

# The Ordered Laves Phases $\text{CeNi}_4\text{Cd}$ and $\text{RECu}_4\text{Cd}$ ( $\text{RE} = \text{Ho}, \text{Er}, \text{Tm}, \text{Yb}$ )

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The ternary ordered Laves phases  $\text{CeNi}_4\text{Cd}$  and  $\text{RECu}_4\text{Cd}$  ( $\text{RE} = \text{Ho}, \text{Er}, \text{Tm}, \text{Yb}$ ) were synthesized by induction-melting of the elements in sealed tantalum tubes. The compounds were characterized by X-ray powder and single crystal diffraction:  $\text{MgCu}_4\text{Sn}$  type,  $F\bar{4}3m$ ,  $a = 706.9(2)$  pm for  $\text{CeNi}_4\text{Cd}$ ,  $a = 723.1(2)$  pm for  $\text{HoCu}_4\text{Cd}$ ,  $a = 717.7(3)$  pm for  $\text{ErCu}_4\text{Cd}$ ,  $a = 714.2(1)$  pm for  $\text{TmCu}_4\text{Cd}$ , and  $a = 713.10(7)$  pm for  $\text{YbCu}_4\text{Cd}$ . The nickel and copper atoms build up three-dimensional networks of corner-sharing  $\text{Ni}_{4/2}$  and  $\text{Cu}_{4/2}$  tetrahedra. These networks leave voids of coordination number 16 that are filled with the rare earth ( $\text{RE}$ ) and cadmium atoms.

*Key words:* Laves Phases, Crystal Structure, Solid State Synthesis