

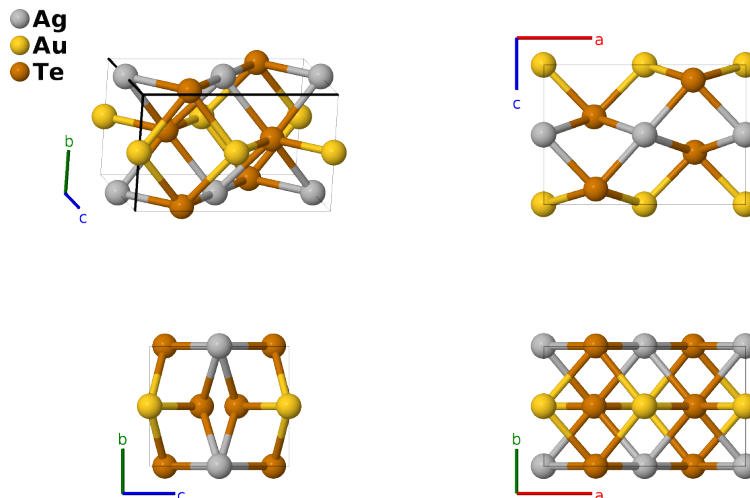
Muthmannite (AuAgTe₂) Structure: ABC2_mP8_10_ac_eh_mn-001

This structure originally had the label ABC2_mP8_10_ac_eh_mn. Calls to that address will be redirected here.

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<https://aflow.org/p/ALSR>

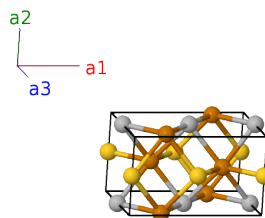
https://aflow.org/p/ABC2_mP8_10_ac_eh_mn-001



Prototype	AgAuTe ₂
AFLOW prototype label	ABC2_mP8_10_ac_eh_mn-001
Mineral name	muthmannite
ICSD	55250
Pearson symbol	mP8
Space group number	10
Space group symbol	<i>P2/m</i>
AFLOW prototype command	<code>aflow --proto=ABC2_mP8_10_ac_eh_mn-001 --params=a, b/a, c/a, β, x₅, z₅, x₆, z₆</code>

Simple Monoclinic primitive vectors

$$\begin{aligned} \mathbf{a}_1 &= a \hat{\mathbf{x}} \\ \mathbf{a}_2 &= b \hat{\mathbf{y}} \\ \mathbf{a}_3 &= c \cos \beta \hat{\mathbf{x}} + c \sin \beta \hat{\mathbf{z}} \end{aligned}$$



Basis vectors

	Lattice coordinates	=	Cartesian coordinates	Wyckoff position	Atom type
\mathbf{B}_1	=	0	=	0	(1a) Ag I
\mathbf{B}_2	=	$\frac{1}{2} \mathbf{a}_3$	=	$\frac{1}{2} c \cos \beta \hat{\mathbf{x}} + \frac{1}{2} c \sin \beta \hat{\mathbf{z}}$	(1c) Ag II
\mathbf{B}_3	=	$\frac{1}{2} \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2$	=	$\frac{1}{2} a \hat{\mathbf{x}} + \frac{1}{2} b \hat{\mathbf{y}}$	(1e) Au I
\mathbf{B}_4	=	$\frac{1}{2} \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2 + \frac{1}{2} \mathbf{a}_3$	=	$\frac{1}{2} (a + c \cos \beta) \hat{\mathbf{x}} + \frac{1}{2} b \hat{\mathbf{y}} + \frac{1}{2} c \sin \beta \hat{\mathbf{z}}$	(1h) Au II
\mathbf{B}_5	=	$x_5 \mathbf{a}_1 + z_5 \mathbf{a}_3$	=	$(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + cz_5 \sin \beta \hat{\mathbf{z}}$	(2m) Te I
\mathbf{B}_6	=	$-x_5 \mathbf{a}_1 - z_5 \mathbf{a}_3$	=	$-(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} - cz_5 \sin \beta \hat{\mathbf{z}}$	(2m) Te I
\mathbf{B}_7	=	$x_6 \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2 + z_6 \mathbf{a}_3$	=	$(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + \frac{1}{2} b \hat{\mathbf{y}} + cz_6 \sin \beta \hat{\mathbf{z}}$	(2n) Te II
\mathbf{B}_8	=	$-x_6 \mathbf{a}_1 + \frac{1}{2} \mathbf{a}_2 - z_6 \mathbf{a}_3$	=	$-(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + \frac{1}{2} b \hat{\mathbf{y}} - cz_6 \sin \beta \hat{\mathbf{z}}$	(2n) Te II

References

- [1] L. Bindi and C. Cipriani, *Ordered distribution of Au and Ag in the crystal structure of muthmannite, AuAgTe₂, a rare telluride from Sacarîmb, western Romania*, Am. Mineral. **89**, 1505–1509 (2004).