Nanoclays: Materials Properties and Advanced Applications, March 2025

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Abstract
This book covers natural and synthetic nanoclays, focusing on the fundamentals of nanoclay-chemistry and applications in advanced technologies. For millennia, clay has been an indispensable part of human civilization, playing an especially fundamental role in modern society in the form of e.g. porcelain, ceramics, bricks, and tiles, as well as being an essential constituent for plastics, paints, paper, rubber, cosmetics, sensors, and medicinal products. The book introduces the reader to nanoclays, most commonly referred to as layered silicates, which take the form of layered or sheet-like structures with nanometer-scale dimensions. It describes the structure and materials properties of both natural and synthetic nanoclays, and covers their applications in diverse areas such as paint formulations, water purification, cosmetics, biomedical applications, and energy storage. Authored by experts with long-standing experience in industry and academic research, this book serves as a useful reference not only for students and academics interested in this exciting new field, but also industrial researchers and R&D managers wishing to bring nanoclay-based advanced products to market.