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3.2.3 Application to Vitrification and Devitrification Processes3.3 Properties of Glass-Forming Melts: Basic Model Assumptions; 3.3.1 Kinetics of Relaxation; 3.3.2 Thermodynamic Properties: Generalized Equation of State; 3.4 Kinetics of Nonisothermal Relaxation as a Model of the Glass Transition: Change of the Thermodynamic Functions in Cyclic Cooling-Heating Processes; 3.4.1 Description of the Cyclic Processes under Consideration; 3.4.2 Temperature Dependence of the Structural Order Parameter in Cyclic Cooling and Heating Processes
3.4.3 Definition of the Glass Transition Temperature via the Structural Order Parameter: the Bartenev--Ritland Equation3.4.4 Structural Order Parameter and Entropy Production; 3.4.5 Temperature Dependence of Thermodynamic Potentials at Vitrification; 3.4.6 Cyclic Heating-Cooling Processes: General Results; 3.5 The Prigogine-Defay Ratio; 3.5.1 Introduction; 3.5.2 Derivation; 3.5.3 Comparison with Experimental Data; 3.5.4 Discussion; 3.6 Fictive (Internal) Pressure and Fictive Temperature as Structural Order Parameters; 3.6.1 Brief Overview
3.6.2 Model-Independent Definition of Fictive (Internal) Pressure and Fictive Temperature

Sommario/riassunto

Written by renowned researchers in this field, this up-to date advanced treatise fills a gap in the literature on glasses. It gives an overview of basic experimental data, of its collection, prediction and theoretical interpretation, thereby paving the way to a deeper understanding of these topics. The present monograph covers the whole spectrum of problems involved in the interpretation of glasses and their properties such as glass transition, relaxation, viscosity, existing and possible unexpected future applications of glasses. The book is recommended for students, to both n