

Cu₂Mg Cubic Laves (*C*15) Structure: A2B_cF24_227_c_b-001

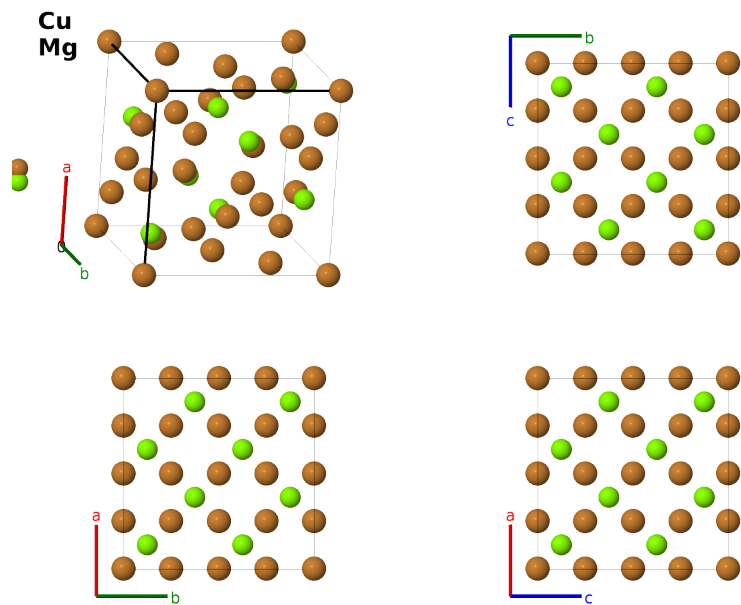
This structure previously used the label(s) **A2B_cF24_227_d_a**. Calls to these addresses will be redirected here.

Cite this page as:

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<https://aflow.org/prototype-encyclopedia/8YL7>

https://aflow.org/prototype-encyclopedia/A2B_cF24_227_c_b-001



Prototype	Cu ₂ Mg
AFLOW prototype label	A2B_cF24_227_c_b-001
<i>Strukturbericht</i> designation	<i>C</i> 15
Mineral name	laves
ICSD	108388
CCDC	1666050
Pearson symbol	cF24
Space group number	227
Space group symbol	<i>Fd</i> $\bar{3}m$
AFLOW prototype command	<code>aflow --proto=A2B_cF24_227_c_b-001</code> <code>--params=<i>a</i></code>

Other compounds with this structure

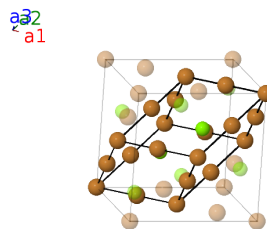
Al₂Ce, Al₂Dy, Al₂Er, Al₂Eu, Al₂Gd, Al₂Ho, Al₂La, Al₂Lu, Al₂Nb, Al₂Nd, Al₂Pr, Al₂Pu, Al₂Sc, Al₂Sm, Al₂Tb, Al₂Tm, Al₂U, Al₂Y, Al₂Yb, Au₂Bi, Au₂Na, Au₂Pb, Be₂Nb, Be₂Ta, Be₂Ti, Bi₂Cs, Bi₂K, Bi₂Rb, Co₂Ce, Co₂Dy, Co₂Er, Co₂Gd, Co₂Ho, Co₂Lu, Co₂Nb, Co₂Nd, Co₂Pr, Co₂Pu, Co₂Sc, Co₂Sm, Co₂Ta, Co₂Tb, Co₂Ti, Co₂Tm, Co₂U, Co₂Y, Co₂Yb, Co₂Zr, Cr₂Hf, Cr₂Ta, Cr₂Ti, Cr₂Zr, Fe₂Ce, Fe₂Dy, Fe₂Er, Fe₂Gd, Fe₂Hf, Fe₂Ho, Fe₂Lu, Fe₂Pu, Fe₂Sm, Fe₂Tm, Fe₂U, Fe₂Y, Fe₂Zr, Hf₂Mo, In₂Th, Ir₂Ca, Ir₂Ce, Ir₂Dy, Ir₂Er, Ir₂Eu, Ir₂Gd, Ir₂Ho, Ir₂La, Ir₂Lu, Ir₂Nd, Ir₂Pr, Ir₂Sc, Ir₂Sr, Ir₂Tb, Ir₂Th, Ir₂Tm, Ir₂U, Ir₂Y, Ir₂Zr, Mg₂Gd, Mg₂La, Mg₂Nd, Mg₂Pr, Mg₂Pu, Mg₂Sm, Mg₂Tb, Mg₂Th, Mg₂U, Mg₂Y, Mg₂Zr, Mn₂Ce, Mn₂Dy, Mn₂Gd, Mn₂Ho, Mn₂Pu, Mn₂Tb, Mn₂U, Mn₂Y, Mn₂Zr, Mo₂Zr, Ni₂Ce, Ni₂Dy, Ni₂Er, Ni₂Gd, Ni₂Ho, Ni₂La, Ni₂Nd, Ni₂Pu, Ni₂Tm, Os₂Ce, Os₂La, Os₂Pr, Os₂Th, Os₂U, Pa₂Ni, Pd₂Ba, Pd₂Ca, Pd₂Sr, Pr₂Ni, Pt₂Ba, Pt₂Ca, Pt₂Ce, Pt₂Dy, Pt₂Gd, Pt₂Ho, Pt₂La, Pt₂Nd, Pt₂Pr, Pt₂Sm, Pt₂Sr, Pt₂Tb, Pt₂Y, Rh₂Ca, Rh₂Ce, Rh₂Dy, Rh₂Er, Rh₂Gd, Rh₂Ho, Rh₂La, Rh₂Nd, Rh₂Pr, Rh₂Sr, Rh₂Tb, Rh₂Tm, Rh₂Y, Ru₂Ce, Ru₂Gd, Ru₂La, Ru₂Nd, Ru₂Pu, Ru₂Sm, Ru₂Th, S₂Nd, Sc₂Ni, Sm₂Ni, Tb₂Ni, Th₂Ba, Tm₂Ni, V₂Hf, V₂Zr, W₂Hf, W₂Zr, Y₂Ni, Yb₂Ni, Zn₂Pu, Zn₂Zr

Face-centered Cubic primitive vectors

$$\mathbf{a}_1 = \frac{1}{2}a\hat{\mathbf{y}} + \frac{1}{2}a\hat{\mathbf{z}}$$

$$\mathbf{a}_2 = \frac{1}{2}a\hat{\mathbf{x}} + \frac{1}{2}a\hat{\mathbf{z}}$$

$$\mathbf{a}_3 = \frac{1}{2}a\hat{\mathbf{x}} + \frac{1}{2}a\hat{\mathbf{y}}$$



Basis vectors

	Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B}_1$	$= \frac{3}{8}\mathbf{a}_1 + \frac{3}{8}\mathbf{a}_2 + \frac{3}{8}\mathbf{a}_3$	$=$	$\frac{3}{8}a\hat{\mathbf{x}} + \frac{3}{8}a\hat{\mathbf{y}} + \frac{3}{8}a\hat{\mathbf{z}}$	(8b)	Mg I
$\mathbf{B}_2$	$= \frac{5}{8}\mathbf{a}_1 + \frac{5}{8}\mathbf{a}_2 + \frac{5}{8}\mathbf{a}_3$	$=$	$\frac{5}{8}a\hat{\mathbf{x}} + \frac{5}{8}a\hat{\mathbf{y}} + \frac{5}{8}a\hat{\mathbf{z}}$	(8b)	Mg I
$\mathbf{B}_3$	$= 0$	$=$	0	(16c)	Cu I
$\mathbf{B}_4$	$= \frac{1}{2}\mathbf{a}_3$	$=$	$\frac{1}{4}a\hat{\mathbf{x}} + \frac{1}{4}a\hat{\mathbf{y}}$	(16c)	Cu I
$\mathbf{B}_5$	$= \frac{1}{2}\mathbf{a}_2$	$=$	$\frac{1}{4}a\hat{\mathbf{x}} + \frac{1}{4}a\hat{\mathbf{z}}$	(16c)	Cu I
$\mathbf{B}_6$	$= \frac{1}{2}\mathbf{a}_1$	$=$	$\frac{1}{4}a\hat{\mathbf{y}} + \frac{1}{4}a\hat{\mathbf{z}}$	(16c)	Cu I

References

- [1] J. B. Friauf, *The Crystal Structures of Two Intermetallic Compounds*, J. Am. Chem. Soc. **49**, 3107–3114 (1927), doi:10.1021/ja01411a017.

Found in

- [1] R. G. W. Wyckoff, *Crystal Structure*, vol. 1 (Interscience, New York, London, Sydney, 1963).

First cited in

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