Cu_2Mg Cubic Laves ($C15$) Structure: A2B_cF24_227_c_b-001

This structure originally had the label `A2B_cF24_227_d_a`. Calls to that address will be redirected here.

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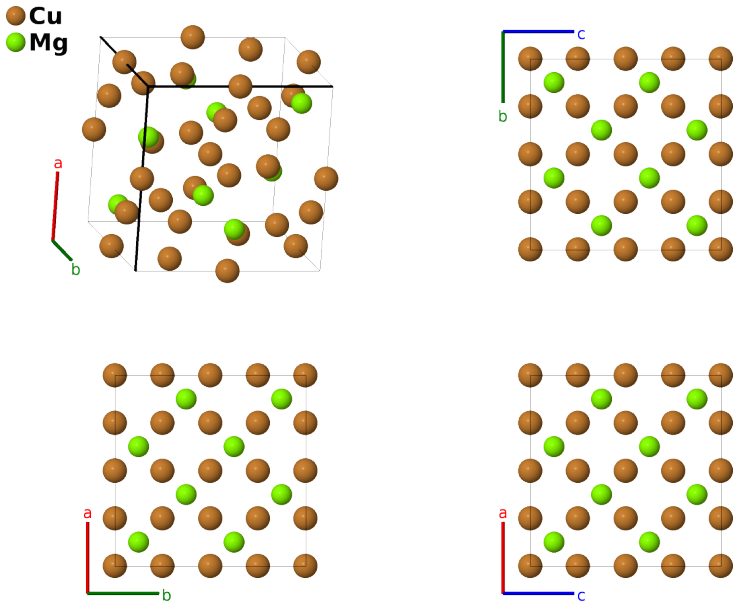
https://aflow.org/p/8YL7

https://aflow.org/p/A2B_cF24_227_c_b-001



Prototype	Cu_2Mg
AFLOW prototype label	A2B_cF24_227_c_b-001
***Strukturbericht* designation**	$C15$
Mineral name	laves
ICSD	108388
Pearson symbol	cF24
Space group number	227
Space group symbol	$Fd\bar{3}m$
AFLOW prototype command	`aflow --proto=A2B_cF24_227_c_b-001 --params=`a

Other compounds with this structure

Al_2Ce, Al_2Dy, Al_2Er, Al_2Eu, Al_2Gd, Al_2Ho, Al_2La, Al_2Lu, Al_2Nb, Al_2Nd, Al_2Pr, Al_2Pu, Al_2Sc, Al_2Sm, Al_2Tb, Al_2Tm, Al_2U, Al_2Y, Al_2Yb, Au_2Bi, Au_2Na, Au_2Pb, Be_2Nb, Be_2Ta, Be_2Ti, Bi_2Cs, Bi_2K, Bi_2Rb, Co_2Ce, Co_2Dy, Co_2Er, Co_2Gd, Co_2Ho, Co_2Lu, Co_2Nb, Co_2Nd, Co_2Pr, Co_2Pu, Co_2Sc, Co_2Sm, Co_2Ta, Co_2Tb, Co_2Ti, Co_2Tm, Co_2U, Co_2Y, Co_2Yb, Co_2Zr, Cr_2Hf, Cr_2Ta, Cr_2Ti, Cr_2Zr, Fe_2Ce, Fe_2Dy, Fe_2Er, Fe_2Gd, Fe_2Hf, Fe_2Ho, Fe_2Lu, Fe_2Pu, Fe_2Sm, Fe_2Tm, Fe_2U, Fe_2Y, Fe_2Zr, Hf_2Mo, In_2Th, Ir_2Ca, Ir_2Ce, Ir_2Dy, Ir_2Er, Ir_2Eu, Ir_2Gd, Ir_2Ho, Ir_2La, Ir_2Lu, Ir_2Nd, Ir_2Pr, Ir_2Sc, Ir_2Sr, Ir_2Tb, Ir_2Th, Ir_2Tm, Ir_2U,

Ir_2Y, Ir_2Zr, Mg_2Gd, Mg_2La, Mg_2Nd, Mg_2Pr, Mg_2Pu, Mg_2Sm, Mg_2Tb, Mg_2Th, Mg_2U, Mg_2Y, Mg_2Zr, Mn_2Ce, Mn_2Dy, Mn_2Gd, Mn_2Ho, Mn_2Pu, Mn_2Tb, Mn_2U, Mn_2Y, Mn_2Zr, Mo_2Zr, Ni_2Ce, Ni_2Dy, Ni_2Er, Ni_2Gd, Ni_2Ho, Ni_2La, Ni_2Nd, Ni_2Pu, Ni_2Tm, Os_2Ce, Os_2La, Os_2Pr, Os_2Th, Os_2U, Pa_2Ni, Pd_2Ba, Pd_2Ca, Pd_2Sr, Pr_2Ni, Pt_2Ba, Pt_2Ca, Pt_2Ce, Pt_2Dy, Pt_2Gd, Pt_2Ho, Pt_2La, Pt_2Nd, Pt_2Pr, Pt_2Sm, Pt_2Sr, Pt_2Tb, Pt_2Y, Rh_2Ca, Rh_2Ce, Rh_2Dy, Rh_2Er, Rh_2Gd, Rh_2Ho, Rh_2La, Rh_2Nd, Rh_2Pr, Rh_2Sr, Rh_2Tb, Rh_2Tm, Rh_2Y, Ru_2Ce, Ru_2Gd, Ru_2La, Ru_2Nd, Ru_2Pu, Ru_2Sm, Ru_2Th, Sc_2Ni, Sm_2Ni, Tb_2Ni, Th_2Ba, Tm_2Ni, V_2Hf, V_2Zr, W_2Hf, W_2Zr, Y_2Ni, Yb_2Ni, Zn_2Pu, Zn_2Zr

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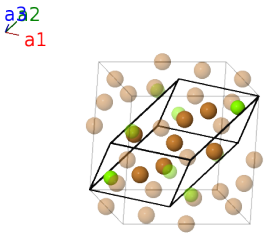
Face-centered Cubic primitive vectors

$$\mathbf{a_1} = \frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$$
$$\mathbf{a_2} = \frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$$
$$\mathbf{a_3} = \frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}}$$



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).