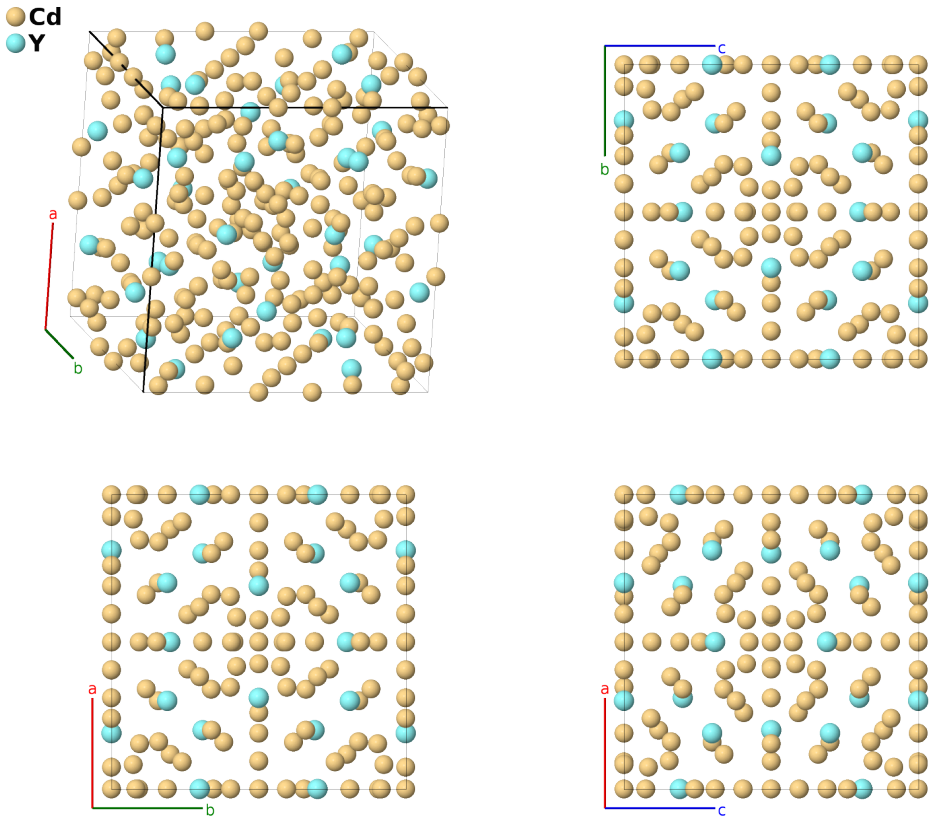
YCd_6 Structure: A20B3_cI184_204_def3gh_g-001

Cite this page as: H. Eckert, S. Divilov, A. Zettel, M. J. Mehl, D. Hicks, and S. Curtarolo, *The AFLOW Library of Crystallographic Prototypes: Part 4*. In preparation.

https://aflow.org/p/HYXN

https://aflow.org/p/A20B3_cI184_204_def3gh_g-001



Prototype	Cd_6Y
AFLOW prototype label	A20B3_cI184_204_def3gh_g-001
ICSD	9148
Pearson symbol	cI184
Space group number	204
Space group symbol	$Im\bar{3}$
AFLOW prototype command	`aflow --proto=A20B3_cI184_204_def3gh_g-001 --params=`$a, x_1, x_2, x_3, y_4, z_4, y_5, z_5, y_6, z_6, y_7, z_7, x_8, y_8, z_8$

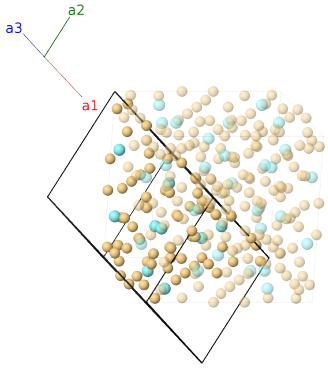
Other compounds with this structure

$CeCd_6$, $DyCd_6$, $ErCd_6$, $EuCd_6$, $GdCd_6$, $HoCd_6$, $LuCd_6$, $NdCd_6$, $PrCd_6$, $PuCd_6$, $SmCd_6$, $TbCd_6$, $TmCd_6$

- The site we label Cd-VI is occupied only 33.1% of the time. Removing this atom transforms this to the Ru_3Be_{17} structure.
- (Armbrüster, 2000) found that what had previously been thought to be $CeCd_6$ was actually Ce_6Cd_{37}. This suggests that other XCd_6 structures may actually have different compositions.
- (Armbrüster, 2000) also give a structure for $CeCd_6$ which differs slightly from the one presented here.

Body-centered Cubic primitive vectors

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



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
$\mathbf{B_7}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_2 + x_2\,\mathbf{a}_3$	=	$ax_2\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B_8}$	=	$\frac{1}{2}\,\mathbf{a}_1 - \left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_2 - x_2\,\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B_9}$	=	$x_2\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + ax_2\,\hat{\mathbf{y}}$	(12e)	Cd II
$\mathbf{B_{10}}$	=	$-x_2\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - ax_2\,\hat{\mathbf{y}}$	(12e)	Cd II
$\mathbf{B_{11}}$	=	$\left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_1 + x_2\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + ax_2\,\hat{\mathbf{z}}$	(12e)	Cd II
$\mathbf{B_{12}}$	=	$-\left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_1 - x_2\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} - ax_2\,\hat{\mathbf{z}}$	(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
$\mathbf{B_{89}}$	=	$-(x_8 + z_8)\,\mathbf{a}_1 - (x_8 + y_8)\,\mathbf{a}_2 - (y_8 + z_8)\,\mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} - az_8\,\hat{\mathbf{y}} - ax_8\,\hat{\mathbf{z}}$	(48h)	Cd VII

$\mathbf{B_{90}}$	=	$(x_8 - z_8)\ \mathbf{a}_1 + (x_8 + y_8)\ \mathbf{a}_2 + (y_8 - z_8)\ \mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} - az_8\,\hat{\mathbf{y}} + ax_8\,\hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B_{91}}$	=	$(x_8 + z_8)\ \mathbf{a}_1 + (x_8 - y_8)\ \mathbf{a}_2 - (y_8 - z_8)\ \mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} + az_8\,\hat{\mathbf{y}} + ax_8\,\hat{\mathbf{z}}$	(48h)	Cd VII
$\mathbf{B_{92}}$	=	$-(x_8 - z_8)\ \mathbf{a}_1 - (x_8 - y_8)\ \mathbf{a}_2 + (y_8 + z_8)\ \mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} + az_8\,\hat{\mathbf{y}} - ax_8\,\hat{\mathbf{z}}$	(48h)	Cd VII

References

[1] A. C. Larson and D. T. Cromer, *The Crystal Structure of YCd_6*, Acta Crystallogr. Sect. B **27**, 1875–1879 (1971), doi:10.1107/S0567740871005028.

[2] M. Armbrüster and S. Lidin, *Reassessing the compound $CeCd_6$: the structure of Ce_6Cd_{37}*, J. Alloys Compd. **307**, 141–148 (2000), doi:10.1016/S0925-8388(00)00881-1.

Found in

[1] P. Villars, H. Okamoto, and K. Cenzual, eds., *ASM Alloy Phase Diagram Database* (ASM International, 2018), chap. Alloy Phase Diagram Database Cadmium-Yttrium Binary Phase Diagram (1990 Gschneidner K.A. Jr.). Copyright ©2006-2018 ASM International.