

K₂CdPb Structure:

AB2C_oC16_40_a_2b_b-001

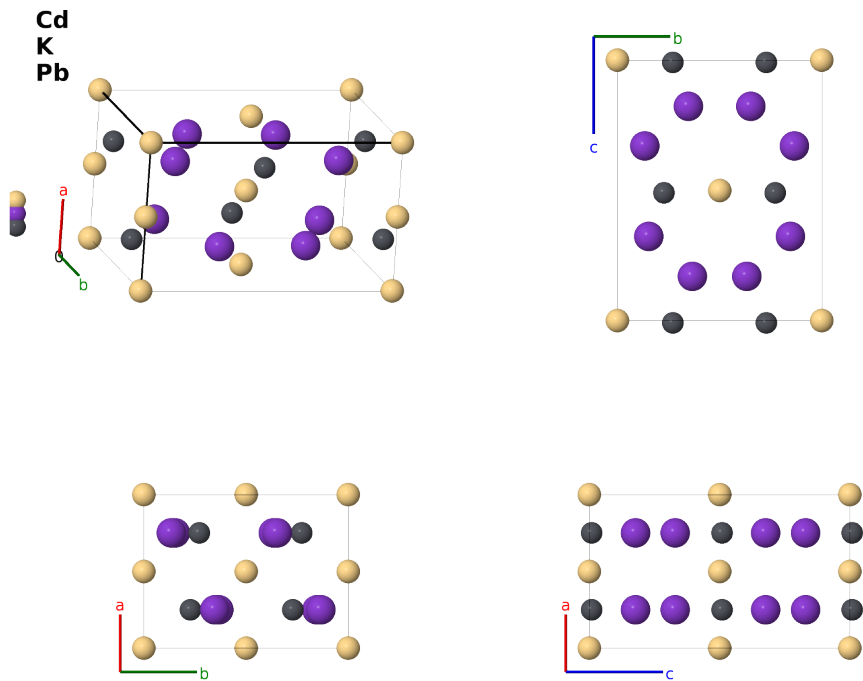
This structure previously used the label(s) **AB2C_oC16_40_a_2b_b**. Calls to these addresses will be redirected here.

Cite this page as:

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<https://aflow.org/prototype-encyclopedia/K8N1>

https://aflow.org/prototype-encyclopedia/AB2C_oC16_40_a_2b_b-001



Prototype	CdK ₂ Pb
AFLOW prototype label	AB2C_oC16_40_a_2b_b-001
ICSD	10041
CCDC	1594926
Pearson symbol	oC16
Space group number	40
Space group symbol	<i>Ama</i> 2
AFLOW prototype command	<code>aflow --proto=AB2C_oC16_40_a_2b_b-001</code> <code>--params=a,b/a,c/a,z₁,y₂,z₂,y₃,z₃,y₄,z₄</code>

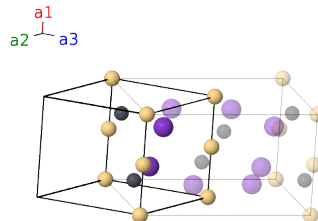
Other compounds with this structure

K_2CdSn

- Space group *Ama2* #40 allows an arbitrary choice of the origin of the z -axis. We use this to place the cadmium (4a) atom at the origin.

Base-centered Orthorhombic primitive vectors

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



Basis vectors

	Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B}_1$	$= -z_1 \mathbf{a}_2 + z_1 \mathbf{a}_3$	$=$	$cz_1 \hat{\mathbf{z}}$	(4a)	Cd I
$\mathbf{B}_2$	$= \frac{1}{2} \mathbf{a}_1 - z_1 \mathbf{a}_2 + z_1 \mathbf{a}_3$	$=$	$\frac{1}{2}a \hat{\mathbf{x}} + cz_1 \hat{\mathbf{z}}$	(4a)	Cd I
$\mathbf{B}_3$	$= \frac{1}{4} \mathbf{a}_1 + (y_2 - z_2) \mathbf{a}_2 + (y_2 + z_2) \mathbf{a}_3$	$=$	$\frac{1}{4}a \hat{\mathbf{x}} + by_2 \hat{\mathbf{y}} + cz_2 \hat{\mathbf{z}}$	(4b)	K I
$\mathbf{B}_4$	$= \frac{3}{4} \mathbf{a}_1 - (y_2 + z_2) \mathbf{a}_2 - (y_2 - z_2) \mathbf{a}_3$	$=$	$\frac{3}{4}a \hat{\mathbf{x}} - by_2 \hat{\mathbf{y}} + cz_2 \hat{\mathbf{z}}$	(4b)	K I
$\mathbf{B}_5$	$= \frac{1}{4} \mathbf{a}_1 + (y_3 - z_3) \mathbf{a}_2 + (y_3 + z_3) \mathbf{a}_3$	$=$	$\frac{1}{4}a \hat{\mathbf{x}} + by_3 \hat{\mathbf{y}} + cz_3 \hat{\mathbf{z}}$	(4b)	K II
$\mathbf{B}_6$	$= \frac{3}{4} \mathbf{a}_1 - (y_3 + z_3) \mathbf{a}_2 - (y_3 - z_3) \mathbf{a}_3$	$=$	$\frac{3}{4}a \hat{\mathbf{x}} - by_3 \hat{\mathbf{y}} + cz_3 \hat{\mathbf{z}}$	(4b)	K II
$\mathbf{B}_7$	$= \frac{1}{4} \mathbf{a}_1 + (y_4 - z_4) \mathbf{a}_2 + (y_4 + z_4) \mathbf{a}_3$	$=$	$\frac{1}{4}a \hat{\mathbf{x}} + by_4 \hat{\mathbf{y}} + cz_4 \hat{\mathbf{z}}$	(4b)	Pb I
$\mathbf{B}_8$	$= \frac{3}{4} \mathbf{a}_1 - (y_4 + z_4) \mathbf{a}_2 - (y_4 - z_4) \mathbf{a}_3$	$=$	$\frac{3}{4}a \hat{\mathbf{x}} - by_4 \hat{\mathbf{y}} + cz_4 \hat{\mathbf{z}}$	(4b)	Pb I

References

- [1] R. Matthes and H.-U. Schuster, *Synthese und Struktur der Phasen K_2CdSn und K_2CdPb* , Z. Naturforsch. B **34**, 541–543 (1979), doi:10.1515/znb-1979-0403.

Found in

- [1] P. Villars and K. Cenzual, *Pearson's Crystal Data – Crystal Structure Database for Inorganic Compounds* (2013). ASM International.

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