

β -Hg₄Pt Structure: A4B_cI10_229_c_a-001

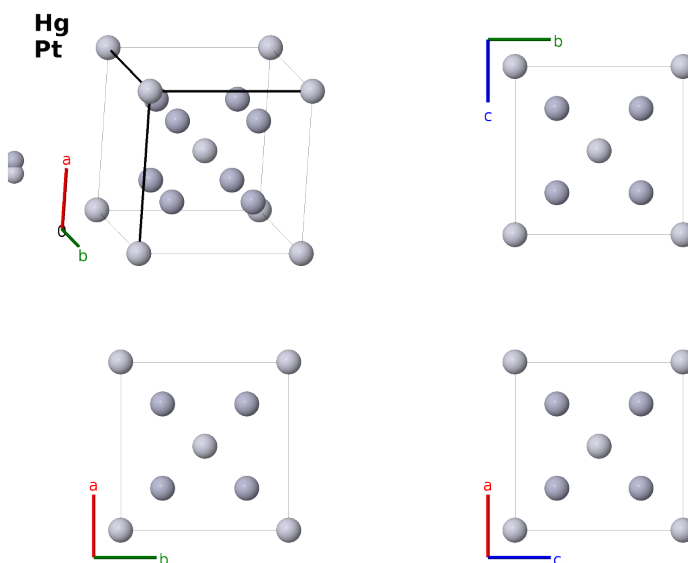
This structure previously used the label(s) **A4B_cI10_229_c_a**. Calls to these addresses will be redirected here.

Cite this page as:

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<https://aflow.org/prototype-encyclopedia/78LF>

https://aflow.org/prototype-encyclopedia/A4B_cI10_229_c_a-001



Prototype	Hg ₄ Pt
AFLOW prototype label	A4B_cI10_229_c_a-001
ICSD	150772
CCDC	1667910
Pearson symbol	cI10
Space group number	229
Space group symbol	$Im\bar{3}m$
AFLOW prototype command	<pre>aflow --proto=A4B_cI10_229_c_a-001 --params=a</pre>

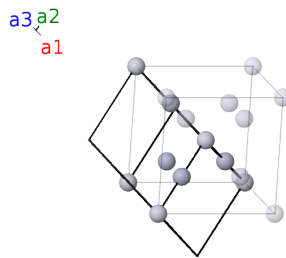
Other compounds with this structure

Hg₄Ni, Hg₄Pd, Hg₄U

- (Bauer, 1953) give the lattice constant in kX units. We convert this to Ångströms by multiplying that number by 1.00202 (Wood, 1947).

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
$\mathbf{B}_1$	$=$	0	$=$	0	(2a) Pt I
$\mathbf{B}_2$	$=$	$\frac{1}{2}\mathbf{a}_1 + \frac{1}{2}\mathbf{a}_2 + \frac{1}{2}\mathbf{a}_3$	$=$	$\frac{1}{4}a\hat{\mathbf{x}} + \frac{1}{4}a\hat{\mathbf{y}} + \frac{1}{4}a\hat{\mathbf{z}}$	(8c) Hg I
$\mathbf{B}_3$	$=$	$\frac{1}{2}\mathbf{a}_3$	$=$	$\frac{1}{4}a\hat{\mathbf{x}} + \frac{1}{4}a\hat{\mathbf{y}} - \frac{1}{4}a\hat{\mathbf{z}}$	(8c) Hg I
$\mathbf{B}_4$	$=$	$\frac{1}{2}\mathbf{a}_2$	$=$	$\frac{1}{4}a\hat{\mathbf{x}} - \frac{1}{4}a\hat{\mathbf{y}} + \frac{1}{4}a\hat{\mathbf{z}}$	(8c) Hg I
$\mathbf{B}_5$	$=$	$\frac{1}{2}\mathbf{a}_1$	$=$	$-\frac{1}{4}a\hat{\mathbf{x}} + \frac{1}{4}a\hat{\mathbf{y}} + \frac{1}{4}a\hat{\mathbf{z}}$	(8c) Hg I

References

- [1] E. Bauer, H. Nowotny, and A. Stempf, *Röntgenographische Untersuchungen im System: Platin-Quecksilber*, Monatsh. Chem. **84**, 211–212 (1953), doi:10.1007/BF00899140.
- [2] E. A. Wood, *The Conversion Factor for kX Units to Angström Units*, J. App. Phys. **18**, 929–930 (1947), doi:10.1063/1.1697570.

Found in

- [1] W. B. Pearson, *A Handbook of Lattice Spacings and Structures of Metals and Alloys, International Series of Monographs on Metal Physics and Physical Metallurgy*, vol. 4 (Pergamon Press, Oxford, London, Edinburgh, New York, Paris, Frankfurt, 1958), 1964 reprint with corrections edn.

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