Th_7Fe_3	*hP*20	(186) $P6_3mc$ – c^3b

Th_7Fe_3 [2], Strukturbericht notation $D10_2$; Ru_7B_3 [3]
Structural features: $FeTh_6Th_3$ tricapped trigonal prisms (non-parallel prism axes) share atoms to form a 3D-framework. See Fig. IV.23.

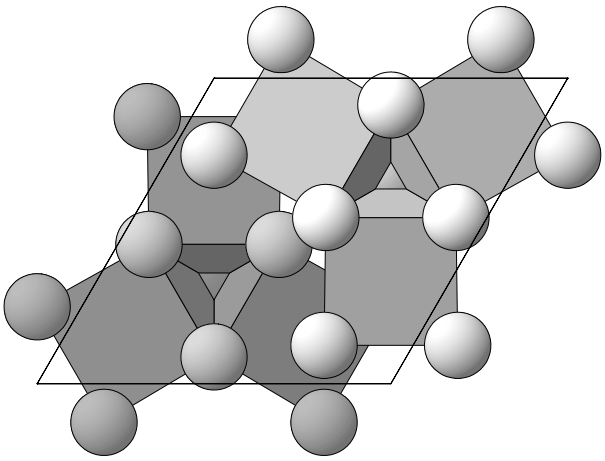

Fig. IV.23. **Th_7Fe_3**

Arrangement of $FeTh_6$ trigonal prisms viewed along [001]. Light and dark prisms are shifted by *c*/2.

Florio J.V. et al. (1956) [1]
Fe_3Th_7
$a = 0.985$, $c = 0.615$ nm, $c/a = 0.624$, $V = 0.5167$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
Fe1	6*c*	.*m*.	0.185	0.815	0.25		tricapped trigonal prism Th_9
Th2	6*c*	.*m*.	0.544	0.456	0.03		15-vertex Frank-Kasper Fe_4Th_{11}
Th3	6*c*	.*m*.	0.874	0.126	0.31		15-vertex Frank-Kasper Fe_4Th_{11}
Th4	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.0		15-vertex Frank-Kasper Fe_3Th_{12}

Transformation from published data: -*x*,-*y*,-*z*; origin shift 0.44000
Experimental: single crystal, oscillation photographs, X-rays

Remarks: In [1] and [2] the Th sites are interchanged in the lists of interatomic distances with respect to the lists of atom coordinates (see [4] and [5]).

References: [1] Florio J.V., Baenziger N.C., Rundle R.E. (1956), Acta Crystallogr. 9, 367-372. [2] Baenziger N.C. (1952), Iowa State Coll. J. Sci. 27, 126-128. [3] Aronsson B. (1959), Acta Chem. Scand. 13, 109-114. [4] (1969), Structure Reports 25, 356. [5] (1969), Structure Reports 25, 359.