Transition Metal-Gallium Ordering in HfCoGa₂ and HfNiGa₂

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Z. Naturforsch. 58b, 16 – 21 (2003); received September 16, 2002

The gallides HfCoGa₂ and HfNiGa₂ were synthesized by arc-melting of the elements and subsequent annealing in glassy carbon crucibles. Their structures have been reinvestigated by X-ray diffraction on powders and single crystals: \( I4mm, a = 1222.4(1), c = 812.0(1) \) pm, \( wR2 = 0.0766\), 1464 \( F^2 \) values, 64 variables, BASF = 0.41(2) for HfCoGa₂ and \( a = 1224.0(2), c = 809.3(2) \) pm, \( wR2 = 0.0609, 1499 F^2 \) values, 63 variables for HfNiGa₂. In contrast to a previous investigation (Dopov. Akad. Nauk Ukr. RSR, Ser. A, 51 (1988)) we observe a fully ordered arrangement of the transition metal and gallium atoms. The crystal chemistry of these gallides is briefly discussed.

Key words: Hafnium, Gallide, Crystal Structure