Supercritical Fluid Nanotechnology

Advances and Applications in Composites and Hybrid Nanomaterials

edited by
Concepción Domingo
Pascale Subra-Paternault

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Preface

Nanotechnology development is directly linked to long-term energy and environment sustainability. However, many new nanomaterials require new commercial production techniques. In this respect, more and more industries are recognizing compressed and supercritical CO_2 as a powerful green and safe technology for nanomaterial design and manufacturing. Supercritical CO_2 technology has made a transition over the past 25 years from a laboratory curiosity to a large-scale commercial reality for materials processing, with very diverse applications, such as pharmaceuticals, nutraceuticals, polymers, and textiles. Moreover, the use of recycled CO_2 in industries instead of more pollutant solvents would mitigate the CO_2 detrimental effect on climate change.

This book illustrates the basis of currently important supercritical CO_2 processing techniques, as well as the main laboratory and industrial applications. The chapters in this book provide tutorial accounts of topical areas to better understand the capacity of this environmentally friendly technology for creating and manipulating nanoscale materials for the next generation of products and technologies.

C. Domingo
P. Subra-Patternault