β-Ga Structure (*Obsolete*): A_mC4_15_e-001

This structure originally had the label `A_mC4_15_e`. Calls to that address will be redirected here.

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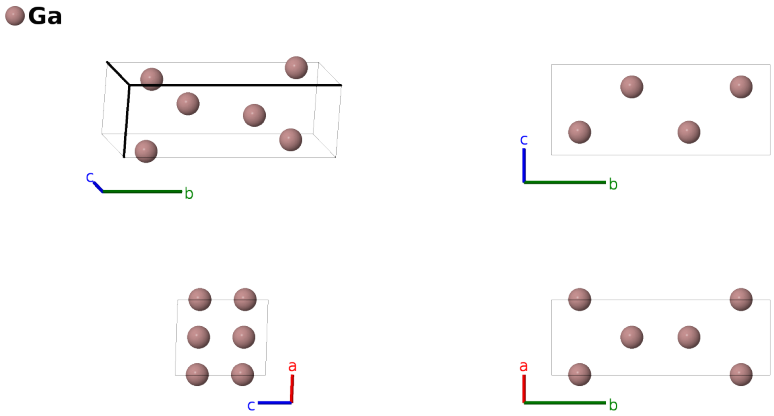
https://aflow.org/p/BRYB

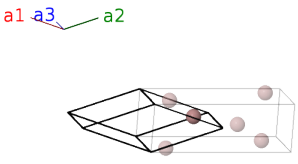
https://aflow.org/p/A_mC4_15_e-001



Prototype	Ga
AFLOW prototype label	A_mC4_15_e-001
ICSD	23247
Pearson symbol	mC4
Space group number	15
Space group symbol	$C2/c$
AFLOW prototype command	`aflow --proto=A_mC4_15_e-001 --params=`$a, b/a, c/a, \beta, y_1$

- This was proposed as a metastable structure of gallium, visible for short times at atomospheric pressure. The true structure is isostructural with indium ($A6$), and stablized under pressure.

Base-centered Monoclinic primitive vectors



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

Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$-y_1\,\mathbf{a}_1 + y_1\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}c\cos\beta\,\hat{\mathbf{x}} + by_1\,\hat{\mathbf{y}} + \frac{1}{4}c\sin\beta\,\hat{\mathbf{z}}$	(4e)	Ga I
$\mathbf{B_2}$	=	$y_1\,\mathbf{a}_1 - y_1\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}c\cos\beta\,\hat{\mathbf{x}} - by_1\,\hat{\mathbf{y}} + \frac{3}{4}c\sin\beta\,\hat{\mathbf{z}}$	(4e)	Ga I

References

[1] L. Bosio and A. Defrain, *Structure cristalline du gallium β*, Acta Crystallogr. Sect. B **25**, 995 (1969), doi:10.1107/S0567740869003360.

Found in

[1] J. Donohue, *The Structures of the Elements* (Robert E. Krieger Publishing Company, New York, 1974).