

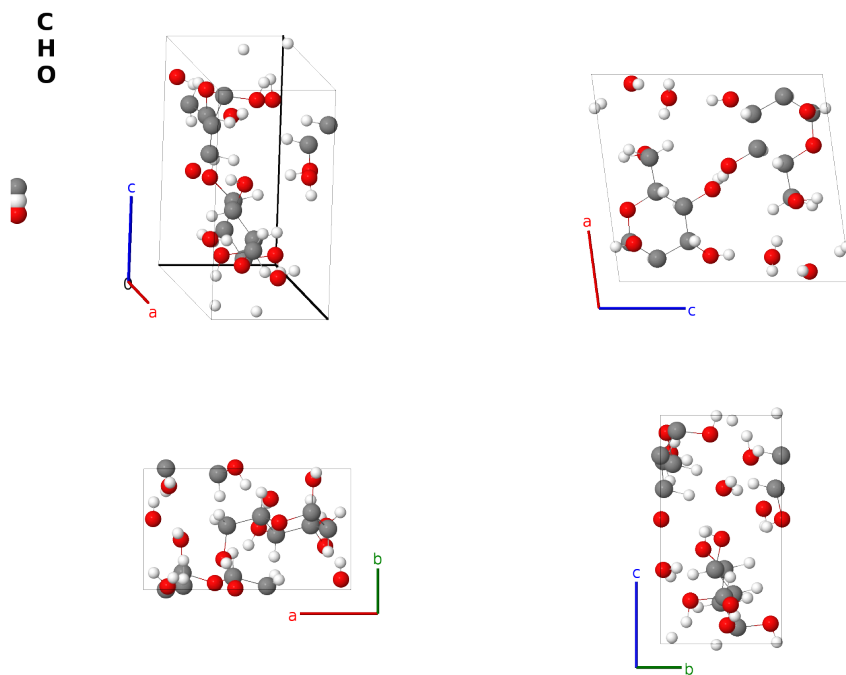
α -D-Glucose Monohydrate ($C_6H_{12}O_6 \cdot H_2O$) Structure: A6B14C7_mP54_4_6a_14a_7a-001

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<https://aflow.org/prototype-encyclopedia/9F42>

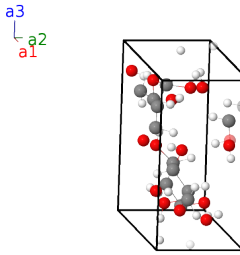
https://aflow.org/prototype-encyclopedia/A6B14C7_mP54_4_6a_14a_7a-001



Prototype	$C_6H_{14}O_7$
AFLOW prototype label	A6B14C7_mP54_4_6a_14a_7a-001
Mineral name	α -D-glucose monohydrate
CCDC	1169293
Pearson symbol	mP54
Space group number	4
Space group symbol	$P2_1$
AFLOW prototype command	<pre>aflow --proto=A6B14C7_mP54_4_6a_14a_7a-001 --params=a,b/a,c/a,β,x_1,y_1,z_1,x_2,y_2,z_2,x_3,y_3,z_3,x_4,y_4,z_4,x_5,y_5,z_5,x_6,y_6,z_6,x_7, y_7,z_7,x_8,y_8,z_8,x_9,y_9,z_9,x_{10},y_{10},z_{10},x_{11},y_{11},z_{11},x_{12},y_{12},z_{12},x_{13},y_{13},z_{13},x_{14},y_{14},z_{14},x_{15}, y_{15},z_{15},x_{16},y_{16},z_{16},x_{17},y_{17},z_{17},x_{18},y_{18},z_{18},x_{19},y_{19},z_{19},x_{20},y_{20},z_{20},x_{21},y_{21},z_{21},x_{22},y_{22}, z_{22},x_{23},y_{23},z_{23},x_{24},y_{24},z_{24},x_{25},y_{25},z_{25},x_{26},y_{26},z_{26},x_{27},y_{27},z_{27}</pre>

- Glucose can be found in nature in three forms:
 - Anhydrous α -D-glucose,
 - Anhydrous β -D-glucose, and
 - α -D-glucose monohydrate (this structure).
- This is a chiral compound.
- The “D” indicates that a solution of this form of glucose will rotate polarized light to the right, while the “L” type rotates light to the left.
- Only D-glucose is found in nature, but the L-type can be synthesized.
- As α -L-glucose monohydrate is the enantiomer of the α -D form its structure should be a mirror image of this one, but we have not been able to find a report of its structure.

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
$\mathbf{B}_1$	$= x_1 \mathbf{a}_1 + y_1 \mathbf{a}_2 + z_1 \mathbf{a}_3$	$=$	$(ax_1 + cz_1 \cos \beta) \hat{\mathbf{x}} + by_1 \hat{\mathbf{y}} + cz_1 \sin \beta \hat{\mathbf{z}}$	(2a)	C I
$\mathbf{B}_2$	$= -x_1 \mathbf{a}_1 + (y_1 + \frac{1}{2}) \mathbf{a}_2 - z_1 \mathbf{a}_3$	$=$	$-(ax_1 + cz_1 \cos \beta) \hat{\mathbf{x}} + b(y_1 + \frac{1}{2}) \hat{\mathbf{y}} - cz_1 \sin \beta \hat{\mathbf{z}}$	(2a)	C I
$\mathbf{B}_3$	$= x_2 \mathbf{a}_1 + y_2 \mathbf{a}_2 + z_2 \mathbf{a}_3$	$=$	$(ax_2 + cz_2 \cos \beta) \hat{\mathbf{x}} + by_2 \hat{\mathbf{y}} + cz_2 \sin \beta \hat{\mathbf{z}}$	(2a)	C II
$\mathbf{B}_4$	$= -x_2 \mathbf{a}_1 + (y_2 + \frac{1}{2}) \mathbf{a}_2 - z_2 \mathbf{a}_3$	$=$	$-(ax_2 + cz_2 \cos \beta) \hat{\mathbf{x}} + b(y_2 + \frac{1}{2}) \hat{\mathbf{y}} - cz_2 \sin \beta \hat{\mathbf{z}}$	(2a)	C II
$\mathbf{B}_5$	$= x_3 \mathbf{a}_1 + y_3 \mathbf{a}_2 + z_3 \mathbf{a}_3$	$=$	$(ax_3 + cz_3 \cos \beta) \hat{\mathbf{x}} + by_3 \hat{\mathbf{y}} + cz_3 \sin \beta \hat{\mathbf{z}}$	(2a)	C III
$\mathbf{B}_6$	$= -x_3 \mathbf{a}_1 + (y_3 + \frac{1}{2}) \mathbf{a}_2 - z_3 \mathbf{a}_3$	$=$	$-(ax_3 + cz_3 \cos \beta) \hat{\mathbf{x}} + b(y_3 + \frac{1}{2}) \hat{\mathbf{y}} - cz_3 \sin \beta \hat{\mathbf{z}}$	(2a)	C III
$\mathbf{B}_7$	$= x_4 \mathbf{a}_1 + y_4 \mathbf{a}_2 + z_4 \mathbf{a}_3$	$=$	$(ax_4 + cz_4 \cos \beta) \hat{\mathbf{x}} + by_4 \hat{\mathbf{y}} + cz_4 \sin \beta \hat{\mathbf{z}}$	(2a)	C IV
$\mathbf{B}_8$	$= -x_4 \mathbf{a}_1 + (y_4 + \frac{1}{2}) \mathbf{a}_2 - z_4 \mathbf{a}_3$	$=$	$-(ax_4 + cz_4 \cos \beta) \hat{\mathbf{x}} + b(y_4 + \frac{1}{2}) \hat{\mathbf{y}} - cz_4 \sin \beta \hat{\mathbf{z}}$	(2a)	C IV
$\mathbf{B}_9$	$= x_5 \mathbf{a}_1 + y_5 \mathbf{a}_2 + z_5 \mathbf{a}_3$	$=$	$(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + by_5 \hat{\mathbf{y}} + cz_5 \sin \beta \hat{\mathbf{z}}$	(2a)	C V
$\mathbf{B}_{10}$	$= -x_5 \mathbf{a}_1 + (y_5 + \frac{1}{2}) \mathbf{a}_2 - z_5 \mathbf{a}_3$	$=$	$-(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + b(y_5 + \frac{1}{2}) \hat{\mathbf{y}} - cz_5 \sin \beta \hat{\mathbf{z}}$	(2a)	C V
$\mathbf{B}_{11}$	$= x_6 \mathbf{a}_1 + y_6 \mathbf{a}_2 + z_6 \mathbf{a}_3$	$=$	$(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + by_6 \hat{\mathbf{y}} + cz_6 \sin \beta \hat{\mathbf{z}}$	(2a)	C VI
$\mathbf{B}_{12}$	$= -x_6 \mathbf{a}_1 + (y_6 + \frac{1}{2}) \mathbf{a}_2 - z_6 \mathbf{a}_3$	$=$	$-(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + b(y_6 + \frac{1}{2}) \hat{\mathbf{y}} - cz_6 \sin \beta \hat{\mathbf{z}}$	(2a)	C VI
$\mathbf{B}_{13}$	$= x_7 \mathbf{a}_1 + y_7 \mathbf{a}_2 + z_7 \mathbf{a}_3$	$=$	$(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} + by_7 \hat{\mathbf{y}} + cz_7 \sin \beta \hat{\mathbf{z}}$	(2a)	H I

$\mathbf{B}_{14} =$	$-x_7 \mathbf{a}_1 + (y_7 + \frac{1}{2}) \mathbf{a}_2 - z_7 \mathbf{a}_3$	$=$	$-(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} + b(y_7 + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_7 \sin \beta \hat{\mathbf{z}}$	(2a)	H I
$\mathbf{B}_{15} =$	$x_8 \mathbf{a}_1 + y_8 \mathbf{a}_2 + z_8 \mathbf{a}_3$	$=$	$(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} + by_8 \hat{\mathbf{y}} + cz_8 \sin \beta \hat{\mathbf{z}}$	(2a)	H II
$\mathbf{B}_{16} =$	$-x_8 \mathbf{a}_1 + (y_8 + \frac{1}{2}) \mathbf{a}_2 - z_8 \mathbf{a}_3$	$=$	$-(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} + b(y_8 + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_8 \sin \beta \hat{\mathbf{z}}$	(2a)	H II
$\mathbf{B}_{17} =$	$x_9 \mathbf{a}_1 + y_9 \mathbf{a}_2 + z_9 \mathbf{a}_3$	$=$	$(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} + by_9 \hat{\mathbf{y}} + cz_9 \sin \beta \hat{\mathbf{z}}$	(2a)	H III
$\mathbf{B}_{18} =$	$-x_9 \mathbf{a}_1 + (y_9 + \frac{1}{2}) \mathbf{a}_2 - z_9 \mathbf{a}_3$	$=$	$-(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} + b(y_9 + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_9 \sin \beta \hat{\mathbf{z}}$	(2a)	H III
$\mathbf{B}_{19} =$	$x_{10} \mathbf{a}_1 + y_{10} \mathbf{a}_2 + z_{10} \mathbf{a}_3$	$=$	$(ax_{10} + cz_{10} \cos \beta) \hat{\mathbf{x}} + by_{10} \hat{\mathbf{y}} + cz_{10} \sin \beta \hat{\mathbf{z}}$	(2a)	H IV
$\mathbf{B}_{20} =$	$-x_{10} \mathbf{a}_1 + (y_{10} + \frac{1}{2}) \mathbf{a}_2 - z_{10} \mathbf{a}_3$	$=$	$-(ax_{10} + cz_{10} \cos \beta) \hat{\mathbf{x}} + b(y_{10} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{10} \sin \beta \hat{\mathbf{z}}$	(2a)	H IV
$\mathbf{B}_{21} =$	$x_{11} \mathbf{a}_1 + y_{11} \mathbf{a}_2 + z_{11} \mathbf{a}_3$	$=$	$(ax_{11} + cz_{11} \cos \beta) \hat{\mathbf{x}} + by_{11} \hat{\mathbf{y}} + cz_{11} \sin \beta \hat{\mathbf{z}}$	(2a)	H V
$\mathbf{B}_{22} =$	$-x_{11} \mathbf{a}_1 + (y_{11} + \frac{1}{2}) \mathbf{a}_2 - z_{11} \mathbf{a}_3$	$=$	$-(ax_{11} + cz_{11} \cos \beta) \hat{\mathbf{x}} + b(y_{11} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{11} \sin \beta \hat{\mathbf{z}}$	(2a)	H V
$\mathbf{B}_{23} =$	$x_{12} \mathbf{a}_1 + y_{12} \mathbf{a}_2 + z_{12} \mathbf{a}_3$	$=$	$(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} + by_{12} \hat{\mathbf{y}} + cz_{12} \sin \beta \hat{\mathbf{z}}$	(2a)	H VI
$\mathbf{B}_{24} =$	$-x_{12} \mathbf{a}_1 + (y_{12} + \frac{1}{2}) \mathbf{a}_2 - z_{12} \mathbf{a}_3$	$=$	$-(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} + b(y_{12} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{12} \sin \beta \hat{\mathbf{z}}$	(2a)	H VI
$\mathbf{B}_{25} =$	$x_{13} \mathbf{a}_1 + y_{13} \mathbf{a}_2 + z_{13} \mathbf{a}_3$	$=$	$(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} + by_{13} \hat{\mathbf{y}} + cz_{13} \sin \beta \hat{\mathbf{z}}$	(2a)	H VII
$\mathbf{B}_{26} =$	$-x_{13} \mathbf{a}_1 + (y_{13} + \frac{1}{2}) \mathbf{a}_2 - z_{13} \mathbf{a}_3$	$=$	$-(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} + b(y_{13} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{13} \sin \beta \hat{\mathbf{z}}$	(2a)	H VII
$\mathbf{B}_{27} =$	$x_{14} \mathbf{a}_1 + y_{14} \mathbf{a}_2 + z_{14} \mathbf{a}_3$	$=$	$(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} + by_{14} \hat{\mathbf{y}} + cz_{14} \sin \beta \hat{\mathbf{z}}$	(2a)	H VIII
$\mathbf{B}_{28} =$	$-x_{14} \mathbf{a}_1 + (y_{14} + \frac{1}{2}) \mathbf{a}_2 - z_{14} \mathbf{a}_3$	$=$	$-(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} + b(y_{14} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{14} \sin \beta \hat{\mathbf{z}}$	(2a)	H VIII
$\mathbf{B}_{29} =$	$x_{15} \mathbf{a}_1 + y_{15} \mathbf{a}_2 + z_{15} \mathbf{a}_3$	$=$	$(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} + by_{15} \hat{\mathbf{y}} + cz_{15} \sin \beta \hat{\mathbf{z}}$	(2a)	H IX
$\mathbf{B}_{30} =$	$-x_{15} \mathbf{a}_1 + (y_{15} + \frac{1}{2}) \mathbf{a}_2 - z_{15} \mathbf{a}_3$	$=$	$-(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} + b(y_{15} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{15} \sin \beta \hat{\mathbf{z}}$	(2a)	H IX
$\mathbf{B}_{31} =$	$x_{16} \mathbf{a}_1 + y_{16} \mathbf{a}_2 + z_{16} \mathbf{a}_3$	$=$	$(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} + by_{16} \hat{\mathbf{y}} + cz_{16} \sin \beta \hat{\mathbf{z}}$	(2a)	H X
$\mathbf{B}_{32} =$	$-x_{16} \mathbf{a}_1 + (y_{16} + \frac{1}{2}) \mathbf{a}_2 - z_{16} \mathbf{a}_3$	$=$	$-(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} + b(y_{16} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{16} \sin \beta \hat{\mathbf{z}}$	(2a)	H X
$\mathbf{B}_{33} =$	$x_{17} \mathbf{a}_1 + y_{17} \mathbf{a}_2 + z_{17} \mathbf{a}_3$	$=$	$(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} + by_{17} \hat{\mathbf{y}} + cz_{17} \sin \beta \hat{\mathbf{z}}$	(2a)	H XI
$\mathbf{B}_{34} =$	$-x_{17} \mathbf{a}_1 + (y_{17} + \frac{1}{2}) \mathbf{a}_2 - z_{17} \mathbf{a}_3$	$=$	$-(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} + b(y_{17} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{17} \sin \beta \hat{\mathbf{z}}$	(2a)	H XI
$\mathbf{B}_{35} =$	$x_{18} \mathbf{a}_1 + y_{18} \mathbf{a}_2 + z_{18} \mathbf{a}_3$	$=$	$(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} + by_{18} \hat{\mathbf{y}} + cz_{18} \sin \beta \hat{\mathbf{z}}$	(2a)	H XII
$\mathbf{B}_{36} =$	$-x_{18} \mathbf{a}_1 + (y_{18} + \frac{1}{2}) \mathbf{a}_2 - z_{18} \mathbf{a}_3$	$=$	$-(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} + b(y_{18} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{18} \sin \beta \hat{\mathbf{z}}$	(2a)	H XII
$\mathbf{B}_{37} =$	$x_{19} \mathbf{a}_1 + y_{19} \mathbf{a}_2 + z_{19} \mathbf{a}_3$	$=$	$(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} + by_{19} \hat{\mathbf{y}} + cz_{19} \sin \beta \hat{\mathbf{z}}$	(2a)	H XIII
$\mathbf{B}_{38} =$	$-x_{19} \mathbf{a}_1 + (y_{19} + \frac{1}{2}) \mathbf{a}_2 - z_{19} \mathbf{a}_3$	$=$	$-(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} + b(y_{19} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{19} \sin \beta \hat{\mathbf{z}}$	(2a)	H XIII
$\mathbf{B}_{39} =$	$x_{20} \mathbf{a}_1 + y_{20} \mathbf{a}_2 + z_{20} \mathbf{a}_3$	$=$	$(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} + by_{20} \hat{\mathbf{y}} + cz_{20} \sin \beta \hat{\mathbf{z}}$	(2a)	H XIV
$\mathbf{B}_{40} =$	$-x_{20} \mathbf{a}_1 + (y_{20} + \frac{1}{2}) \mathbf{a}_2 - z_{20} \mathbf{a}_3$	$=$	$-(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} + b(y_{20} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{20} \sin \beta \hat{\mathbf{z}}$	(2a)	H XIV
$\mathbf{B}_{41} =$	$x_{21} \mathbf{a}_1 + y_{21} \mathbf{a}_2 + z_{21} \mathbf{a}_3$	$=$	$(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} + by_{21} \hat{\mathbf{y}} + cz_{21} \sin \beta \hat{\mathbf{z}}$	(2a)	O I
$\mathbf{B}_{42} =$	$-x_{21} \mathbf{a}_1 + (y_{21} + \frac{1}{2}) \mathbf{a}_2 - z_{21} \mathbf{a}_3$	$=$	$-(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} + b(y_{21} + \frac{1}{2}) \hat{\mathbf{y}} -$ $cz_{21} \sin \beta \hat{\mathbf{z}}$	(2a)	O I
$\mathbf{B}_{43} =$	$x_{22} \mathbf{a}_1 + y_{22} \mathbf{a}_2 + z_{22} \mathbf{a}_3$	$=$	$(ax_{22} + cz_{22} \cos \beta) \hat{\mathbf{x}} + by_{22} \hat{\mathbf{y}} + cz_{22} \sin \beta \hat{\mathbf{z}}$	(2a)	O II

$$\begin{aligned}
\mathbf{B}_{44} &= -x_{22} \mathbf{a}_1 + \left(y_{22} + \frac{1}{2}\right) \mathbf{a}_2 - z_{22} \mathbf{a}_3 = -\left(ax_{22} + cz_{22} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{22} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{22} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O II} \\
\mathbf{B}_{45} &= x_{23} \mathbf{a}_1 + y_{23} \mathbf{a}_2 + z_{23} \mathbf{a}_3 = \left(ax_{23} + cz_{23} \cos \beta\right) \hat{\mathbf{x}} + by_{23} \hat{\mathbf{y}} + cz_{23} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O III} \\
\mathbf{B}_{46} &= -x_{23} \mathbf{a}_1 + \left(y_{23} + \frac{1}{2}\right) \mathbf{a}_2 - z_{23} \mathbf{a}_3 = -\left(ax_{23} + cz_{23} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{23} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{23} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O III} \\
\mathbf{B}_{47} &= x_{24} \mathbf{a}_1 + y_{24} \mathbf{a}_2 + z_{24} \mathbf{a}_3 = \left(ax_{24} + cz_{24} \cos \beta\right) \hat{\mathbf{x}} + by_{24} \hat{\mathbf{y}} + cz_{24} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O IV} \\
\mathbf{B}_{48} &= -x_{24} \mathbf{a}_1 + \left(y_{24} + \frac{1}{2}\right) \mathbf{a}_2 - z_{24} \mathbf{a}_3 = -\left(ax_{24} + cz_{24} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{24} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{24} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O IV} \\
\mathbf{B}_{49} &= x_{25} \mathbf{a}_1 + y_{25} \mathbf{a}_2 + z_{25} \mathbf{a}_3 = \left(ax_{25} + cz_{25} \cos \beta\right) \hat{\mathbf{x}} + by_{25} \hat{\mathbf{y}} + cz_{25} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O V} \\
\mathbf{B}_{50} &= -x_{25} \mathbf{a}_1 + \left(y_{25} + \frac{1}{2}\right) \mathbf{a}_2 - z_{25} \mathbf{a}_3 = -\left(ax_{25} + cz_{25} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{25} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{25} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O V} \\
\mathbf{B}_{51} &= x_{26} \mathbf{a}_1 + y_{26} \mathbf{a}_2 + z_{26} \mathbf{a}_3 = \left(ax_{26} + cz_{26} \cos \beta\right) \hat{\mathbf{x}} + by_{26} \hat{\mathbf{y}} + cz_{26} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O VI} \\
\mathbf{B}_{52} &= -x_{26} \mathbf{a}_1 + \left(y_{26} + \frac{1}{2}\right) \mathbf{a}_2 - z_{26} \mathbf{a}_3 = -\left(ax_{26} + cz_{26} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{26} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{26} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O VI} \\
\mathbf{B}_{53} &= x_{27} \mathbf{a}_1 + y_{27} \mathbf{a}_2 + z_{27} \mathbf{a}_3 = \left(ax_{27} + cz_{27} \cos \beta\right) \hat{\mathbf{x}} + by_{27} \hat{\mathbf{y}} + cz_{27} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O VII} \\
\mathbf{B}_{54} &= -x_{27} \mathbf{a}_1 + \left(y_{27} + \frac{1}{2}\right) \mathbf{a}_2 - z_{27} \mathbf{a}_3 = -\left(ax_{27} + cz_{27} \cos \beta\right) \hat{\mathbf{x}} + b\left(y_{27} + \frac{1}{2}\right) \hat{\mathbf{y}} - cz_{27} \sin \beta \hat{\mathbf{z}} & (2a) & \text{O VII}
\end{aligned}$$

References

- [1] E. Hough, S. Neidle, D. Rogers, and P. G. H. Troughton, *The crystal structure α -D-glucose monohydrate*, Acta Cryst. **29**, 365–367 (1973), doi:10.1107/S0567740873002529.

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