

# Magnetic Properties of Compounds $RE_2Cu_2Mg$ ( $RE = Y, La, Pr, Nd$ )

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The  $Mo_2FeB_2$  type magnesium intermetallics  $RE_2Cu_2Mg$  ( $RE = Y, La, Pr, Nd$ ) were synthesized from the elements by reactions in sealed tantalum tubes in a high-frequency furnace. Temperature-dependent magnetic susceptibility measurements of  $Y_2Cu_2Mg$  and  $La_2Cu_2Mg$  indicate Pauli paramagnetism.  $Pr_2Cu_2Mg$  and  $Nd_2Cu_2Mg$  show Curie-Weiss behaviour with experimental magnetic moments of  $3.67(2) \mu_B/Pr$  and  $3.47(2) \mu_B/Nd$ , respectively. Both compounds are ordered ferromagnetically at Curie temperatures of  $12.0(5)$  ( $Pr_2Cu_2Mg$ ) and  $43.0(5)$  K ( $Nd_2Cu_2Mg$ ).  $Pr_2Cu_2Mg$  shows a very complex magnetization behavior with an additional magnetic transition around 2.5 T. The neodymium compound shows a pronounced square loop behavior in the magnetization at 4.5 K with a high remanent magnetization of  $1.55(1) \mu_B/Nd$  atom and a coercive field of  $0.31(1)$  T.

*Key words:* Magnesium, Rare Earth Compounds, Magnetism