$CeTe_3$ Structure: AB3_oC16_40_b_3b-001

This structure originally had the label `AB3_oC16_40_b_3b`. Calls to that address will be redirected here.

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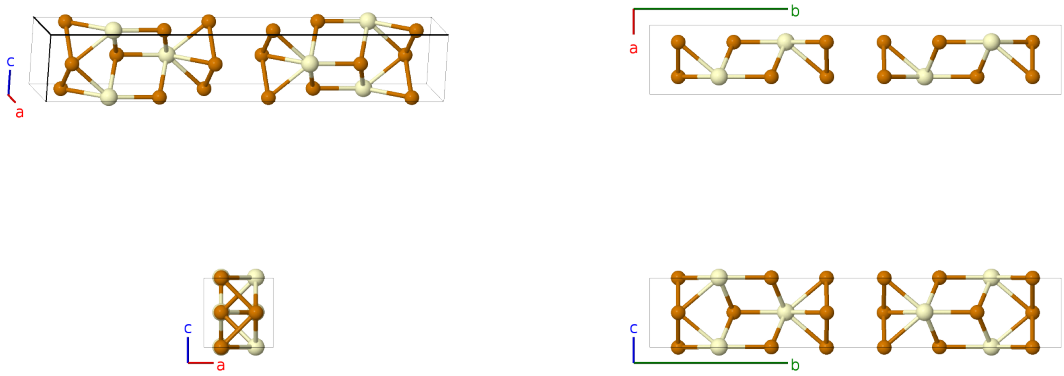
https://aflow.org/p/WA7J

https://aflow.org/p/AB3_oC16_40_b_3b-001

Ce
Te

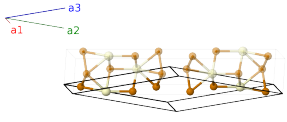


Prototype	$CeTe_3$
AFLOW prototype label	AB3_oC16_40_b_3b-001
ICSD	170556
Pearson symbol	oC16
Space group number	40
Space group symbol	$Ama2$
AFLOW prototype command	`aflow --proto=AB3_oC16_40_b_3b-001 --params=`$a, b/a, c/a, y_1, z_1, y_2, z_2, y_3, z_3, y_4, z_4$

Other compounds with this structure
$NdTe_3$, $PrTe_3$

Base-centered Orthorhombic primitive vectors

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



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$\frac{1}{4}\,\mathbf{a}_1+(y_1-z_1)\,\mathbf{a}_2+(y_1+z_1)\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}}+by_1\,\hat{\mathbf{y}}+cz_1\,\hat{\mathbf{z}}$	(4b)	Ce I
$\mathbf{B_2}$	=	$\frac{3}{4}\,\mathbf{a}_1-(y_1+z_1)\,\mathbf{a}_2-(y_1-z_1)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}}-by_1\,\hat{\mathbf{y}}+cz_1\,\hat{\mathbf{z}}$	(4b)	Ce 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)	Te 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)	Te 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)	Te 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)	Te 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)	Te III
$\mathbf{B_8}$	=	$\frac{3}{4}\,\mathbf{a}_1-(y_4+z_4)\,\mathbf{a}_2-(y_4-z_4)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}}-by_4\,\hat{\mathbf{y}}+cz_4\,\hat{\mathbf{z}}$	(4b)	Te III

References

[1] C. Malliakas, S. J. L. Billinge, H. J. Kim, and M. G. Kanatzidis, *Square Nets of Tellurium: Rare-Earth Dependent Variation in the Charge-Density Wave of $RETe_3$ (RE = Rare-Earth Element)*, J. Am. Chem. Soc. **127**, 6510–6511 (2005), doi:10.1021/ja0505292.

Found in

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