

$\text{Rh}_{12}\text{As}_7$	$hP22$	$(176) P6_3/m - h^3e$
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**Rh<sub>12</sub>As<sub>7</sub>** [1], polkanovite

Structural features: Infinite columns of base-linked AsRh<sub>6</sub>Rh<sub>2</sub> bicapped trigonal prisms (AsRh<sub>8</sub> square antiprisms) share atoms to form a 3D-framework with WC-type columns (3 prisms in the triangular cross-section); additional As in channels of hexagonal cross-section parallel to [001] (partial disorder). Variant of Th<sub>7</sub>S<sub>12</sub> antitype.

Pivan J.Y. et al. (1985) [1]

As<sub>7</sub>Rh<sub>12</sub>

$a = 0.9297$ ,  $c = 0.3657$  nm,  $c/a = 0.393$ ,  $V = 0.2737$  nm<sup>3</sup>,  $Z = 1$

site	Wyck.	sym.	$x$	$y$	$z$	occ.	atomic environment
Rh1	$6h$	$m..$	0.1356	0.5153	$\frac{1}{4}$		tricapped pentagonal prism As <sub>5</sub> Rh <sub>8</sub>
Rh2	$6h$	$m..$	0.2527	0.2436	$\frac{1}{4}$		
As3	$6h$	$m..$	0.4466	0.1608	$\frac{1}{4}$		square antiprism Rh <sub>8</sub>
As4	$4e$	$3..$	0	0	0.133	0.25	

Experimental: single crystal, diffractometer, X-rays,  $R = 0.049$

Remarks: Two partly occupied sites on the c-axis are reported in [2]. Short interatomic distances for partly occupied site(s).

References: [1] Pivan J.Y., Guérin R., Sergent M. (1985), J. Less-Common Met. 107, 249-258. [2] Lambert Andron B., Dhahri E., Chaudouet P., Madar R. (1985), J. Less-Common Met. 108, 353-358.