Re-Assessment of the Re-Assessment of the Al-P System

MICHAEL SCHICK

GTT-Technologies, Herzogenrath, Germany

ABSTRACT

The thermodynamic description of the chosen binary Al-P system goes back to Ansara et al. [1], where negative c_p-values are calculated over the whole temperature range for AlP, the only stoichiometric compound in the system. Liang and Schmid-Fetzer [2a,b] recently published a new thermodynamic assessment for this system, going back to experimental data.

For the liquid phase they used a rather unusual temperature dependence for the chemical interaction term. This temperature dependence has been replaced by a more common type of T-function. For the gas phase the authors used data from the literature, i.e. Bennewies and Milke [3], which are not compatible with experimental data for pure aluminium. It is shown that the SGTE Pure Substance database contains data which are consistent with the experimental information.

The presentation will demonstrate how the entire dataset for the system Al-P is made compatible with the SGTE solution database so that data from the SGTE pure substance (SGPS) is applicable for the gas phase, but also limitations will be pointed out.

References

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[2b] S.-M. Liang, R. Schmid-Fetzer, Calphad 45 (2014) 251

[3] M. Bennewies, E. Milke, *Thermochemical data of elements and compounds, 2nd Ed.,* Wiley-VCH, Weinheim 2002