

High-temperature Calorimetry of Liquid Gd–Si and Y–Si Alloys

Dmitry S. Kanibolotsky^{a,b}, Olena A. Bieloborodova^a, and Vladyslav V. Lisnyak^a

^a Chemical Department, Kiev National Taras Shevchenko University, Vladimirskaya Street 64, Kiev 01033, Ukraine

^b Biophysical Department, Academician Peter Bogach Institute, Glushkova Ave. 2, corpus 12, Kiev 03022, Ukraine

Reprint requests to Dr. V. V. L.; Fax: +38-(0)44-2581241; E-mail: lisnyak@chem.univ.kiev.ua

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Molten Gd–Si and Y–Si alloys were examined calorimetrically at 1760 and 1770 K, respectively. The partial enthalpies of mixing of gadolinium ($\Delta_{\text{mix}}\bar{H}_{\text{Gd}}$), yttrium ($\Delta_{\text{mix}}\bar{H}_{\text{Y}}$) and silicon ($\Delta_{\text{mix}}\bar{H}_{\text{Si}}$) were measured. The integral enthalpy of mixing ($\Delta_{\text{mix}}H$) was calculated by Darken's method. The available thermodynamic data of liquid (Gd,Y)–Si alloys were compared. The partial enthalpies of mixing of Gd and Y, and appropriate integral enthalpies of mixing, were described by polynomial dependencies versus mole fraction of Gd or Y.

Key words: (Gd,Y)–Si; Liquid Alloys; Calorimetry; Mixing Enthalpy.