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3.1.5.3 The Second Law 3.1.5.4 The Third Law; 3.1.6 Measurement of Thermodynamic State Functions; 3.2 Phases and Phase Transitions; 3.2.1 Multiphase Systems; 3.2.2 Phase Transitions; 3.2.3 Gibbs Phase Rule; 3.2.4 Measurement of Variables of State during Phase Transitions; References; 4 Heat Transport Phenomena; 4.1 Heat Conduction; 4.2 Convection; 4.3 Heat Radiation; 4.4 Heat Transfer; 4.5 Entropy Increase during Heat Exchange; 4.6 Conclusions Concerning Calorimetry; References; 5 Surroundings and Operating Conditions; 5.1 The Isothermal Condition; 5.2 The Isoperibol Condition
5.3 The Adiabatic Condition 5.4 The Scanning Condition; Reference; 6 Measurements and Evaluation; 6.1 Consequences of Temperature Relaxation within the Sample; 6.1.1 First Example: Chemical Reaction; 6.1.2 Second Example: Biological System; 6.1.3 Third Example: First-Order Phase Transitions; 6.2 Typical Results from Different Calorimeters; 6.2.1 Adiabatic Calorimeters; 6.2.2 Isoperibol Calorimeters; 6.2.3 Differential Scanning Calorimeters; 6.3 Reconstruction of the True Sample Heat Flow Rate from the Measured Function; 6.3.1 Reconstruction of the Temperature Field for Negative Times
6.3.2 The Convolution Integral and Its Validity

Sommario/riassunto

Clearly divided into three parts, this practical book begins by dealing with all fundamental aspects of calorimetry. The second part looks at the equipment used and new developments. The third and final section provides measurement guidelines in order to obtain the best results. The result is optimized knowledge for users of this technique, supplemented with practical tips and tricks.