

Th <sub>3</sub> Pd <sub>5</sub>	<i>hP8</i>	(189) <i>P-62m</i> – gfc
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**Th<sub>3</sub>Pd<sub>5</sub>** [1]; Pt<sub>3</sub>(Zn,Cd)<sub>5</sub> [2]; Th<sub>3</sub>Pt<sub>5</sub> [1]  
 Structural features: Triangle-mesh Th<sub>3</sub> layers and 5<sup>3</sup>3-mesh (pentagons and triangles) Pd<sub>5</sub> layers alternate along [001]. See Fig. IV.1.

Thomson J.R. (1963) [1]  
 Pd<sub>5</sub>Th<sub>3</sub>  
 $a = 0.7149$ ,  $c = 0.3899$  nm,  $c/a = 0.545$ ,  $V = 0.1726$  nm<sup>3</sup>,  $Z = 1$

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
Th1	3 <i>g</i>	<i>m2m</i>	0.650	0	1/2		pseudo Frank-Kasper Pd <sub>12</sub> Th <sub>8</sub>
Pd2	3 <i>f</i>	<i>m2m</i>	0.220	0	0		8-vertex polyhedron Pd <sub>4</sub> Th <sub>4</sub>
Pd3	2 <i>c</i>	-6..	1/3	2/3	0		tricapped trigonal prism Pd <sub>3</sub> Th <sub>6</sub>

Transformation from published data: -*x*, -*y*, -*z*  
 Experimental: powder, film, X-rays  
 Remarks: The description of Pt<sub>3</sub>(Zn,Cd)<sub>5</sub> in space group (157) *P31m* in [2] does not take into consideration all symmetry elements of the proposed structure (see [3]).  
 References: [1] Thomson J.R. (1963), Acta Crystallogr. 16, 320-321. [2] Khan Y., Schubert K. (1970), J. Less-Common Met. 20, 266-268. [3] (1975), Structure Reports 35A, 41.

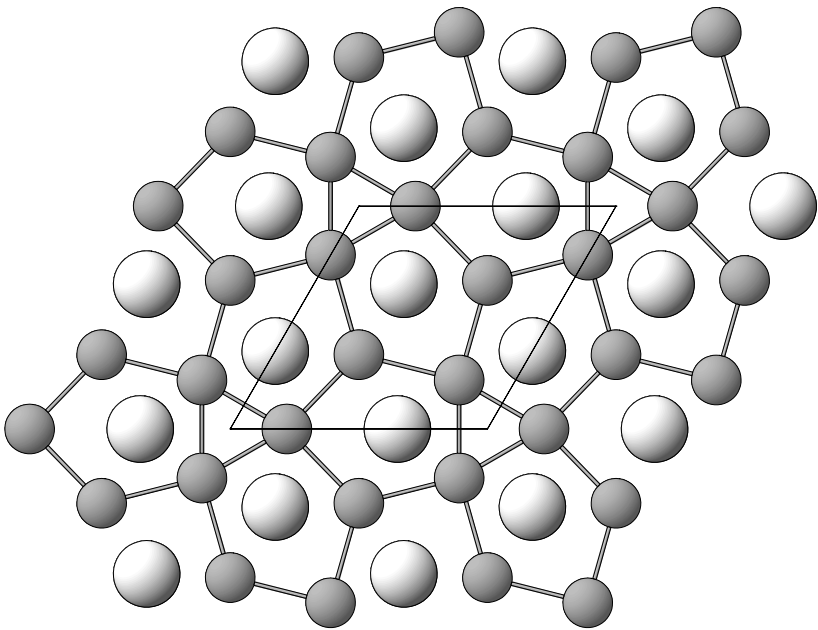


Fig. IV.1. **Th<sub>3</sub>Pd<sub>5</sub>**  
 Arrangement of Th (large) and Pd (small) atoms viewed along [001]. Light and dark atoms are shifted by  $c/2$ .