

Th₂Ni₁₇ [1]; Ce₂Ni₁₅Si₂ [2]

Structural features: Kagomé-mesh Ni₉ layers and Th₂(Ni₂)Ni₆ layers (a Ni hexagon mesh, the hexagons of which are centered by a Th atom or a Ni₂ dumbbell perpendicular to the layer) alternate along [001]. Intergrowth of CaCu₅- and Zr₄Al₃-type blocks in the ratio 2:1. See Fig. III.40.

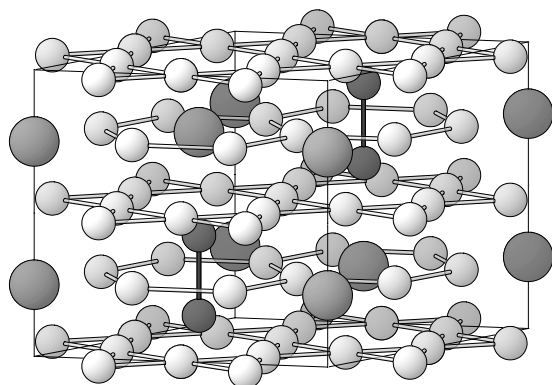


Fig. III.40. Th₂Ni₁₇

Arrangement of Th (large) and Ni (small, Ni₂ dumbbells dark) atoms.

Florio J.V. et al. (1956) [1]

Ni₁₇Th₂

$a = 0.837$, $c = 0.814$ nm, $c/a = 0.973$, $V = 0.4939$ nm³, $Z = 2$

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
Ni1	12 <i>k</i>	<i>m.</i>	0.1667	0.3334	0.0		icosahedron Ni ₉ Th ₃
Ni2	12 <i>j</i>	<i>m.</i>	0.0	0.3333	1/4		pseudo Frank-Kasper Ni ₁₁ Th ₂
Ni3	6 <i>g</i>	2/ <i>m.</i>	1/2	0	0		icosahedron Ni ₁₀ Th ₂
Ni4	4 <i>f</i>	3 <i>m.</i>	1/3	2/3	0.61		14-vertex Frank-Kasper Ni ₁₃ Th
Th5	2 <i>c</i>	-6 <i>m</i> 2	1/3	2/3	1/4		pseudo Frank-Kasper Ni ₂₀
Th6	2 <i>b</i>	-6 <i>m</i> 2	0	0	1/4		sixcapped hexagonal prism Ni ₁₈

Transformation from published data: origin shift 0 0 1/2

Experimental: single crystal, precession and Weissenberg photographs, X-rays

Remarks: Idealized coordinates.

References: [1] Florio J.V., Baenziger N.C., Rundle R.E. (1956), Acta Crystallogr. 9, 367-372. [2] Gladyshevskii E.I., Krypyakevych P.I., Bodak O.I. (1967), Visn. L'viv. Derzh. Univ., Ser. Khim. 9, 34-39.