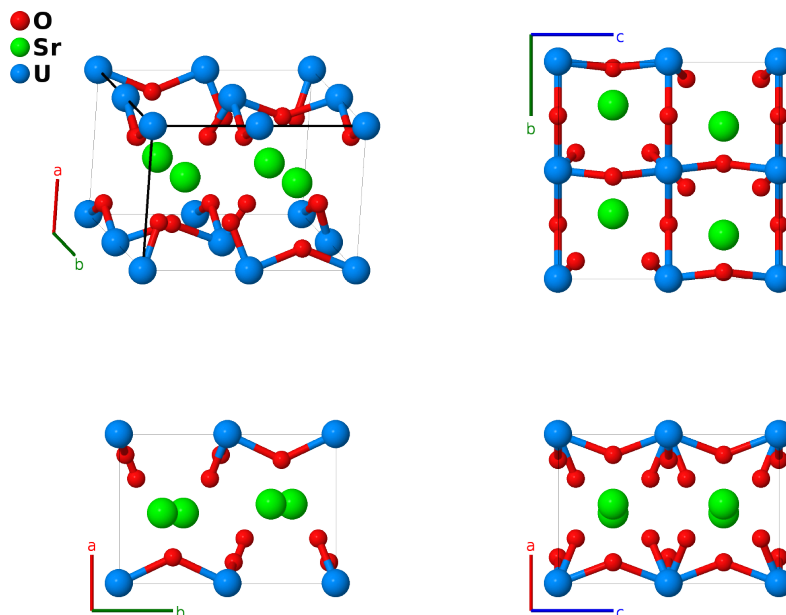# SrUO$_4$ Structure:
A4BC_oP24_57_cde_d_a-001

This structure originally had the label `A4BC_oP24_57_cde_d_a`. Calls to that address will be redirected here.

https://aflow.org/p/JM5X

https://aflow.org/p/A4BC_oP24_57_cde_d_a-001

Prototype	O$_4$SrU
AFLOW prototype label	A4BC_oP24_57_cde_d_a-001
ICSD	23196
Pearson symbol	oP24
Space group number	57
Space group symbol	*Pbcm*
AFLOW prototype command	aflow --proto=A4BC_oP24_57_cde_d_a-001 --params=$a, b/a, c/a, x_2, x_3, y_3, x_4, y_4, x_5, y_5, z_5$

Other compounds with this structure
BaUO$_4$, CsFeF$_4$, RbFeF$_4$

Simple Orthorhombic primitive vectors

$$\mathbf{a_1} = a\,\hat{\mathbf{x}}$$
$$\mathbf{a_2} = b\,\hat{\mathbf{y}}$$
$$\mathbf{a_3} = c\,\hat{\mathbf{z}}$$
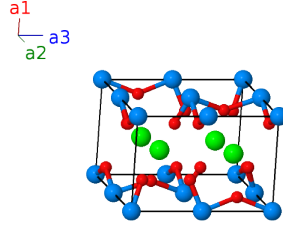
Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	0	=	0	(4a)	U I
$\mathbf{B_2}$	=	$\frac{1}{2}\,\mathbf{a_3}$	=	$\frac{1}{2}c\,\hat{\mathbf{z}}$	(4a)	U I
$\mathbf{B_3}$	=	$\frac{1}{2}\,\mathbf{a_2} + \frac{1}{2}\,\mathbf{a_3}$	=	$\frac{1}{2}b\,\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(4a)	U I
$\mathbf{B_4}$	=	$\frac{1}{2}\,\mathbf{a_2}$	=	$\frac{1}{2}b\,\hat{\mathbf{y}}$	(4a)	U I
$\mathbf{B_5}$	=	$x_2\,\mathbf{a_1} + \frac{1}{4}\,\mathbf{a_2}$	=	$ax_2\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}}$	(4c)	O I
$\mathbf{B_6}$	=	$-x_2\,\mathbf{a_1} + \frac{3}{4}\,\mathbf{a_2} + \frac{1}{2}\,\mathbf{a_3}$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_7}$	=	$-x_2\,\mathbf{a_1} + \frac{3}{4}\,\mathbf{a_2}$	=	$-ax_2\,\hat{\mathbf{x}} + \frac{3}{4}b\,\hat{\mathbf{y}}$	(4c)	O I
$\mathbf{B_8}$	=	$x_2\,\mathbf{a_1} + \frac{1}{4}\,\mathbf{a_2} + \frac{1}{2}\,\mathbf{a_3}$	=	$ax_2\,\hat{\mathbf{x}} + \frac{1}{4}b\,\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(4c)	O I
$\mathbf{B_9}$	=	$x_3\,\mathbf{a_1} + y_3\,\mathbf{a_2} + \frac{1}{4}\,\mathbf{a_3}$	=	$ax_3\,\hat{\mathbf{x}} + by_3\,\hat{\mathbf{y}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(4d)	O II
$\mathbf{B_{10}}$	=	$-x_3\,\mathbf{a_1} - y_3\,\mathbf{a_2} + \frac{3}{4}\,\mathbf{a_3}$	=	$-ax_3\,\hat{\mathbf{x}} - by_3\,\hat{\mathbf{y}} + \frac{3}{4}c\,\hat{\mathbf{z}}$	(4d)	O II
$\mathbf{B_{11}}$	=	$-x_3\,\mathbf{a_1} + \left(y_3 + \frac{1}{2}\right)\mathbf{a_2} + \frac{1}{4}\,\mathbf{a_3}$	=	$-ax_3\,\hat{\mathbf{x}} + b\left(y_3 + \frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(4d)	O II
$\mathbf{B_{12}}$	=	$x_3\,\mathbf{a_1} - \left(y_3 - \frac{1}{2}\right)\mathbf{a_2} + \frac{3}{4}\,\mathbf{a_3}$	=	$ax_3\,\hat{\mathbf{x}} - b\left(y_3 - \frac{1}{2}\right)\hat{\mathbf{y}} + \frac{3}{4}c\,\hat{\mathbf{z}}$	(4d)	O II
$\mathbf{B_{13}}$	=	$x_4\,\mathbf{a_1} + y_4\,\mathbf{a_2} + \frac{1}{4}\,\mathbf{a_3}$	=	$ax_4\,\hat{\mathbf{x}} + by_4\,\hat{\mathbf{y}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(4d)	Sr I
$\mathbf{B_{14}}$	=	$-x_4\,\mathbf{a_1} - y_4\,\mathbf{a_2} + \frac{3}{4}\,\mathbf{a_3}$	=	$-ax_4\,\hat{\mathbf{x}} - by_4\,\hat{\mathbf{y}} + \frac{3}{4}c\,\hat{\mathbf{z}}$	(4d)	Sr I
$\mathbf{B_{15}}$	=	$-x_4\,\mathbf{a_1} + \left(y_4 + \frac{1}{2}\right)\mathbf{a_2} + \frac{1}{4}\,\mathbf{a_3}$	=	$-ax_4\,\hat{\mathbf{x}} + b\left(y_4 + \frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{4}c\,\hat{\mathbf{z}}$	(4d)	Sr I
$\mathbf{B_{16}}$	=	$x_4\,\mathbf{a_1} - \left(y_4 - \frac{1}{2}\right)\mathbf{a_2} + \frac{3}{4}\,\mathbf{a_3}$	=	$ax_4\,\hat{\mathbf{x}} - b\left(y_4 - \frac{1}{2}\right)\hat{\mathbf{y}} + \frac{3}{4}c\,\hat{\mathbf{z}}$	(4d)	Sr I
$\mathbf{B_{17}}$	=	$x_5\,\mathbf{a_1} + y_5\,\mathbf{a_2} + z_5\,\mathbf{a_3}$	=	$ax_5\,\hat{\mathbf{x}} + by_5\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{18}}$	=	$-x_5\,\mathbf{a_1} - y_5\,\mathbf{a_2} + \left(z_5 + \frac{1}{2}\right)\mathbf{a_3}$	=	$-ax_5\,\hat{\mathbf{x}} - by_5\,\hat{\mathbf{y}} + c\left(z_5 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{19}}$	=	$-x_5\,\mathbf{a_1} + \left(y_5 + \frac{1}{2}\right)\mathbf{a_2} - \left(z_5 - \frac{1}{2}\right)\mathbf{a_3}$	=	$-ax_5\,\hat{\mathbf{x}} + b\left(y_5 + \frac{1}{2}\right)\hat{\mathbf{y}} - c\left(z_5 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{20}}$	=	$x_5\,\mathbf{a_1} - \left(y_5 - \frac{1}{2}\right)\mathbf{a_2} - z_5\,\mathbf{a_3}$	=	$ax_5\,\hat{\mathbf{x}} - b\left(y_5 - \frac{1}{2}\right)\hat{\mathbf{y}} - cz_5\,\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{21}}$	=	$-x_5\,\mathbf{a_1} - y_5\,\mathbf{a_2} - z_5\,\mathbf{a_3}$	=	$-ax_5\,\hat{\mathbf{x}} - by_5\,\hat{\mathbf{y}} - cz_5\,\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{22}}$	=	$x_5\,\mathbf{a_1} + y_5\,\mathbf{a_2} - \left(z_5 - \frac{1}{2}\right)\mathbf{a_3}$	=	$ax_5\,\hat{\mathbf{x}} + by_5\,\hat{\mathbf{y}} - c\left(z_5 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{23}}$	=	$x_5\,\mathbf{a_1} - \left(y_5 - \frac{1}{2}\right)\mathbf{a_2} + \left(z_5 + \frac{1}{2}\right)\mathbf{a_3}$	=	$ax_5\,\hat{\mathbf{x}} - b\left(y_5 - \frac{1}{2}\right)\hat{\mathbf{y}} + c\left(z_5 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	O III
$\mathbf{B_{24}}$	=	$-x_5\,\mathbf{a_1} + \left(y_5 + \frac{1}{2}\right)\mathbf{a_2} + z_5\,\mathbf{a_3}$	=	$-ax_5\,\hat{\mathbf{x}} + b\left(y_5 + \frac{1}{2}\right)\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(8e)	O III

References

[1] B. O. Loopstra and H. M. Rietveld, *The structure of some alkaline-earth metal uranates*, Acta Crystallogr. Sect. B **25**, 787–791 (1969), doi:10.1107/S0567740869002974.