Scientific Group Thermodata Europe

A consortium of centers engaged in the development of thermodynamic databases for inorganic and metallurgical systems and their application to practical problems. www.sgte.org

Chairman: T. Markus, Hochschule Mannheim, Germany

SGTE is engaged in the critical assessment and compilation of thermodynamic data employing the CALPHAD method for inorganic and metallurgical substances, and has unique experience and expertise in the thermodynamic evaluation of data for solution phases.

SGTE members help customers by providing consultancy services in the field of thermochimistry, holding workshops, and providing software packages including the SGTE databases. An organization that wishes to apply thermochimistry to solve practical problems, or to participate in workshops, should approach one of our members.

Application Examples from the SGTE Casebook

Schematic representation of the approach for coupling the phase field method with thermodynamic calculations.

Modelling TiO2 production by explicit use of reaction kinetics

P. Koukkari, R. Pajuraj, K. Hack

Combined reaction rate – multiphase calculations were applied to two characteristic unit process of TiO2 production: TiO2 formation in a calciner and TiO2 formation in a TCl burner. During the calculation process at relatively low temperatures a metastable form of TiO2 is formed first which is transformed into the stable rutile form in the high temperature zone of the furnace.


Calculated temperature and TiO2 profiles. The O2/TiO2 ratio was 1.1 and the initial mixing temperature was about 950 °C.

Thermodynamic Properties of Inorganic Materials – Landolt-Börnstein Group IV (Physical Chemistry), volume 18

Springer (ISBN 354023779)

This book series provides calculated thermodynamic data using SGTE databases for inorganic substances and mixed systems. In mixed systems all solid solutions having the same crystal structure are represented by a common phase model.

The SGTE evaluated data are presented in 3 subvolumes: A: Pure Substances – Standard thermodynamic properties for each substance together with plotted heat capacity, Gibbs energy and enthalpy of formation functions up to the maximum temperature for which the data for that substance have been evaluated. B: Binary Systems – Phase diagrams, phase transition data, integral and partial quantities of alloys. C: Ternary Steel Systems – Liquidus and solidus projections, isothermic section, isopleths, reaction schemes.