

SmRh₅Ge₃ [1]

Structural features: Infinite columns of base-linked Ge(Sm₂Rh₄)Rh₃ tricapped and Ge(Sm₂Rh₄)Rh₂ bicapped trigonal prisms share atoms to form a 3D-framework with six-fold propeller-like columns.

Morozkin A.V. et al. (2002) [1]

Ge₃Rh₅Sm

$a = 2.2744$, $c = 0.3888$ nm, $c/a = 0.171$, $V = 1.7418$ nm³, $Z = 12$

site	Wyck.	sym.	x	y	z	occ.	atomic environment
Ge1	6h	$m..$	0.011	0.433	$\frac{1}{4}$		monocapped trigonal prism Rh ₇
Rh2	6h	$m..$	0.038	0.556	$\frac{1}{4}$		cuboctahedron Ge ₄ Rh ₅ Sm ₃
Rh3	6h	$m..$	0.089	0.01	$\frac{1}{4}$		square antiprism Ge ₃ Rh ₅
Rh4	6h	$m..$	0.097	0.39	$\frac{1}{4}$		10-vertex polyhedron Ge ₄ Rh ₅ Sm
Ge5	6h	$m..$	0.109	0.175	$\frac{1}{4}$		monocapped trigonal prism Rh ₇
Rh6	6h	$m..$	0.135	0.305	$\frac{1}{4}$		10-vertex polyhedron Ge ₄ Rh ₅ Sm
Rh7	6h	$m..$	0.21	0.146	$\frac{1}{4}$		cuboctahedron Ge ₄ Rh ₅ Sm ₃
Ge8	6h	$m..$	0.214	0.486	$\frac{1}{4}$		square prism (cube) Rh ₆ Ge ₂
Rh9	6h	$m..$	0.245	0.605	$\frac{1}{4}$		10-vertex polyhedron Ge ₂ Rh ₆ Sm ₂
Sm10	6h	$m..$	0.257	0.019	$\frac{1}{4}$		23-vertex polyhedron Ge ₉ Rh ₁₂ Sm ₂
Ge11	6h	$m..$	0.261	0.385	$\frac{1}{4}$		square prism (cube) Rh ₆ Ge ₂
Ge12	6h	$m..$	0.318	0.228	$\frac{1}{4}$		tricapped trigonal prism Rh ₇ Sm ₂
Rh13	6h	$m..$	0.349	0.359	$\frac{1}{4}$		11-vertex polyhedron Ge ₄ Rh ₅ Sm ₂
Ge14	6h	$m..$	0.356	0.525	$\frac{1}{4}$		bicapped square prism Rh ₆ Ge ₂ Sm ₂
Rh15	6h	$m..$	0.404	0.201	$\frac{1}{4}$		11-vertex polyhedron Ge ₅ Rh ₆
Rh16	6h	$m..$	0.45	0.106	$\frac{1}{4}$		cuboctahedron Ge ₅ Rh ₆ Sm
Rh17	6h	$m..$	0.552	0.238	$\frac{1}{4}$		11-vertex polyhedron Ge ₄ Rh ₆ Sm
Sm18	6h	$m..$	0.595	0.125	$\frac{1}{4}$		22-vertex polyhedron Ge ₈ Rh ₁₂ Sm ₂

Transformation from published data: origin shift 0 0 $\frac{1}{2}$

Experimental: powder, diffractometer, X-rays, $R_B = 0.039$

Remarks: In table 2 of [1] the x -coordinate of former Rh1 is misprinted as 0.310 instead of 0.210 (checked on interatomic distances).

References: [1] Morozkin A.V., Bogdanov A.E., Welter R. (2002), J. Alloys Compd. 340, 49-53.