

Magnetic and Electrical Properties of the Intermetallic Compounds RE_2Au_2Sn ($RE = Y, Dy - Tm, Lu$) and RE_2Au_2In ($RE = Ho, Lu$)

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The intermetallic compounds RE_2Au_2Sn ($RE = Y, Dy-Tm, Lu$) and RE_2Au_2In ($RE = Ho, Lu$) were synthesized from the elements *via* arc-melting and subsequent annealing at 1070 K for 10 days. Depending on the size of the rare earth element, the compounds crystallize with the Mo_2B_2Fe -type (space group $P4/mbm$) or the Er_2Au_2Sn structure (space group $P4_2/mnm$), a superstructure of Mo_2B_2Fe . Temperature dependent susceptibility measurements of Y_2Au_2Sn , Lu_2Au_2Sn , and Lu_2Au_2In indicate Pauli paramagnetism compatible with the metallic behavior deduced from resistivity measurements. Ho_2Au_2In and RE_2Au_2Sn ($RE = Dy-Tm$) show Curie-Weiss behavior above 50 K with experimental magnetic moments close to the free ion values of the trivalent rare earth elements. The compounds Ho_2Au_2In , Dy_2Au_2Sn , Ho_2Au_2Sn , and Er_2Au_2Sn , undergo magnetic ordering at 20(1) (F), 16(1) (AF), 8(1) (AF), and 4.5(1) K (AF), respectively. Tm_2Au_2Sn remains paramagnetic down to 2 K.

Key words: Solid State Synthesis, Magnetism, Electrical Resistivity