

High temperature Bi_2MoO_6 Structure:

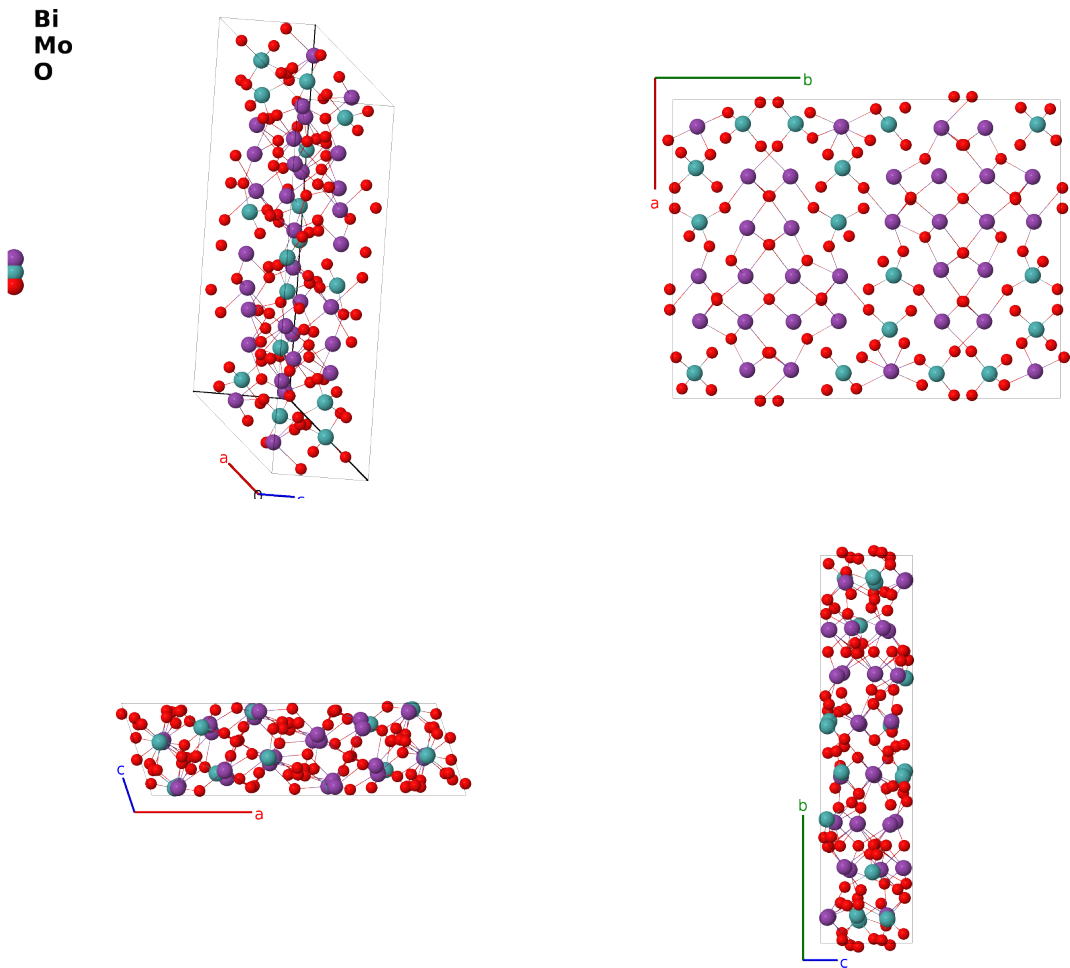
A2BC6_mP144_14_8e_4e_24e-001

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- D. Hicks, M. J. Mehl, M. Esters, C. Osos, O. Levy, G. L. W. Hart, C. Toher, and S. Curtarolo, *The AFLOW Library of Crystallographic Prototypes: Part 3*, Comput. Mater. Sci. **199**, 110450 (2021), doi: 10.1016/j.commatsci.2021.110450.

<https://aflow.org/prototype-encyclopedia/UYPX>

https://aflow.org/prototype-encyclopedia/A2BC6_mP144_14_8e_4e_24e-001



Prototype	Bi_2MoO_6
AFLOW prototype label	A2BC6_mP144_14_8e_4e_24e-001
ICSD	78179
CCDC	1638506
Pearson symbol	mP144
Space group number	14

Space group symbol

$P2_1/c$

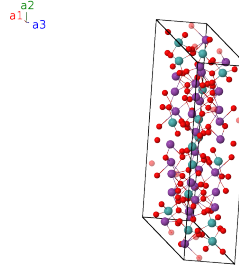
AFLOW prototype command

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y15,z15,x16,y16,z16,x17,y17,z17,x18,y18,z18,x19,y19,z19,x20,y20,z20,x21,y21,z21,x22,y22,
z22,x23,y23,z23,x24,y24,z24,x25,y25,z25,x26,y26,z26,x27,y27,z27,x28,y28,z28,x29,y29,z29,
x30,y30,z30,x31,y31,z31,x32,y32,z32,x33,y33,z33,x34,y34,z34,x35,y35,z35,x36,y36,z36
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- This is the high temperature monoclinic structure of Bi_2MoO_6 , stable above 896°C . Below that it transforms to the room-temperature koechlinite structure (Villars, 2018).

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
$\mathbf{B}_1$	$x_1 \mathbf{a}_1 + y_1 \mathbf{a}_2 + z_1 \mathbf{a}_3$	$=$	$(ax_1 + cz_1 \cos \beta) \hat{\mathbf{x}} + by_1 \hat{\mathbf{y}} + cz_1 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi I
$\mathbf{B}_2$	$-x_1 \mathbf{a}_1 + (y_1 + \frac{1}{2}) \mathbf{a}_2 - (z_1 - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_1 + c(z_1 - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_1 + \frac{1}{2}) \hat{\mathbf{y}} - c(z_1 - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi I
$\mathbf{B}_3$	$-x_1 \mathbf{a}_1 - y_1 \mathbf{a}_2 - z_1 \mathbf{a}_3$	$=$	$-(ax_1 + cz_1 \cos \beta) \hat{\mathbf{x}} - by_1 \hat{\mathbf{y}} - cz_1 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi I
$\mathbf{B}_4$	$x_1 \mathbf{a}_1 - (y_1 - \frac{1}{2}) \mathbf{a}_2 + (z_1 + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_1 + c(z_1 + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_1 - \frac{1}{2}) \hat{\mathbf{y}} + c(z_1 + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi I
$\mathbf{B}_5$	$x_2 \mathbf{a}_1 + y_2 \mathbf{a}_2 + z_2 \mathbf{a}_3$	$=$	$(ax_2 + cz_2 \cos \beta) \hat{\mathbf{x}} + by_2 \hat{\mathbf{y}} + cz_2 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi II
$\mathbf{B}_6$	$-x_2 \mathbf{a}_1 + (y_2 + \frac{1}{2}) \mathbf{a}_2 - (z_2 - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_2 + c(z_2 - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_2 + \frac{1}{2}) \hat{\mathbf{y}} - c(z_2 - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi II
$\mathbf{B}_7$	$-x_2 \mathbf{a}_1 - y_2 \mathbf{a}_2 - z_2 \mathbf{a}_3$	$=$	$-(ax_2 + cz_2 \cos \beta) \hat{\mathbf{x}} - by_2 \hat{\mathbf{y}} - cz_2 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi II
$\mathbf{B}_8$	$x_2 \mathbf{a}_1 - (y_2 - \frac{1}{2}) \mathbf{a}_2 + (z_2 + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_2 + c(z_2 + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_2 - \frac{1}{2}) \hat{\mathbf{y}} + c(z_2 + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi II
$\mathbf{B}_9$	$x_3 \mathbf{a}_1 + y_3 \mathbf{a}_2 + z_3 \mathbf{a}_3$	$=$	$(ax_3 + cz_3 \cos \beta) \hat{\mathbf{x}} + by_3 \hat{\mathbf{y}} + cz_3 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi III
$\mathbf{B}_{10}$	$-x_3 \mathbf{a}_1 + (y_3 + \frac{1}{2}) \mathbf{a}_2 - (z_3 - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_3 + c(z_3 - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_3 + \frac{1}{2}) \hat{\mathbf{y}} - c(z_3 - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi III
$\mathbf{B}_{11}$	$-x_3 \mathbf{a}_1 - y_3 \mathbf{a}_2 - z_3 \mathbf{a}_3$	$=$	$-(ax_3 + cz_3 \cos \beta) \hat{\mathbf{x}} - by_3 \hat{\mathbf{y}} - cz_3 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi III
$\mathbf{B}_{12}$	$x_3 \mathbf{a}_1 - (y_3 - \frac{1}{2}) \mathbf{a}_2 + (z_3 + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_3 + c(z_3 + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_3 - \frac{1}{2}) \hat{\mathbf{y}} + c(z_3 + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi III
$\mathbf{B}_{13}$	$x_4 \mathbf{a}_1 + y_4 \mathbf{a}_2 + z_4 \mathbf{a}_3$	$=$	$(ax_4 + cz_4 \cos \beta) \hat{\mathbf{x}} + by_4 \hat{\mathbf{y}} + cz_4 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi IV

$\mathbf{B}_{14} =$	$-x_4 \mathbf{a}_1 + \left(y_4 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_4 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_4 + c\left(z_4 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_4 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_4 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi IV
$\mathbf{B}_{15} =$	$-x_4 \mathbf{a}_1 - y_4 \mathbf{a}_2 - z_4 \mathbf{a}_3$	$=$	$-(ax_4 + cz_4 \cos \beta) \hat{\mathbf{x}} - by_4 \hat{\mathbf{y}} - cz_4 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi IV
$\mathbf{B}_{16} =$	$x_4 \mathbf{a}_1 - \left(y_4 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_4 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_4 + c\left(z_4 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_4 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_4 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi IV
$\mathbf{B}_{17} =$	$x_5 \mathbf{a}_1 + y_5 \mathbf{a}_2 + z_5 \mathbf{a}_3$	$=$	$(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + by_5 \hat{\mathbf{y}} + cz_5 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi V
$\mathbf{B}_{18} =$	$-x_5 \mathbf{a}_1 + \left(y_5 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_5 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_5 + c\left(z_5 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_5 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_5 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi V
$\mathbf{B}_{19} =$	$-x_5 \mathbf{a}_1 - y_5 \mathbf{a}_2 - z_5 \mathbf{a}_3$	$=$	$-(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} - by_5 \hat{\mathbf{y}} - cz_5 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi V
$\mathbf{B}_{20} =$	$x_5 \mathbf{a}_1 - \left(y_5 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_5 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_5 + c\left(z_5 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_5 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_5 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi V
$\mathbf{B}_{21} =$	$x_6 \mathbf{a}_1 + y_6 \mathbf{a}_2 + z_6 \mathbf{a}_3$	$=$	$(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + by_6 \hat{\mathbf{y}} + cz_6 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VI
$\mathbf{B}_{22} =$	$-x_6 \mathbf{a}_1 + \left(y_6 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_6 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_6 + c\left(z_6 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_6 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_6 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VI
$\mathbf{B}_{23} =$	$-x_6 \mathbf{a}_1 - y_6 \mathbf{a}_2 - z_6 \mathbf{a}_3$	$=$	$-(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} - by_6 \hat{\mathbf{y}} - cz_6 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VI
$\mathbf{B}_{24} =$	$x_6 \mathbf{a}_1 - \left(y_6 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_6 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_6 + c\left(z_6 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_6 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_6 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VI
$\mathbf{B}_{25} =$	$x_7 \mathbf{a}_1 + y_7 \mathbf{a}_2 + z_7 \mathbf{a}_3$	$=$	$(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} + by_7 \hat{\mathbf{y}} + cz_7 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VII
$\mathbf{B}_{26} =$	$-x_7 \mathbf{a}_1 + \left(y_7 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_7 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_7 + c\left(z_7 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_7 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_7 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VII
$\mathbf{B}_{27} =$	$-x_7 \mathbf{a}_1 - y_7 \mathbf{a}_2 - z_7 \mathbf{a}_3$	$=$	$-(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} - by_7 \hat{\mathbf{y}} - cz_7 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VII
$\mathbf{B}_{28} =$	$x_7 \mathbf{a}_1 - \left(y_7 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_7 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_7 + c\left(z_7 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_7 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_7 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VII
$\mathbf{B}_{29} =$	$x_8 \mathbf{a}_1 + y_8 \mathbf{a}_2 + z_8 \mathbf{a}_3$	$=$	$(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} + by_8 \hat{\mathbf{y}} + cz_8 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VIII
$\mathbf{B}_{30} =$	$-x_8 \mathbf{a}_1 + \left(y_8 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_8 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_8 + c\left(z_8 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_8 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_8 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VIII
$\mathbf{B}_{31} =$	$-x_8 \mathbf{a}_1 - y_8 \mathbf{a}_2 - z_8 \mathbf{a}_3$	$=$	$-(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} - by_8 \hat{\mathbf{y}} - cz_8 \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VIII
$\mathbf{B}_{32} =$	$x_8 \mathbf{a}_1 - \left(y_8 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_8 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_8 + c\left(z_8 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_8 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_8 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Bi VIII
$\mathbf{B}_{33} =$	$x_9 \mathbf{a}_1 + y_9 \mathbf{a}_2 + z_9 \mathbf{a}_3$	$=$	$(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} + by_9 \hat{\mathbf{y}} + cz_9 \sin \beta \hat{\mathbf{z}}$	(4e)	Mo I
$\mathbf{B}_{34} =$	$-x_9 \mathbf{a}_1 + \left(y_9 + \frac{1}{2}\right) \mathbf{a}_2 - \left(z_9 - \frac{1}{2}\right) \mathbf{a}_3$	$=$	$-(ax_9 + c\left(z_9 - \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} + b\left(y_9 + \frac{1}{2}\right) \hat{\mathbf{y}} - c\left(z_9 - \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Mo I
$\mathbf{B}_{35} =$	$-x_9 \mathbf{a}_1 - y_9 \mathbf{a}_2 - z_9 \mathbf{a}_3$	$=$	$-(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} - by_9 \hat{\mathbf{y}} - cz_9 \sin \beta \hat{\mathbf{z}}$	(4e)	Mo I
$\mathbf{B}_{36} =$	$x_9 \mathbf{a}_1 - \left(y_9 - \frac{1}{2}\right) \mathbf{a}_2 + \left(z_9 + \frac{1}{2}\right) \mathbf{a}_3$	$=$	$(ax_9 + c\left(z_9 + \frac{1}{2}\right) \cos \beta) \hat{\mathbf{x}} - b\left(y_9 - \frac{1}{2}\right) \hat{\mathbf{y}} + c\left(z_9 + \frac{1}{2}\right) \sin \beta \hat{\mathbf{z}}$	(4e)	Mo I
$\mathbf{B}_{37} =$	$x_{10} \mathbf{a}_1 + y_{10} \math$				

$\mathbf{B}_{43} =$	$-x_{11} \mathbf{a}_1 - y_{11} \mathbf{a}_2 - z_{11} \mathbf{a}_3$	$=$	$-(ax_{11} + cz_{11} \cos \beta) \hat{\mathbf{x}} - by_{11} \hat{\mathbf{y}} - cz_{11} \sin \beta \hat{\mathbf{z}}$	(4e)	Mo III
$\mathbf{B}_{44} =$	$x_{11} \mathbf{a}_1 - (y_{11} - \frac{1}{2}) \mathbf{a}_2 + (z_{11} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{11} + c(z_{11} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{11} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{11} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Mo III
$\mathbf{B}_{45} =$	$x_{12} \mathbf{a}_1 + y_{12} \mathbf{a}_2 + z_{12} \mathbf{a}_3$	$=$	$(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} + by_{12} \hat{\mathbf{y}} + cz_{12} \sin \beta \hat{\mathbf{z}}$	(4e)	Mo IV
$\mathbf{B}_{46} =$	$-x_{12} \mathbf{a}_1 + (y_{12} + \frac{1}{2}) \mathbf{a}_2 - (z_{12} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{12} + c(z_{12} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{12} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{12} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Mo IV
$\mathbf{B}_{47} =$	$-x_{12} \mathbf{a}_1 - y_{12} \mathbf{a}_2 - z_{12} \mathbf{a}_3$	$=$	$-(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} - by_{12} \hat{\mathbf{y}} - cz_{12} \sin \beta \hat{\mathbf{z}}$	(4e)	Mo IV
$\mathbf{B}_{48} =$	$x_{12} \mathbf{a}_1 - (y_{12} - \frac{1}{2}) \mathbf{a}_2 + (z_{12} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{12} + c(z_{12} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{12} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{12} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	Mo IV
$\mathbf{B}_{49} =$	$x_{13} \mathbf{a}_1 + y_{13} \mathbf{a}_2 + z_{13} \mathbf{a}_3$	$=$	$(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} + by_{13} \hat{\mathbf{y}} + cz_{13} \sin \beta \hat{\mathbf{z}}$	(4e)	O I
$\mathbf{B}_{50} =$	$-x_{13} \mathbf{a}_1 + (y_{13} + \frac{1}{2}) \mathbf{a}_2 - (z_{13} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{13} + c(z_{13} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{13} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{13} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O I
$\mathbf{B}_{51} =$	$-x_{13} \mathbf{a}_1 - y_{13} \mathbf{a}_2 - z_{13} \mathbf{a}_3$	$=$	$-(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} - by_{13} \hat{\mathbf{y}} - cz_{13} \sin \beta \hat{\mathbf{z}}$	(4e)	O I
$\mathbf{B}_{52} =$	$x_{13} \mathbf{a}_1 - (y_{13} - \frac{1}{2}) \mathbf{a}_2 + (z_{13} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{13} + c(z_{13} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{13} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{13} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O I
$\mathbf{B}_{53} =$	$x_{14} \mathbf{a}_1 + y_{14} \mathbf{a}_2 + z_{14} \mathbf{a}_3$	$=$	$(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} + by_{14} \hat{\mathbf{y}} + cz_{14} \sin \beta \hat{\mathbf{z}}$	(4e)	O II
$\mathbf{B}_{54} =$	$-x_{14} \mathbf{a}_1 + (y_{14} + \frac{1}{2}) \mathbf{a}_2 - (z_{14} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{14} + c(z_{14} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{14} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{14} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O II
$\mathbf{B}_{55} =$	$-x_{14} \mathbf{a}_1 - y_{14} \mathbf{a}_2 - z_{14} \mathbf{a}_3$	$=$	$-(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} - by_{14} \hat{\mathbf{y}} - cz_{14} \sin \beta \hat{\mathbf{z}}$	(4e)	O II
$\mathbf{B}_{56} =$	$x_{14} \mathbf{a}_1 - (y_{14} - \frac{1}{2}) \mathbf{a}_2 + (z_{14} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{14} + c(z_{14} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{14} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{14} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O II
$\mathbf{B}_{57} =$	$x_{15} \mathbf{a}_1 + y_{15} \mathbf{a}_2 + z_{15} \mathbf{a}_3$	$=$	$(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} + by_{15} \hat{\mathbf{y}} + cz_{15} \sin \beta \hat{\mathbf{z}}$	(4e)	O III
$\mathbf{B}_{58} =$	$-x_{15} \mathbf{a}_1 + (y_{15} + \frac{1}{2}) \mathbf{a}_2 - (z_{15} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{15} + c(z_{15} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{15} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{15} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O III
$\mathbf{B}_{59} =$	$-x_{15} \mathbf{a}_1 - y_{15} \mathbf{a}_2 - z_{15} \mathbf{a}_3$	$=$	$-(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} - by_{15} \hat{\mathbf{y}} - cz_{15} \sin \beta \hat{\mathbf{z}}$	(4e)	O III
$\mathbf{B}_{60} =$	$x_{15} \mathbf{a}_1 - (y_{15} - \frac{1}{2}) \mathbf{a}_2 + (z_{15} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{15} + c(z_{15} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{15} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{15} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O III
$\mathbf{B}_{61} =$	$x_{16} \mathbf{a}_1 + y_{16} \mathbf{a}_2 + z_{16} \mathbf{a}_3$	$=$	$(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} + by_{16} \hat{\mathbf{y}} + cz_{16} \sin \beta \hat{\mathbf{z}}$	(4e)	O IV
$\mathbf{B}_{62} =$	$-x_{16} \mathbf{a}_1 + (y_{16} + \frac{1}{2}) \mathbf{a}_2 - (z_{16} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{16} + c(z_{16} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{16} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{16} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O IV
$\mathbf{B}_{63} =$	$-x_{16} \mathbf{a}_1 - y_{16} \mathbf{a}_2 - z_{16} \mathbf{a}_3$	$=$	$-(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} - by_{16} \hat{\mathbf{y}} - cz_{16} \sin \beta \hat{\mathbf{z}}$	(4e)	O IV
$\mathbf{B}_{64} =$	$x_{16} \mathbf{a}_1 - (y_{16} - \frac{1}{2}) \mathbf{a}_2 + (z_{16} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{16} + c(z_{16} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{16} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{16} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O IV
$\mathbf{B}_{65} =$	$x_{17} \mathbf{a}_1 + y_{17} \mathbf{a}_2 + z_{17} \mathbf{a}_3$	$=$	$(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} + by_{17} \hat{\mathbf{y}} + cz_{17} \sin \beta \hat{\mathbf{z}}$	(4e)	O V
$\mathbf{B}_{66} =$	$-x_{17} \mathbf{a}_1 + (y_{17} + \frac{1}{2}) \mathbf{a}_2 - (z_{17} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{17} + c(z_{17} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{17} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{17} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O V
$\mathbf{B}_{67} =$	$-x_{17} \mathbf{a}_1 - y_{17} \mathbf{a}_2 - z_{17} \mathbf{a}_3$	$=$	$-(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} - by_{17} \hat{\mathbf{y}} - cz_{17} \sin \beta \hat{\mathbf{z}}$	(4e)	O V
$\mathbf{B}_{68} =$	$x_{17} \mathbf{a}_1 - (y_{17} - \frac{1}{2}) \mathbf{a}_2 + (z_{17} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{17} + c(z_{17} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{17} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{17} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O V

$\mathbf{B}_{69} =$	$x_{18} \mathbf{a}_1 + y_{18} \mathbf{a}_2 + z_{18} \mathbf{a}_3$	$=$	$(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} + by_{18} \hat{\mathbf{y}} + cz_{18} \sin \beta \hat{\mathbf{z}}$	(4e)	O VI
$\mathbf{B}_{70} =$	$-x_{18} \mathbf{a}_1 + (y_{18} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{18} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{18} + c(z_{18} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{18} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{18} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VI
$\mathbf{B}_{71} =$	$-x_{18} \mathbf{a}_1 - y_{18} \mathbf{a}_2 - z_{18} \mathbf{a}_3$	$=$	$-(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} - by_{18} \hat{\mathbf{y}} -$ $cz_{18} \sin \beta \hat{\mathbf{z}}$	(4e)	O VI
$\mathbf{B}_{72} =$	$x_{18} \mathbf{a}_1 - (y_{18} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{18} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{18} + c(z_{18} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{18} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{18} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VI
$\mathbf{B}_{73} =$	$x_{19} \mathbf{a}_1 + y_{19} \mathbf{a}_2 + z_{19} \mathbf{a}_3$	$=$	$(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} + by_{19} \hat{\mathbf{y}} + cz_{19} \sin \beta \hat{\mathbf{z}}$	(4e)	O VII
$\mathbf{B}_{74} =$	$-x_{19} \mathbf{a}_1 + (y_{19} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{19} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{19} + c(z_{19} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{19} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{19} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VII
$\mathbf{B}_{75} =$	$-x_{19} \mathbf{a}_1 - y_{19} \mathbf{a}_2 - z_{19} \mathbf{a}_3$	$=$	$-(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} - by_{19} \hat{\mathbf{y}} -$ $cz_{19} \sin \beta \hat{\mathbf{z}}$	(4e)	O VII
$\mathbf{B}_{76} =$	$x_{19} \mathbf{a}_1 - (y_{19} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{19} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{19} + c(z_{19} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{19} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{19} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VII
$\mathbf{B}_{77} =$	$x_{20} \mathbf{a}_1 + y_{20} \mathbf{a}_2 + z_{20} \mathbf{a}_3$	$=$	$(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} + by_{20} \hat{\mathbf{y}} + cz_{20} \sin \beta \hat{\mathbf{z}}$	(4e)	O VIII
$\mathbf{B}_{78} =$	$-x_{20} \mathbf{a}_1 + (y_{20} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{20} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{20} + c(z_{20} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{20} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{20} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VIII
$\mathbf{B}_{79} =$	$-x_{20} \mathbf{a}_1 - y_{20} \mathbf{a}_2 - z_{20} \mathbf{a}_3$	$=$	$-(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} - by_{20} \hat{\mathbf{y}} -$ $cz_{20} \sin \beta \hat{\mathbf{z}}$	(4e)	O VIII
$\mathbf{B}_{80} =$	$x_{20} \mathbf{a}_1 - (y_{20} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{20} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{20} + c(z_{20} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{20} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{20} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O VIII
$\mathbf{B}_{81} =$	$x_{21} \mathbf{a}_1 + y_{21} \mathbf{a}_2 + z_{21} \mathbf{a}_3$	$=$	$(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} + by_{21} \hat{\mathbf{y}} + cz_{21} \sin \beta \hat{\mathbf{z}}$	(4e)	O IX
$\mathbf{B}_{82} =$	$-x_{21} \mathbf{a}_1 + (y_{21} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{21} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{21} + c(z_{21} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{21} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{21} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O IX
$\mathbf{B}_{83} =$	$-x_{21} \mathbf{a}_1 - y_{21} \mathbf{a}_2 - z_{21} \mathbf{a}_3$	$=$	$-(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} - by_{21} \hat{\mathbf{y}} -$ $cz_{21} \sin \beta \hat{\mathbf{z}}$	(4e)	O IX
$\mathbf{B}_{84} =$	$x_{21} \mathbf{a}_1 - (y_{21} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{21} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{21} + c(z_{21} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{21} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{21} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O IX
$\mathbf{B}_{85} =$	$x_{22} \mathbf{a}_1 + y_{22} \mathbf{a}_2 + z_{22} \mathbf{a}_3$	$=$	$(ax_{22} + cz_{22} \cos \beta) \hat{\mathbf{x}} + by_{22} \hat{\mathbf{y}} + cz_{22} \sin \beta \hat{\mathbf{z}}$	(4e)	O X
$\mathbf{B}_{86} =$	$-x_{22} \mathbf{a}_1 + (y_{22} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{22} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{22} + c(z_{22} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{22} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{22} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O X
$\mathbf{B}_{87} =$	$-x_{22} \mathbf{a}_1 - y_{22} \mathbf{a}_2 - z_{22} \mathbf{a}_3$	$=$	$-(ax_{22} + cz_{22} \cos \beta) \hat{\mathbf{x}} - by_{22} \hat{\mathbf{y}} -$ $cz_{22} \sin \beta \hat{\mathbf{z}}$	(4e)	O X
$\mathbf{B}_{88} =$	$x_{22} \mathbf{a}_1 - (y_{22} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{22} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{22} + c(z_{22} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{22} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{22} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O X
$\mathbf{B}_{89} =$	$x_{23} \mathbf{a}_1 + y_{23} \mathbf{a}_2 + z_{23} \mathbf{a}_3$	$=$	$(ax_{23} + cz_{23} \cos \beta) \hat{\mathbf{x}} + by_{23} \hat{\mathbf{y}} + cz_{23} \sin \beta \hat{\mathbf{z}}$	(4e)	O XI
$\mathbf{B}_{90} =$	$-x_{23} \mathbf{a}_1 + (y_{23} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{23} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{23} + c(z_{23} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{23} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{23} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XI
$\mathbf{B}_{91} =$	$-x_{23} \mathbf{a}_1 - y_{23} \mathbf{a}_2 - z_{23} \mathbf{a}_3$	$=$	$-(ax_{23} + cz_{23} \cos \beta) \hat{\mathbf{x}} - by_{23} \hat{\mathbf{y}} -$ $cz_{23} \sin \beta \hat{\mathbf{z}}$	(4e)	O XI
$\mathbf{B}_{92} =$	$x_{23} \mathbf{a}_1 - (y_{23} - \frac{1}{2}) \mathbf{a}_2 +$ $(z_{23} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{23} + c(z_{23} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} -$ $b(y_{23} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{23} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XI
$\mathbf{B}_{93} =$	$x_{24} \mathbf{a}_1 + y_{24} \mathbf{a}_2 + z_{24} \mathbf{a}_3$	$=$	$(ax_{24} + cz_{24} \cos \beta) \hat{\mathbf{x}} + by_{24} \hat{\mathbf{y}} + cz_{24} \sin \beta \hat{\mathbf{z}}$	(4e)	O XII
$\mathbf{B}_{94} =$	$-x_{24} \mathbf{a}_1 + (y_{24} + \frac{1}{2}) \mathbf{a}_2 -$ $(z_{24} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{24} + c(z_{24} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} +$ $b(y_{24} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{24} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XII

$\mathbf{B}_{95} =$	$-x_{24} \mathbf{a}_1 - y_{24} \mathbf{a}_2 - z_{24} \mathbf{a}_3$	$=$	$-(ax_{24} + cz_{24} \cos \beta) \hat{\mathbf{x}} - by_{24} \hat{\mathbf{y}} - cz_{24} \sin \beta \hat{\mathbf{z}}$	(4e)	O XII
$\mathbf{B}_{96} =$	$x_{24} \mathbf{a}_1 - (y_{24} - \frac{1}{2}) \mathbf{a}_2 + (z_{24} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{24} + c(z_{24} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{24} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{24} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XII
$\mathbf{B}_{97} =$	$x_{25} \mathbf{a}_1 + y_{25} \mathbf{a}_2 + z_{25} \mathbf{a}_3$	$=$	$(ax_{25} + cz_{25} \cos \beta) \hat{\mathbf{x}} + by_{25} \hat{\mathbf{y}} + cz_{25} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIII
$\mathbf{B}_{98} =$	$-x_{25} \mathbf{a}_1 + (y_{25} + \frac{1}{2}) \mathbf{a}_2 - (z_{25} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{25} + c(z_{25} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{25} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{25} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIII
$\mathbf{B}_{99} =$	$-x_{25} \mathbf{a}_1 - y_{25} \mathbf{a}_2 - z_{25} \mathbf{a}_3$	$=$	$-(ax_{25} + cz_{25} \cos \beta) \hat{\mathbf{x}} - by_{25} \hat{\mathbf{y}} - cz_{25} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIII
$\mathbf{B}_{100} =$	$x_{25} \mathbf{a}_1 - (y_{25} - \frac{1}{2}) \mathbf{a}_2 + (z_{25} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{25} + c(z_{25} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{25} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{25} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIII
$\mathbf{B}_{101} =$	$x_{26} \mathbf{a}_1 + y_{26} \mathbf{a}_2 + z_{26} \mathbf{a}_3$	$=$	$(ax_{26} + cz_{26} \cos \beta) \hat{\mathbf{x}} + by_{26} \hat{\mathbf{y}} + cz_{26} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIV
$\mathbf{B}_{102} =$	$-x_{26} \mathbf{a}_1 + (y_{26} + \frac{1}{2}) \mathbf{a}_2 - (z_{26} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{26} + c(z_{26} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{26} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{26} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIV
$\mathbf{B}_{103} =$	$-x_{26} \mathbf{a}_1 - y_{26} \mathbf{a}_2 - z_{26} \mathbf{a}_3$	$=$	$-(ax_{26} + cz_{26} \cos \beta) \hat{\mathbf{x}} - by_{26} \hat{\mathbf{y}} - cz_{26} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIV
$\mathbf{B}_{104} =$	$x_{26} \mathbf{a}_1 - (y_{26} - \frac{1}{2}) \mathbf{a}_2 + (z_{26} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{26} + c(z_{26} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{26} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{26} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIV
$\mathbf{B}_{105} =$	$x_{27} \mathbf{a}_1 + y_{27} \mathbf{a}_2 + z_{27} \mathbf{a}_3$	$=$	$(ax_{27} + cz_{27} \cos \beta) \hat{\mathbf{x}} + by_{27} \hat{\mathbf{y}} + cz_{27} \sin \beta \hat{\mathbf{z}}$	(4e)	O XV
$\mathbf{B}_{106} =$	$-x_{27} \mathbf{a}_1 + (y_{27} + \frac{1}{2}) \mathbf{a}_2 - (z_{27} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{27} + c(z_{27} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{27} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{27} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XV
$\mathbf{B}_{107} =$	$-x_{27} \mathbf{a}_1 - y_{27} \mathbf{a}_2 - z_{27} \mathbf{a}_3$	$=$	$-(ax_{27} + cz_{27} \cos \beta) \hat{\mathbf{x}} - by_{27} \hat{\mathbf{y}} - cz_{27} \sin \beta \hat{\mathbf{z}}$	(4e)	O XV
$\mathbf{B}_{108} =$	$x_{27} \mathbf{a}_1 - (y_{27} - \frac{1}{2}) \mathbf{a}_2 + (z_{27} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{27} + c(z_{27} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{27} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{27} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XV
$\mathbf{B}_{109} =$	$x_{28} \mathbf{a}_1 + y_{28} \mathbf{a}_2 + z_{28} \mathbf{a}_3$	$=$	$(ax_{28} + cz_{28} \cos \beta) \hat{\mathbf{x}} + by_{28} \hat{\mathbf{y}} + cz_{28} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVI
$\mathbf{B}_{110} =$	$-x_{28} \mathbf{a}_1 + (y_{28} + \frac{1}{2}) \mathbf{a}_2 - (z_{28} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{28} + c(z_{28} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{28} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{28} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVI
$\mathbf{B}_{111} =$	$-x_{28} \mathbf{a}_1 - y_{28} \mathbf{a}_2 - z_{28} \mathbf{a}_3$	$=$	$-(ax_{28} + cz_{28} \cos \beta) \hat{\mathbf{x}} - by_{28} \hat{\mathbf{y}} - cz_{28} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVI
$\mathbf{B}_{112} =$	$x_{28} \mathbf{a}_1 - (y_{28} - \frac{1}{2}) \mathbf{a}_2 + (z_{28} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{28} + c(z_{28} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{28} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{28} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVI
$\mathbf{B}_{113} =$	$x_{29} \mathbf{a}_1 + y_{29} \mathbf{a}_2 + z_{29} \mathbf{a}_3$	$=$	$(ax_{29} + cz_{29} \cos \beta) \hat{\mathbf{x}} + by_{29} \hat{\mathbf{y}} + cz_{29} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVII
$\mathbf{B}_{114} =$	$-x_{29} \mathbf{a}_1 + (y_{29} + \frac{1}{2}) \mathbf{a}_2 - (z_{29} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{29} + c(z_{29} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{29} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{29} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVII
$\mathbf{B}_{115} =$	$-x_{29} \mathbf{a}_1 - y_{29} \mathbf{a}_2 - z_{29} \mathbf{a}_3$	$=$	$-(ax_{29} + cz_{29} \cos \beta) \hat{\mathbf{x}} - by_{29} \hat{\mathbf{y}} - cz_{29} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVII
$\mathbf{B}_{116} =$	$x_{29} \mathbf{a}_1 - (y_{29} - \frac{1}{2}) \mathbf{a}_2 + (z_{29} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{29} + c(z_{29} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{29} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{29} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVII
$\mathbf{B}_{117} =$	$x_{30} \mathbf{a}_1 + y_{30} \mathbf{a}_2 + z_{30} \mathbf{a}_3$	$=$	$(ax_{30} + cz_{30} \cos \beta) \hat{\mathbf{x}} + by_{30} \hat{\mathbf{y}} + cz_{30} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVIII
$\mathbf{B}_{118} =$	$-x_{30} \mathbf{a}_1 + (y_{30} + \frac{1}{2}) \mathbf{a}_2 - (z_{30} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{30} + c(z_{30} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{30} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{30} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVIII
$\mathbf{B}_{119} =$	$-x_{30} \mathbf{a}_1 - y_{30} \mathbf{a}_2 - z_{30} \mathbf{a}_3$	$=$	$-(ax_{30} + cz_{30} \cos \beta) \hat{\mathbf{x}} - by_{30} \hat{\mathbf{y}} - cz_{30} \sin \beta \hat{\mathbf{z}}$	(4e)	O XVIII
$\mathbf{B}_{120} =$	$x_{30} \mathbf{a}_1 - (y_{30} - \frac{1}{2}) \mathbf{a}_2 + (z_{30} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{30} + c(z_{30} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{30} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{30} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XVIII

$\mathbf{B}_{121} =$	$x_{31} \mathbf{a}_1 + y_{31} \mathbf{a}_2 + z_{31} \mathbf{a}_3$	$=$	$(ax_{31} + cz_{31} \cos \beta) \hat{\mathbf{x}} + by_{31} \hat{\mathbf{y}} + cz_{31} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIX
$\mathbf{B}_{122} =$	$-x_{31} \mathbf{a}_1 + (y_{31} + \frac{1}{2}) \mathbf{a}_2 - (z_{31} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{31} + c(z_{31} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{31} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{31} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIX
$\mathbf{B}_{123} =$	$-x_{31} \mathbf{a}_1 - y_{31} \mathbf{a}_2 - z_{31} \mathbf{a}_3$	$=$	$-(ax_{31} + cz_{31} \cos \beta) \hat{\mathbf{x}} - by_{31} \hat{\mathbf{y}} - cz_{31} \sin \beta \hat{\mathbf{z}}$	(4e)	O XIX
$\mathbf{B}_{124} =$	$x_{31} \mathbf{a}_1 - (y_{31} - \frac{1}{2}) \mathbf{a}_2 + (z_{31} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{31} + c(z_{31} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{31} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{31} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XIX
$\mathbf{B}_{125} =$	$x_{32} \mathbf{a}_1 + y_{32} \mathbf{a}_2 + z_{32} \mathbf{a}_3$	$=$	$(ax_{32} + cz_{32} \cos \beta) \hat{\mathbf{x}} + by_{32} \hat{\mathbf{y}} + cz_{32} \sin \beta \hat{\mathbf{z}}$	(4e)	O XX
$\mathbf{B}_{126} =$	$-x_{32} \mathbf{a}_1 + (y_{32} + \frac{1}{2}) \mathbf{a}_2 - (z_{32} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{32} + c(z_{32} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{32} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{32} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XX
$\mathbf{B}_{127} =$	$-x_{32} \mathbf{a}_1 - y_{32} \mathbf{a}_2 - z_{32} \mathbf{a}_3$	$=$	$-(ax_{32} + cz_{32} \cos \beta) \hat{\mathbf{x}} - by_{32} \hat{\mathbf{y}} - cz_{32} \sin \beta \hat{\mathbf{z}}$	(4e)	O XX
$\mathbf{B}_{128} =$	$x_{32} \mathbf{a}_1 - (y_{32} - \frac{1}{2}) \mathbf{a}_2 + (z_{32} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{32} + c(z_{32} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{32} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{32} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XX
$\mathbf{B}_{129} =$	$x_{33} \mathbf{a}_1 + y_{33} \mathbf{a}_2 + z_{33} \mathbf{a}_3$	$=$	$(ax_{33} + cz_{33} \cos \beta) \hat{\mathbf{x}} + by_{33} \hat{\mathbf{y}} + cz_{33} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXI
$\mathbf{B}_{130} =$	$-x_{33} \mathbf{a}_1 + (y_{33} + \frac{1}{2}) \mathbf{a}_2 - (z_{33} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{33} + c(z_{33} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{33} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{33} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXI
$\mathbf{B}_{131} =$	$-x_{33} \mathbf{a}_1 - y_{33} \mathbf{a}_2 - z_{33} \mathbf{a}_3$	$=$	$-(ax_{33} + cz_{33} \cos \beta) \hat{\mathbf{x}} - by_{33} \hat{\mathbf{y}} - cz_{33} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXI
$\mathbf{B}_{132} =$	$x_{33} \mathbf{a}_1 - (y_{33} - \frac{1}{2}) \mathbf{a}_2 + (z_{33} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{33} + c(z_{33} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{33} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{33} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXI
$\mathbf{B}_{133} =$	$x_{34} \mathbf{a}_1 + y_{34} \mathbf{a}_2 + z_{34} \mathbf{a}_3$	$=$	$(ax_{34} + cz_{34} \cos \beta) \hat{\mathbf{x}} + by_{34} \hat{\mathbf{y}} + cz_{34} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXII
$\mathbf{B}_{134} =$	$-x_{34} \mathbf{a}_1 + (y_{34} + \frac{1}{2}) \mathbf{a}_2 - (z_{34} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{34} + c(z_{34} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{34} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{34} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXII
$\mathbf{B}_{135} =$	$-x_{34} \mathbf{a}_1 - y_{34} \mathbf{a}_2 - z_{34} \mathbf{a}_3$	$=$	$-(ax_{34} + cz_{34} \cos \beta) \hat{\mathbf{x}} - by_{34} \hat{\mathbf{y}} - cz_{34} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXII
$\mathbf{B}_{136} =$	$x_{34} \mathbf{a}_1 - (y_{34} - \frac{1}{2}) \mathbf{a}_2 + (z_{34} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{34} + c(z_{34} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{34} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{34} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXII
$\mathbf{B}_{137} =$	$x_{35} \mathbf{a}_1 + y_{35} \mathbf{a}_2 + z_{35} \mathbf{a}_3$	$=$	$(ax_{35} + cz_{35} \cos \beta) \hat{\mathbf{x}} + by_{35} \hat{\mathbf{y}} + cz_{35} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIII
$\mathbf{B}_{138} =$	$-x_{35} \mathbf{a}_1 + (y_{35} + \frac{1}{2}) \mathbf{a}_2 - (z_{35} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{35} + c(z_{35} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{35} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{35} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIII
$\mathbf{B}_{139} =$	$-x_{35} \mathbf{a}_1 - y_{35} \mathbf{a}_2 - z_{35} \mathbf{a}_3$	$=$	$-(ax_{35} + cz_{35} \cos \beta) \hat{\mathbf{x}} - by_{35} \hat{\mathbf{y}} - cz_{35} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIII
$\mathbf{B}_{140} =$	$x_{35} \mathbf{a}_1 - (y_{35} - \frac{1}{2}) \mathbf{a}_2 + (z_{35} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{35} + c(z_{35} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{35} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{35} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIII
$\mathbf{B}_{141} =$	$x_{36} \mathbf{a}_1 + y_{36} \mathbf{a}_2 + z_{36} \mathbf{a}_3$	$=$	$(ax_{36} + cz_{36} \cos \beta) \hat{\mathbf{x}} + by_{36} \hat{\mathbf{y}} + cz_{36} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIV
$\mathbf{B}_{142} =$	$-x_{36} \mathbf{a}_1 + (y_{36} + \frac{1}{2}) \mathbf{a}_2 - (z_{36} - \frac{1}{2}) \mathbf{a}_3$	$=$	$-(ax_{36} + c(z_{36} - \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} + b(y_{36} + \frac{1}{2}) \hat{\mathbf{y}} - c(z_{36} - \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIV
$\mathbf{B}_{143} =$	$-x_{36} \mathbf{a}_1 - y_{36} \mathbf{a}_2 - z_{36} \mathbf{a}_3$	$=$	$-(ax_{36} + cz_{36} \cos \beta) \hat{\mathbf{x}} - by_{36} \hat{\mathbf{y}} - cz_{36} \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIV
$\mathbf{B}_{144} =$	$x_{36} \mathbf{a}_1 - (y_{36} - \frac{1}{2}) \mathbf{a}_2 + (z_{36} + \frac{1}{2}) \mathbf{a}_3$	$=$	$(ax_{36} + c(z_{36} + \frac{1}{2}) \cos \beta) \hat{\mathbf{x}} - b(y_{36} - \frac{1}{2}) \hat{\mathbf{y}} + c(z_{36} + \frac{1}{2}) \sin \beta \hat{\mathbf{z}}$	(4e)	O XXIV

References

- [1] D. J. Buttrey, T. Vogt, U. Wildgruber, and W. R. Robinson, *Structural Refinement of the High Temperature Form of Bi_2MoO_6* , J. Solid State Chem. **111**, 118–127 (1994), doi:10.1006/jssc.1994.1206.

Found in

- [1] P. Villars, H. Okamoto, and K. Cenzual, eds., *ASM Alloy Phase Diagram Database* (ASM International, 2018), chap. Bismuth-Molybdenum-Oxygen Ternary, Vertical Section (1971 Erman L.Y.). Copyright ©2006-2018 ASM International.

First cited in

H. Eckert, S. Divilov, M. J. Mehl, D. Hicks, A. C. Zettel, M. Esters, X. Campilongo, and S. Curtarolo, *The AFLOW Library of Crystallographic Prototypes: Part 4*, Comput. Mater. Sci. **240**, 112988 (2024), doi: 10.1016/j.commatsci.2024.112988.