1. Record Nr. UNINA9910959404403321

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Titolo	Chemical vapor synthesis of inorganic nanopowders / / H. Y. Sohn
Pubbl/distr/stampa	New York, : Nova Science Publishers, c2012
ISBN	1-61470-981-5
Edizione	[1st ed.]
Descrizione fisica	1 online resource (223 p.)
Collana	Chemistry research and applications Nanotechnology science and technology
Disciplina	620.1/18
Soggetti	Chemical vapor deposition Nanoparticles Organic compounds - Synthesis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [189]-204) and index.
Nota di contenuto	Intro -- CHEMICAL VAPOR SYNTHESIS OFINORGANIC NANOPOWDERS -- LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA -- CONTENTS -- PREFACE -- Chapter 1 INTRODUCTION -- 1.1. PROMISES AND APPLICATIONS OF NANOMATERIALS -- 1.2. METHODS OF PRODUCTION -- 1.3. CHEMICAL VAPOR SYNTHESIS -- Chapter 2 PRINCIPLES OF CHEMICAL VAPOR SYNTHESIS -- ABSTRACT -- 2.1. THERMOCHEMICAL CONSIDERATIONS -- 2.2. CHLORIDE-BASED REACTIONS -- 2.3. PLASMA-ASSISTED REACTIONS -- 2.4. FLAME SYNTHESIS -- Chapter 3 METALLIC NANOPOWDERS -- ABSTRACT -- 3.1. EARLY WORK ON METAL POWDERS -- 3.2. TUNGSTEN NANOPOWDER - PLASMA-ASSISTED -- Plasma Synthesis -- Product Characterization -- Post-Treatment -- 3.3. ALUMINUM POWDER BY MAGNESIUM REDUCTION -- Experimental Work -- Results -- Conclusion -- 3.4. TITANIUM POWDER BY MAGNESIUM REDUCTION -- 3.5. COMPOSITE NANOPOWDERS -- Magnesium-Titanium -- Magnesium-Aluminum -- Tungsten-Cobalt -- Chapter 4 INTERMETALLIC AND ALLOY POWDERS -- ABSTRACT -- 4.1. TITANIUM ALUMINIDES BY MAGNESIUM REDUCTION -- Experimental Results -- 4.2. NICKEL ALUMINIDES BY MAGNESIUM REDUCTION -- Thermodynamic Equilibrium Analysis -- Experimental Work -- 4.3. NICKEL ALUMINIDES BY HYDROGEN REDUCTION -- Thermodynamic

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Sommario/riassunto

Materials in the form of ultrafine or nanosized powders display many useful physical, mechanical and chemical properties. The properties of nano-scaled materials are significantly different from atoms and bulks materials arise mainly from large fraction of surface atoms, high surface energy and reduced imperfections. The effects of grain size on mechanical properties have been recognized and generated much interest. It would therefore be advantageous if compounds can be produced in fine powder form from inexpensive raw materials using less energy. Their small sizes also improve hardness, fracture toughness and low-temperature ductility as well as catalytic and interfacial processes. Nanomaterials also enable lower processing temperatures compared with bulk materials and faster reaction time due to their higher surface reactivity. Thus, the production of nanosized powder is an important industrial process and is explored in this technical and informative book.