esters, C. Oses, O. Levy, G. L. W. Hart, C. Toher, and S. Curtarolo, *The AFLOW Library of Crystallographic Prototypes: Part 3*, Comput. Mater. Sci. **199**, 110450 (2021), doi: 10.1016/j.commatsci.2021.110450.

<https://aflow.org/prototype-encyclopedia/HYXN>

https://aflow.org/prototype-encyclopedia/A20B3_cI184_204_def3gh_g-001



Prototype	Cd ₆ Y
AFLOW prototype label	A20B3_cI184_204_def3gh_g-001
ICSD	9148
CCDC	1594197
Pearson symbol	cI184
Space group number	204
Space group symbol	$Im\bar{3}$
AFLOW prototype command	<pre>aflow --proto=A20B3_cI184_204_def3gh_g-001 --params=a, x₁, x₂, x₃, y₄, z₄, y₅, z₅, y₆, z₆, y₇, z₇, x₈, y₈, z₈</pre>

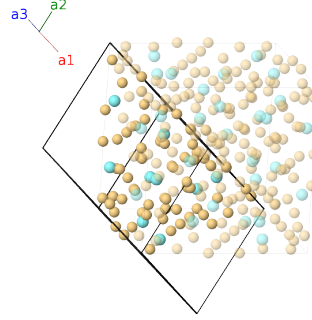
Other compounds with this structure

CeCd₆, DyCd₆, ErCd₆, EuCd₆, GdCd₆, HoCd₆, LuCd₆, NdCd₆, PrCd₆, PuCd₆, SmCd₆, TbCd₆, TmCd₆

- The site we label Cd-VI is occupied only 33.1% of the time. Removing this atom transforms this to the Ru₃Be₁₇ structure.
- (Armbrüster, 2000) found that what had previously been thought to be CeCd₆ was actually Ce₆Cd₃₇. This suggests that other XCd₆ structures may actually have different compositions.
- (Armbrüster, 2000) also give a structure for CeCd₆ which differs slightly from the one presented here.

Body-centered Cubic primitive vectors

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



Basis vectors

	Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B}_1$	$x_1 \mathbf{a}_2 + x_1 \mathbf{a}_3$	=	$ax_1 \hat{\mathbf{x}}$	(12d)	Cd I
$\mathbf{B}_2$	$-x_1 \mathbf{a}_2 - x_1 \mathbf{a}_3$	=	$-ax_1 \hat{\mathbf{x}}$	(12d)	Cd I
$\mathbf{B}_3$	$x_1 \mathbf{a}_1 + x_1 \mathbf{a}_3$	=	$ax_1 \hat{\mathbf{y}}$	(12d)	Cd I
$\mathbf{B}_4$	$-x_1 \mathbf{a}_1 - x_1 \mathbf{a}_3$	=	$-ax_1 \hat{\mathbf{y}}$	(12d)	Cd I
$\mathbf{B}_5$	$x_1 \mathbf{a}_1 + x_1 \mathbf{a}_2$	=	$ax_1 \hat{\mathbf{z}}$	(12d)	Cd I
$\mathbf{B}_6$	$-x_1 \mathbf{a}_1 - x_1 \mathbf{a}_2$	=	$-ax_1 \hat{\mathbf{z}}$	(12d)	Cd I
$\mathbf{B}_7$	$\frac{1}{2} \mathbf{a}_1 + (x_2 + \frac{1}{2}) \mathbf{a}_2 + x_2 \mathbf{a}_3$	=	$ax_2 \hat{\mathbf{x}} + \frac{1}{2}a \hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B}_8$	$\frac{1}{2} \mathbf{a}_1 - (x_2 - \frac{1}{2}) \mathbf{a}_2 - x_2 \mathbf{a}_3$	=	$-ax_2 \hat{\mathbf{x}} + \frac{1}{2}a \hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B}_9$	$x_2 \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2 + (x_2 + \frac{1}{2}) \mathbf{a}_3$	=	$\frac{1}{2}a \hat{\mathbf{x}} + ax_2 \hat{\mathbf{y}}$	(12e)	Cd II
$\mathbf{B}_{10}$	$-x_2 \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2 - (x_2 - \frac{1}{2}) \mathbf{a}_3$	=	$\frac{1}{2}a \hat{\mathbf{x}} - ax_2 \hat{\mathbf{y}}$	(12e)	Cd II
$\mathbf{B}_{11}$	$(x_2 + \frac{1}{2}) \mathbf{a}_1 + x_2 \mathbf{a}_2 + \frac{1}{2} \mathbf{a}_3$	=	$\frac{1}{2}a \hat{\mathbf{y}} + ax_2 \hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B}_{12}$	$-(x_2 - \frac{1}{2}) \mathbf{a}_1 - x_2 \mathbf{a}_2 + \frac{1}{2} \mathbf{a}_3$	=	$\frac{1}{2}a \hat{\mathbf{y}} - ax_2 \hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B}_{13}$	$2x_3 \mathbf{a}_1 + 2x_3 \mathbf{a}_2 + 2x_3 \mathbf{a}_3$	=	$ax_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{14}$	$-2x_3 \mathbf{a}_3$	=	$-ax_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{15}$	$-2x_3 \mathbf{a}_2$	=	$-ax_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{16}$	$-2x_3 \mathbf{a}_1$	=	$ax_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{17}$	$-2x_3 \mathbf{a}_1 - 2x_3 \mathbf{a}_2 - 2x_3 \mathbf{a}_3$	=	$-ax_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{18}$	$2x_3 \mathbf{a}_3$	=	$ax_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} - ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{19}$	$2x_3 \mathbf{a}_2$	=	$ax_3 \hat{\mathbf{x}} - ax_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}}$	(16f)	Cd III
$\mathbf{B}_{20}$	$2x_3 \mathbf{a}_1$	=	$-ax_3 \hat{\mathbf{x}} + ax_3 \hat{\mathbf{y}} + ax_3 \hat{\mathbf{z}}$	(16f)	Cd III

$\mathbf{B}_{21} =$	$(y_4 + z_4) \mathbf{a}_1 + z_4 \mathbf{a}_2 + y_4 \mathbf{a}_3$	$=$	$ay_4 \hat{\mathbf{y}} + az_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{22} =$	$-(y_4 - z_4) \mathbf{a}_1 + z_4 \mathbf{a}_2 - y_4 \mathbf{a}_3$	$=$	$-ay_4 \hat{\mathbf{y}} + az_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{23} =$	$(y_4 - z_4) \mathbf{a}_1 - z_4 \mathbf{a}_2 + y_4 \mathbf{a}_3$	$=$	$ay_4 \hat{\mathbf{y}} - az_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{24} =$	$-(y_4 + z_4) \mathbf{a}_1 - z_4 \mathbf{a}_2 - y_4 \mathbf{a}_3$	$=$	$-ay_4 \hat{\mathbf{y}} - az_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{25} =$	$y_4 \mathbf{a}_1 + (y_4 + z_4) \mathbf{a}_2 + z_4 \mathbf{a}_3$	$=$	$az_4 \hat{\mathbf{x}} + ay_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{26} =$	$-y_4 \mathbf{a}_1 - (y_4 - z_4) \mathbf{a}_2 + z_4 \mathbf{a}_3$	$=$	$az_4 \hat{\mathbf{x}} - ay_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{27} =$	$y_4 \mathbf{a}_1 + (y_4 - z_4) \mathbf{a}_2 - z_4 \mathbf{a}_3$	$=$	$-az_4 \hat{\mathbf{x}} + ay_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{28} =$	$-y_4 \mathbf{a}_1 - (y_4 + z_4) \mathbf{a}_2 - z_4 \mathbf{a}_3$	$=$	$-az_4 \hat{\mathbf{x}} - ay_4 \hat{\mathbf{z}}$	(24g)	Cd IV
$\mathbf{B}_{29} =$	$z_4 \mathbf{a}_1 + y_4 \mathbf{a}_2 + (y_4 + z_4) \mathbf{a}_3$	$=$	$ay_4 \hat{\mathbf{x}} + az_4 \hat{\mathbf{y}}$	(24g)	Cd IV
$\mathbf{B}_{30} =$	$z_4 \mathbf{a}_1 - y_4 \mathbf{a}_2 - (y_4 - z_4) \mathbf{a}_3$	$=$	$-ay_4 \hat{\mathbf{x}} + az_4 \hat{\mathbf{y}}$	(24g)	Cd IV
$\mathbf{B}_{31} =$	$-z_4 \mathbf{a}_1 + y_4 \mathbf{a}_2 + (y_4 - z_4) \mathbf{a}_3$	$=$	$ay_4 \hat{\mathbf{x}} - az_4 \hat{\mathbf{y}}$	(24g)	Cd IV
$\mathbf{B}_{32} =$	$-z_4 \mathbf{a}_1 - y_4 \mathbf{a}_2 - (y_4 + z_4) \mathbf{a}_3$	$=$	$-ay_4 \hat{\mathbf{x}} - az_4 \hat{\mathbf{y}}$	(24g)	Cd IV
$\mathbf{B}_{33} =$	$(y_5 + z_5) \mathbf{a}_1 + z_5 \mathbf{a}_2 + y_5 \mathbf{a}_3$	$=$	$ay_5 \hat{\mathbf{y}} + az_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{34} =$	$-(y_5 - z_5) \mathbf{a}_1 + z_5 \mathbf{a}_2 - y_5 \mathbf{a}_3$	$=$	$-ay_5 \hat{\mathbf{y}} + az_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{35} =$	$(y_5 - z_5) \mathbf{a}_1 - z_5 \mathbf{a}_2 + y_5 \mathbf{a}_3$	$=$	$ay_5 \hat{\mathbf{y}} - az_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{36} =$	$-(y_5 + z_5) \mathbf{a}_1 - z_5 \mathbf{a}_2 - y_5 \mathbf{a}_3$	$=$	$-ay_5 \hat{\mathbf{y}} - az_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{37} =$	$y_5 \mathbf{a}_1 + (y_5 + z_5) \mathbf{a}_2 + z_5 \mathbf{a}_3$	$=$	$az_5 \hat{\mathbf{x}} + ay_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{38} =$	$-y_5 \mathbf{a}_1 - (y_5 - z_5) \mathbf{a}_2 + z_5 \mathbf{a}_3$	$=$	$az_5 \hat{\mathbf{x}} - ay_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{39} =$	$y_5 \mathbf{a}_1 + (y_5 - z_5) \mathbf{a}_2 - z_5 \mathbf{a}_3$	$=$	$-az_5 \hat{\mathbf{x}} + ay_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{40} =$	$-y_5 \mathbf{a}_1 - (y_5 + z_5) \mathbf{a}_2 - z_5 \mathbf{a}_3$	$=$	$-az_5 \hat{\mathbf{x}} - ay_5 \hat{\mathbf{z}}$	(24g)	Cd V
$\mathbf{B}_{41} =$	$z_5 \mathbf{a}_1 + y_5 \mathbf{a}_2 + (y_5 + z_5) \mathbf{a}_3$	$=$	$ay_5 \hat{\mathbf{x}} + az_5 \hat{\mathbf{y}}$	(24g)	Cd V
$\mathbf{B}_{42} =$	$z_5 \mathbf{a}_1 - y_5 \mathbf{a}_2 - (y_5 - z_5) \mathbf{a}_3$	$=$	$-ay_5 \hat{\mathbf{x}} + az_5 \hat{\mathbf{y}}$	(24g)	Cd V
$\mathbf{B}_{43} =$	$-z_5 \mathbf{a}_1 + y_5 \mathbf{a}_2 + (y_5 - z_5) \mathbf{a}_3$	$=$	$ay_5 \hat{\mathbf{x}} - az_5 \hat{\mathbf{y}}$	(24g)	Cd V
$\mathbf{B}_{44} =$	$-z_5 \mathbf{a}_1 - y_5 \mathbf{a}_2 - (y_5 + z_5) \mathbf{a}_3$	$=$	$-ay_5 \hat{\mathbf{x}} - az_5 \hat{\mathbf{y}}$	(24g)	Cd V
$\mathbf{B}_{45} =$	$(y_6 + z_6) \mathbf{a}_1 + z_6 \mathbf{a}_2 + y_6 \mathbf{a}_3$	$=$	$ay_6 \hat{\mathbf{y}} + az_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{46} =$	$-(y_6 - z_6) \mathbf{a}_1 + z_6 \mathbf{a}_2 - y_6 \mathbf{a}_3$	$=$	$-ay_6 \hat{\mathbf{y}} + az_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{47} =$	$(y_6 - z_6) \mathbf{a}_1 - z_6 \mathbf{a}_2 + y_6 \mathbf{a}_3$	$=$	$ay_6 \hat{\mathbf{y}} - az_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{48} =$	$-(y_6 + z_6) \mathbf{a}_1 - z_6 \mathbf{a}_2 - y_6 \mathbf{a}_3$	$=$	$-ay_6 \hat{\mathbf{y}} - az_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{49} =$	$y_6 \mathbf{a}_1 + (y_6 + z_6) \mathbf{a}_2 + z_6 \mathbf{a}_3$	$=$	$az_6 \hat{\mathbf{x}} + ay_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{50} =$	$-y_6 \mathbf{a}_1 - (y_6 - z_6) \mathbf{a}_2 + z_6 \mathbf{a}_3$	$=$	$az_6 \hat{\mathbf{x}} - ay_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{51} =$	$y_6 \mathbf{a}_1 + (y_6 - z_6) \mathbf{a}_2 - z_6 \mathbf{a}_3$	$=$	$-az_6 \hat{\mathbf{x}} + ay_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{52} =$	$-y_6 \mathbf{a}_1 - (y_6 + z_6) \mathbf{a}_2 - z_6 \mathbf{a}_3$	$=$	$-az_6 \hat{\mathbf{x}} - ay_6 \hat{\mathbf{z}}$	(24g)	Cd VI
$\mathbf{B}_{53} =$	$z_6 \mathbf{a}_1 + y_6 \mathbf{a}_2 + (y_6 + z_6) \mathbf{a}_3$	$=$	$ay_6 \hat{\mathbf{x}} + az_6 \hat{\mathbf{y}}$	(24g)	Cd VI
$\mathbf{B}_{54} =$	$z_6 \mathbf{a}_1 - y_6 \mathbf{a}_2 - (y_6 - z_6) \mathbf{a}_3$	$=$	$-ay_6 \hat{\mathbf{x}} + az_6 \hat{\mathbf{y}}$	(24g)	Cd VI
$\mathbf{B}_{55} =$	$-z_6 \mathbf{a}_1 + y_6 \mathbf{a}_2 + (y_6 - z_6) \mathbf{a}_3$	$=$	$ay_6 \hat{\mathbf{x}} - az_6 \hat{\mathbf{y}}$	(24g)	Cd VI
$\mathbf{B}_{56} =$	$-z_6 \mathbf{a}_1 - y_6 \mathbf{a}_2 - (y_6 + z_6) \mathbf{a}_3$	$=$	$-ay_6 \hat{\mathbf{x}} - az_6 \hat{\mathbf{y}}$	(24g)	Cd VI
$\mathbf{B}_{57} =$	$(y_7 + z_7) \mathbf{a}_1 + z_7 \mathbf{a}_2 + y_7 \mathbf{a}_3$	$=$	$ay_7 \hat{\mathbf{y}} + az_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{58} =$	$-(y_7 - z_7) \mathbf{a}_1 + z_7 \mathbf{a}_2 - y_7 \mathbf{a}_3$	$=$	$-ay_7 \hat{\mathbf{y}} + az_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{59} =$	$(y_7 - z_7) \mathbf{a}_1 - z_7 \mathbf{a}_2 + y_7 \mathbf{a}_3$	$=$	$ay_7 \hat{\mathbf{y}} - az_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{60} =$	$-(y_7 + z_7) \mathbf{a}_1 - z_7 \mathbf{a}_2 - y_7 \mathbf{a}_3$	$=$	$-ay_7 \hat{\mathbf{y}} - az_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{61} =$	$y_7 \mathbf{a}_1 + (y_7 + z_7) \mathbf{a}_2 + z_7 \mathbf{a}_3$	$=$	$az_7 \hat{\mathbf{x}} + ay_7 \hat{\mathbf{z}}$	(24g)	Y I

$\mathbf{B}_{62} =$	$-y_7 \mathbf{a}_1 - (y_7 - z_7) \mathbf{a}_2 + z_7 \mathbf{a}_3$	$=$	$az_7 \hat{\mathbf{x}} - ay_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{63} =$	$y_7 \mathbf{a}_1 + (y_7 - z_7) \mathbf{a}_2 - z_7 \mathbf{a}_3$	$=$	$-az_7 \hat{\mathbf{x}} + ay_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{64} =$	$-y_7 \mathbf{a}_1 - (y_7 + z_7) \mathbf{a}_2 - z_7 \mathbf{a}_3$	$=$	$-az_7 \hat{\mathbf{x}} - ay_7 \hat{\mathbf{z}}$	(24g)	Y I
$\mathbf{B}_{65} =$	$z_7 \mathbf{a}_1 + y_7 \mathbf{a}_2 + (y_7 + z_7) \mathbf{a}_3$	$=$	$ay_7 \hat{\mathbf{x}} + az_7 \hat{\mathbf{y}}$	(24g)	Y I
$\mathbf{B}_{66} =$	$z_7 \mathbf{a}_1 - y_7 \mathbf{a}_2 - (y_7 - z_7) \mathbf{a}_3$	$=$	$-ay_7 \hat{\mathbf{x}} + az_7 \hat{\mathbf{y}}$	(24g)	Y I
$\mathbf{B}_{67} =$	$-z_7 \mathbf{a}_1 + y_7 \mathbf{a}_2 + (y_7 - z_7) \mathbf{a}_3$	$=$	$ay_7 \hat{\mathbf{x}} - az_7 \hat{\mathbf{y}}$	(24g)	Y I
$\mathbf{B}_{68} =$	$-z_7 \mathbf{a}_1 - y_7 \mathbf{a}_2 - (y_7 + z_7) \mathbf{a}_3$	$=$	$-ay_7 \hat{\mathbf{x}} - az_7 \hat{\mathbf{y}}$	(24g)	Y I
$\mathbf{B}_{69} =$	$(y_8 + z_8) \mathbf{a}_1 + (x_8 + z_8) \mathbf{a}_2 +$ $(x_8 + y_8) \mathbf{a}_3$	$=$	$ax_8 \hat{\mathbf{x}} + ay_8 \hat{\mathbf{y}} + az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{70} =$	$-(y_8 - z_8) \mathbf{a}_1 - (x_8 - z_8) \mathbf{a}_2 -$ $(x_8 + y_8) \mathbf{a}_3$	$=$	$-ax_8 \hat{\mathbf{x}} - ay_8 \hat{\mathbf{y}} + az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{71} =$	$(y_8 - z_8) \mathbf{a}_1 - (x_8 + z_8) \mathbf{a}_2 -$ $(x_8 - y_8) \mathbf{a}_3$	$=$	$-ax_8 \hat{\mathbf{x}} + ay_8 \hat{\mathbf{y}} - az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{72} =$	$-(y_8 + z_8) \mathbf{a}_1 + (x_8 - z_8) \mathbf{a}_2 +$ $(x_8 - y_8) \mathbf{a}_3$	$=$	$ax_8 \hat{\mathbf{x}} - ay_8 \hat{\mathbf{y}} - az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{73} =$	$(x_8 + y_8) \mathbf{a}_1 + (y_8 + z_8) \mathbf{a}_2 +$ $(x_8 + z_8) \mathbf{a}_3$	$=$	$az_8 \hat{\mathbf{x}} + ax_8 \hat{\mathbf{y}} + ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{74} =$	$-(x_8 + y_8) \mathbf{a}_1 - (y_8 - z_8) \mathbf{a}_2 -$ $(x_8 - z_8) \mathbf{a}_3$	$=$	$az_8 \hat{\mathbf{x}} - ax_8 \hat{\mathbf{y}} - ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{75} =$	$-(x_8 - y_8) \mathbf{a}_1 + (y_8 - z_8) \mathbf{a}_2 -$ $(x_8 + z_8) \mathbf{a}_3$	$=$	$-az_8 \hat{\mathbf{x}} - ax_8 \hat{\mathbf{y}} + ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{76} =$	$(x_8 - y_8) \mathbf{a}_1 - (y_8 + z_8) \mathbf{a}_2 +$ $(x_8 - z_8) \mathbf{a}_3$	$=$	$-az_8 \hat{\mathbf{x}} + ax_8 \hat{\mathbf{y}} - ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{77} =$	$(x_8 + z_8) \mathbf{a}_1 + (x_8 + y_8) \mathbf{a}_2 +$ $(y_8 + z_8) \mathbf{a}_3$	$=$	$ay_8 \hat{\mathbf{x}} + az_8 \hat{\mathbf{y}} + ax_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{78} =$	$-(x_8 - z_8) \mathbf{a}_1 - (x_8 + y_8) \mathbf{a}_2 -$ $(y_8 - z_8) \mathbf{a}_3$	$=$	$-ay_8 \hat{\mathbf{x}} + az_8 \hat{\mathbf{y}} - ax_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{79} =$	$-(x_8 + z_8) \mathbf{a}_1 - (x_8 - y_8) \mathbf{a}_2 +$ $(y_8 - z_8) \mathbf{a}_3$	$=$	$ay_8 \hat{\mathbf{x}} - az_8 \hat{\mathbf{y}} - ax_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{80} =$	$(x_8 - z_8) \mathbf{a}_1 + (x_8 - y_8) \mathbf{a}_2 -$ $(y_8 + z_8) \mathbf{a}_3$	$=$	$-ay_8 \hat{\mathbf{x}} - az_8 \hat{\mathbf{y}} + ax_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{81} =$	$-(y_8 + z_8) \mathbf{a}_1 - (x_8 + z_8) \mathbf{a}_2 -$ $(x_8 + y_8) \mathbf{a}_3$	$=$	$-ax_8 \hat{\mathbf{x}} - ay_8 \hat{\mathbf{y}} - az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{82} =$	$(y_8 - z_8) \mathbf{a}_1 + (x_8 - z_8) \mathbf{a}_2 +$ $(x_8 + y_8) \mathbf{a}_3$	$=$	$ax_8 \hat{\mathbf{x}} + ay_8 \hat{\mathbf{y}} - az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{83} =$	$-(y_8 - z_8) \mathbf{a}_1 + (x_8 + z_8) \mathbf{a}_2 +$ $(x_8 - y_8) \mathbf{a}_3$	$=$	$ax_8 \hat{\mathbf{x}} - ay_8 \hat{\mathbf{y}} + az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{84} =$	$(y_8 + z_8) \mathbf{a}_1 - (x_8 - z_8) \mathbf{a}_2 -$ $(x_8 - y_8) \mathbf{a}_3$	$=$	$-ax_8 \hat{\mathbf{x}} + ay_8 \hat{\mathbf{y}} + az_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{85} =$	$-(x_8 + y_8) \mathbf{a}_1 - (y_8 + z_8) \mathbf{a}_2 -$ $(x_8 + z_8) \mathbf{a}_3$	$=$	$-az_8 \hat{\mathbf{x}} - ax_8 \hat{\mathbf{y}} - ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{86} =$	$(x_8 + y_8) \mathbf{a}_1 + (y_8 - z_8) \mathbf{a}_2 +$ $(x_8 - z_8) \mathbf{a}_3$	$=$	$-az_8 \hat{\mathbf{x}} + ax_8 \hat{\mathbf{y}} + ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{87} =$	$(x_8 - y_8) \mathbf{a}_1 - (y_8 - z_8) \mathbf{a}_2 +$ $(x_8 + z_8) \mathbf{a}_3$	$=$	$az_8 \hat{\mathbf{x}} + ax_8 \hat{\mathbf{y}} - ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B}_{88} =$	$-(x_8 - y_8) \mathbf{a}_1 + (y_8 + z_8) \mathbf{a}_2 -$ $(x_8 - z_8) \mathbf{a}_3$	$=$	$az_8 \hat{\mathbf{x}} - ax_8 \hat{\mathbf{y}} + ay_8 \hat{\mathbf{z}}$	(48h)	Cd VII

$$\begin{aligned}
\mathbf{B}_{89} &= \begin{matrix} -(x_8 + z_8) \mathbf{a}_1 - (x_8 + y_8) \mathbf{a}_2 - \\ (y_8 + z_8) \mathbf{a}_3 \end{matrix} = -ay_8 \hat{\mathbf{x}} - az_8 \hat{\mathbf{y}} - ax_8 \hat{\mathbf{z}} & (48h) & \text{Cd VII} \\
\mathbf{B}_{90} &= \begin{matrix} (x_8 - z_8) \mathbf{a}_1 + (x_8 + y_8) \mathbf{a}_2 + \\ (y_8 - z_8) \mathbf{a}_3 \end{matrix} = ay_8 \hat{\mathbf{x}} - az_8 \hat{\mathbf{y}} + ax_8 \hat{\mathbf{z}} & (48h) & \text{Cd VII} \\
\mathbf{B}_{91} &= \begin{matrix} (x_8 + z_8) \mathbf{a}_1 + (x_8 - y_8) \mathbf{a}_2 - \\ (y_8 - z_8) \mathbf{a}_3 \end{matrix} = -ay_8 \hat{\mathbf{x}} + az_8 \hat{\mathbf{y}} + ax_8 \hat{\mathbf{z}} & (48h) & \text{Cd VII} \\
\mathbf{B}_{92} &= \begin{matrix} -(x_8 - z_8) \mathbf{a}_1 - (x_8 - y_8) \mathbf{a}_2 + \\ (y_8 + z_8) \mathbf{a}_3 \end{matrix} = ay_8 \hat{\mathbf{x}} + az_8 \hat{\mathbf{y}} - ax_8 \hat{\mathbf{z}} & (48h) & \text{Cd VII}
\end{aligned}$$

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