Accepted Manuscript

Phase equilibria in the Fe-Ce-C system at 1100 °C

M. Mardani, I. Fartushna, A. Khvan, V. Cheverikin, D. Ivanov, A. Kondratiev, A. Dinsdale

PII: S0925-8388(17)33316-9

DOI: 10.1016/j.jallcom.2017.09.266

Reference: JALCOM 43322

To appear in: *Journal of Alloys and Compounds*

Received Date: 9 August 2017

Revised Date: 22 September 2017

Accepted Date: 24 September 2017

Please cite this article as: M. Mardani, I. Fartushna, A. Khvan, V. Cheverikin, D. Ivanov, A. Kondratiev, A. Dinsdale, Phase equilibria in the Fe-Ce-C system at 1100 °C, *Journal of Alloys and Compounds* (2017), doi: 10.1016/j.jallcom.2017.09.266.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Phase equilibria in the Fe-Ce-C system at 1100°C

M. Mardani[1], I. Fartushna[1], A. Khvan[1], V. Cheverikin[1], D. Ivanov[1], A. Kondratiev[1], A. Dinsdale[2,3]

[1] *Thermochemistry of Materials Scientific Research Centre, NUST MISIS, Leninsky prosp. 4, 119049 Moscow, Russia*

[2] *Hampton Thermodynamics Ltd, UK*

[3] *BCAST, Brunel University London, Uxbridge, UK, UB8 2AD*

Abstract

Phase equilibria in the Fe-Ce-C system at 1100°C were studied using X-ray diffraction, SEM and electron probe microanalysis. An isothermal section at this temperature was constructed covering the whole concentration range. The stability of the ternary compound τ_1 at 1100°C, identified previously, was confirmed and its composition determined as 23Fe-29Ce-48C according our data. It is also confirmed that the ternary compound τ_1 does not have a homogeneity range. The liquid phase is stable at 1100°C in the Fe-Ce-C system. The isothermal section is characterized by five three-phase regions: (γFe) + (C) + (αCeC_2), (γFe) + τ_1 + (αCeC_2), (γFe) + τ_1 + (Ce_2C_3), (αCeC_2) + τ_1 + (Ce_2C_3) and L + (γFe) + (Ce_2C_3) plus the corresponding two-phase regions.

Keywords: Phase diagram, ternary compound, isothermal section, Fe-Ce-C, rare earth metal, phase equilibria, lanthanides

*Corresponding author.

E-mail address: masuma.mardani@gmail.com

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/5458540

Download Persian Version:

https://daneshyari.com/article/5458540

Daneshyari.com