Dy - Nd, Sm

Nd, Dy

1972

118870b Phase diagram of the neodymium-dysprosium system. Kobzenko, G. F.; Svechnikov, V. N.; Martynchuk, E. L. (Inst. Metallofiz., Kiev, USSR). *Dopov. Akad. Nauk Ukr. RSR, Ser. A* 1972, 34(6), 563–5 (Ukrain). Eleven alloys were prepd. from Dy and Nd in an elec. arc furnace in Ar and were studied by x-ray diffraction anal., metallog., and other methods. The concn. of both components varied 10–90%. Melting and allotropic transformation temps. and intervals of phase transformations of alloys rich in Nd increase with increasing Dy and was 1300 ± 15° and 1250 ± 15°. There was a certain concn. region where the temp. was stabilized, then it increased again and reached the m.p. of Dy (1370–1380°). Microstructural and x-ray diffraction anal. showed that several solid solns. were present in alloys with polyhedral and dendritic structure. The nonvariant transformation which took place at 1250° was detd. by allotropic transformation $\alpha \rightleftarrows \beta$ in the solid soln. on the basis of Nd and $\beta_{Nd} + \alpha_{Dy} \rightleftarrows \alpha_{Nd}$ corresponds to it. The nonvariant transformation at 1300° was detd. by the alloy crystn. according to the reaction $L + \alpha_{Dy} \rightleftarrows \beta_{Nd}$ (peritectic). The presence of an intermediate phase was suspected which was formed by the reaction $\alpha_{Nd} + \alpha_{Dy} \rightleftarrows Nd_xDy_y$ (peritectic), as was indicated by the Debye powder patterns in annealed alloys (800 and 550°). The plotted phase diagram is presented.

(Tm, Ttr)

CA 1972 77 18

T. Ya. Cheron

1979

Dy – Sm

(contd)

91: 115816s **Characteristics of the electric resistance of dysprosium-samarium system alloys.** Il'ina, I. K.; Galkina, O. S.; Kondorskii, E. I. (Mosk. Gos. Univ., Moscow, USSR). *Fiz. Met. Metalloved.* 1979, 47(2), 434-7 (Russ). The temp. dependence was examd. of the elec. resistance (ζ) of Dy and Dy – (1.1-21 at. %) Sm. Regardless of the Sm content, ζ (T) curves are analogous to those of Dy. For decreasing temp., ζ rises at the Neel point (T_N), passes through max., and then decreases quasilinearly to the curie point (T_c) where a jump like drop in ζ occurs due to distortion of the Fermi surface by new Brillouin zone boundaries. T_c Is ~80 K and independent of the alloy compn. whereas alloying with Sm shifts T_N to lower temps. at a rate of ~ 1°/at. % Sm. The linear portion of ζ (T) at $T > T_N$ was used to est. the paramagnetic contribution which obeys the equation of A. Dekker (1965).

(Tc)

C.A. 1979 91:14

$NdCl_3-DyCl_3-H_2O$ 1982

тв р-ры

Соколова И. П.

Радиохимия, 1982,

ΔG; 24, N 4, 499-506.

(см. $NdCl_3-GdCl_3-H_2O$, I)

1998

F: Dy-Fe-Nd
P: 1
20Б326. Фазовые равновесия в системе Dy-Fe-Nd при 500{°}C. Phase equilibria in the Dy-Fe-Nd system at 500{°}C / Lingmin Zeng, Wei He, Yinghong Zhuang // Z. Metallk. - 1998. - 89, 4. - С. 286-288. - Англ.
С использованием порошковой дифракции рентгеновских лучей, рентгеноспектрального локального микроанализа,

металлографии и ДТА определена фазовая диаграмм системы Dy-Fe-Nd при т-ре 500{°}C. Изотермич. сечение при 500{°}C этой тройной системы состоит из 10 однофазных областей, 17 двухфазных областей и 8 трехфазных областей. Не найдено тройных соединений. При т-ре 500{°}C макс. р-римость в тв. в-вах равна Nd в DyFe[3] и DyFe[2] около 1 ат.% и 3 ат.% и Fe в 'альфа'-Nd(Dy) около 0,1 ат.% соотв. Подтверждено существование метастабильной фазы NdFe[2] и 'дельта'-фазы бинарной системы Dy-Nd, но не найдено свидетельств о существовании Nd[3]Dy[2]. Метастабильная фаза NdFe[2] появляется в областях фаз, к-рые включают стабильную фазу DyFe[2], но не найдена в сплаве вблизи состава NdFe[2].