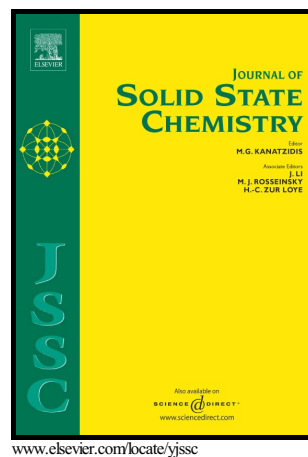


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The Gd-Co-Al system at 870/1070 K as a representative of the Rare earth-Co-Al family and new rare-earth cobalt aluminides: crystal structure and magnetic properties

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Abstract

The Gd-Co-Al system has been investigated at 870/1070 K by X-ray and elemental EDS analyses. The existence of the known compounds $Gd_2Co_3Al_9$ ($Y_2Co_3Ga_9$ -type), $Gd_3Co_{4.5}Al_{11.5}$ ($Gd_3Co_{4.6}Al_{11}$) ($Gd_3Ru_4Al_{12}$ -type), $Gd_3Co_{6-7.4}Al_{3-1.6}$ ($CeNi_3$ -type), $GdCo_{1.15-0.65}Al_{0.85-1.35}$ ($MgZn_2$ -type), Gd_2Co_2Al (Mo_2NiB_2 -type) and $Gd_3Co_{3.5-3.25}Al_{0.5-0.75}$ (W_3CoB_3 -type) has been confirmed at 870/1070 K. Structure types have been determined for $Gd_2Co_6Al_{19}$ ($U_2Co_6Al_{19}$ -type), $Gd_7Co_6Al_7$ ($Pr_7Co_6Al_7$ -type), $Gd_6Co_{2-2.21}Al_{1-0.79}$ (Ho_6Co_2Ga -type) and $Gd_{14}Co_{3.2}Al_{2.8}$ ($Gd_{14}Co_{2.58}Al_{3.42}$ at 970 K) ($Lu_{14}Co_3In_3$ -

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