

# Calorimetry on Intermetallic Alloys

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Calorimetric measurements on inorganic materials are still an important tool to gain thermodynamic data of the respective materials systems. These data are indispensable for the assessment of phase diagrams and modelling of physical properties, diffusion behaviour and solidification characteristics. The Department of Inorganic Chemistry (Materials chemistry) has decade-long experience doing phase equilibria and thermochemical investigations on intermetallic systems. For the latter different techniques like emf, vapor pressure methods and calorimetry are employed to generate data on alloys in solid and liquid state.

The lecture will give a brief overview to historical and future developments and applications of calorimetry on such alloy systems. Different methods and their importance for a valid thermodynamic description of alloy systems will be discussed comparatively.

Finally, the author gives a survey of his recent work and research projects dedicated to lead-free soldering and new anode materials for Li-ion batteries. Special attention is focused on experimental challenges and limitations working on Li-containing intermetallic systems.