

Polymer Crystallization: Observations, Concepts and Interpretations 386 pages

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Observations, Concepts and Interpretations. Editors. (view affiliations). GÃ¼nter Reiter. Jens-Uwe Sommer. Book. 93 Citations. 21k Downloads. Part of the Lecture Notes in Physics book series (LNP, volume 606). Buying options. eBook. EUR 85.59. Bibliographic information. Book Title Polymer Crystallization. Book Subtitle Observations, Concepts and Interpretations. Editors GÃ¼nter Reiter Jens-Uwe Sommer. Series Title Lecture Notes in Physics. DOI <https://doi.org/10.1007/3-540-45851-4>. Copyright Information Springer-Verlag Berlin Heidelberg 2003. Publisher Name Springer, Berlin, Heidelberg. eBook Packages Springer Book Archive. Book description. In Crystallization of Polymers, 2nd Edition, Leo Mandelkern provides a self-contained, comprehensive, and up-to-date treatment of polymer crystallization. Volume 2 of this edition provides an authoritative account of the kinetics and mechanisms of polymer crystallization, building from the equilibrium concepts presented in volume 1. As crystalline polymers rarely, if ever, achieve their equilibrium state, this book serves as a bridge between equilibrium concepts and the state that is finally achieved. With a comprehensive treatment of the surrounding theories and experiments this volume introduces and reports on the state-of-the-art regarding both theoretical and experimental aspects of phase transitions in polymeric solutions or melts that lead to crystallization. Written in the form of a set of self-contained reviews, the book is both a modern and comprehensive source of reference and an introduction into the field for nonspecialist researchers and postgraduate students. Polymer Crystallization: Observations, Concepts and Interpretations By Jens-Uwe Sommer, GÃ¼nter Reiter (auth.), GÃ¼nter Reiter, Jens-Uwe Sommer (eds.) Standard techniques for the observation of polymer crystallization are optical microscopy (observation of spherulitic super-structures and their growth rates), electron microscopy (observation of the morphology of the lamellar structure), scattering techniques (crystallinity, lamellar thickness and lamellar separation) and calorimetric methods such as differential scanning calorimetry (DSC) for measuring thermodynamic properties of the crystallization and melting behavior. 2 Jens-Uwe Sommer and GÃ¼nter Reiter has opened new windows for the observation of crystallization processes. 2 Polymer Crystallization Viewed in the General Context of Particle Formation and Crystallization Jens Rieger BASF Aktiengesellschaft, Polymer Physics, 67056 Ludwigshafen, Germany jens.rieger@basf-ag.de Abstract. Aim of the contribution is to establish a connection between the advanced knowledge about liquid to solid transitions in nanoparticulate dispersions to crystallization phenomena in polymeric systems. 2.1 Introduction Crystallization is an interesting case of phase transition which determines the final properties of many technologically relevant and scientifically exciting systems: semicrystalline polymers, metals, ceramics, pigments, pharmaceuticals, minerals, and biological structures such as bone and teeth.