

Preface

This book contains an updated overview of flame spray process, an important method to synthesize nanostructured materials. Its effective role in tuning the properties of nanostructured powders (or even coatings) at low cost explains the growing interest of the academy and industry in this technique.

Nanomaterials produced by flame spray processes have been largely investigated in the last decade. They have great potential for applications in different fields such as engineering, physics, chemistry, biology, and medicine. Synthesis and characterization of nanostructured materials is a subject of great interest involving science, technology, market, politicians, government, and society. Based on the results obtained by our research group during the past years, this book mainly addresses the materials synthesized by flame spray and their properties such as crystallinity and crystallite size, specific surface area, particle size, and morphology. Hence, this book is aimed for students, researches, and engineers who search for methodologies to obtain and characterize nanostructures in detail.

After a brief introduction (Chap. 1), the book is split into five sections: the history of flame spray technique (Chap. 2), the principles of nanoparticle formation (Chap. 3), the apparatus used in flame spray process (Chap. 4), ceramic products by flame spray (Chap. 5), and future trends in flame spray process (Chap. 6).

We hope that the clear language and the application-oriented perspective are suitable for professionals and students who want to access major knowledge about Science and Technology involving synthesis and characterization of nanostructured materials.

Finally, we would thank the staff of Springer Verlag for their professional guidance in regards to this book.

Porto Alegre, Brazil
November 2014

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Flame Spray Technology

Method for Production of Nanopowders

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2015, VIII, 81 p. 43 illus., 1 illus. in color., Hardcover

ISBN: 978-3-662-47161-6