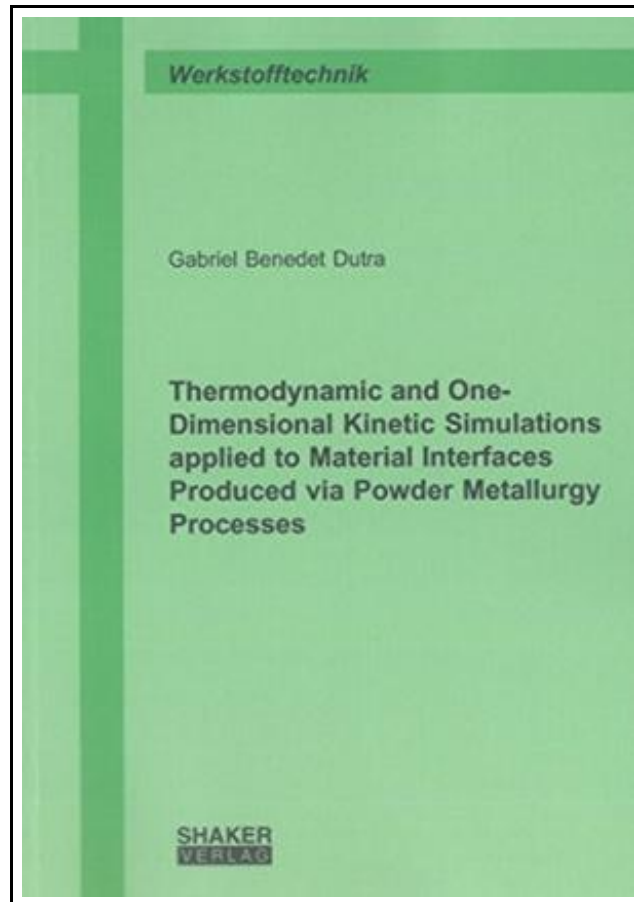


Thermodynamic and One-Dimensional Kinetic Simulations applied to Material Interfaces Produced via Powder Metallurgy Processes



Filesize: 3.15 MB

Reviews

A superior quality publication and the font employed was exciting to read through. It is among the most awesome book i have read. I am effortlessly could get a enjoyment of reading a created publication.

(Ettie Kutch)

THERMODYNAMIC AND ONE-DIMENSIONAL KINETIC SIMULATIONS APPLIED TO MATERIAL INTERFACES PRODUCED VIA POWDER METALLURGY PROCESSES



Shaker Verlag Aug 2011, 2011. Taschenbuch. Book Condition: Neu. 211x149x15 mm. Neuware - The joining of different materials into one part is an advantageous method to combine different properties in high technology components designed for special applications. For the production of these parts, various methods can be applied, for example the powder metallurgy. Powders can be sintered together or onto dense surfaces, thus combining materials with different chemical compositions. Due to their chemical potential and atomic mobilities, they form interfaces, which phases can precipitate and influence on the desired properties of the component. In order to avoid the formation of any unfavourable phase which could decrease the performance of the part, the weld-line is the target of intensive research and numerous experiments and analyses. In this work, a simulation-based approach is introduced and evaluated as an alternative to actual experiments in order to predict the behaviour of this zone. A commercial one-dimensional kinetic software Thermo-Calc I DICTRA, based on the CALPHAD method, for the analysis of bulk materials is being used for predictions of sintered interfaces. Since the assumed conditions of the software are not the same of the analytical conditions - Le. only diffusion-controlled mechanisms are taken into account, dense materials, absence of grain boundaries, diffusion only in one dimension, equilibrium content of vacancies - experimental and simulated results are compared. The applicability of the software is tested using two powder metallurgic processes: Two-Component Metal Injection Moulding (2C-MIM) and stencil printing with powder-filled pastes. For the 2C-MIM parts, three material combinations (FeNi 7wt% with FeNi 50wt%, 316L with 17-4PH, and 316L with M2) are examined. Energy dispersive X-ray I scanning electron microscopy line scans across the interfaces, metallography visualization and quantification of the phases are compared to the simulated interdiffusion profiles, the phases' distribution across the interfaces and phase...



[Read Thermodynamic and One-Dimensional Kinetic Simulations applied to Material Interfaces Produced via Powder Metallurgy Processes Online](#)



[Download PDF Thermodynamic and One-Dimensional Kinetic Simulations applied to Material Interfaces Produced via Powder Metallurgy Processes](#)

You May Also Like



A Dog of Flanders: Unabridged; In Easy-to-Read Type (Dover Children's Thrift Classics)

Dover Publications, 2011. Paperback. Book Condition: New. No Jacket. New paperback book copy of A Dog of Flanders by Ouida (Marie Louise de la Ramee). Unabridged in easy to read type. Dover Children's Thrift Classic....

[Read PDF »](#)



Index to the Classified Subject Catalogue of the Buffalo Library; The Whole System Being Adopted from the Classification and Subject Index of Mr. Melvil Dewey, with Some Modifications .

Rarebooksclub.com, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This historic book may have numerous typos and missing text. Purchasers can usually...

[Read PDF »](#)



Two Treatises: The Pearle of the Gospell, and the Pilgrims Profession to Which Is Added a Glasse for Gentlewomen to Dresse Themselves By. by Thomas Taylor Preacher of Gods Word to the Towne of Reding. (1624-1625)

Proquest, Eebo Editions, United States, 2010. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.EARLY HISTORY OF RELIGION. Imagine holding history in your hands. Now...

[Read PDF »](#)



Two Treatises: The Pearle of the Gospell, and the Pilgrims Profession to Which Is Added a Glasse for Gentlewomen to Dresse Themselves By. by Thomas Taylor Preacher of Gods Word to the Towne of Reding. (1625)

Proquest, Eebo Editions, United States, 2010. Paperback. Book Condition: New. 246 x 189 mm. Language: English Brand New Book ***** Print on Demand *****.EARLY HISTORY OF RELIGION. Imagine holding history in your hands. Now you...

[Read PDF »](#)



On Becoming Baby Wise, Book Two: Parenting Your Five to Twelve-Month Old Through the Babyhood Transition

Parent-Wise Solutions, 2012. Paperback. Book Condition: New. BRAND NEW, Perfect Shape, No Black Remainder Mark, Fast Shipping With Online Tracking, International Orders shipped Global Priority Air Mail, All orders handled with care and shipped promptly in...

[Read PDF »](#)