



## Re-based Diffusion Barrier on A Ni-based Superalloy : Its Formation, Macro- and Micro-Structures, and Thermal Stability

By Yongming Wang

SPS Jan 2015, 2015. Taschenbuch. Condition: Neu. This item is printed on demand - Print on Demand Neuware - The gas turbine doubtlessly is one of the most important modern machines to convert energy from heat to power, and improving its efficiency is a ceaseless task. The most practical route to increase the efficiency is to increase the maximum operating temperature. Over the past several decades, the improvement of this temperature was constantly attained by the developments of thermal barrier coating and superalloys, but almost reached a limit because the microstructural deterioration of both the base superalloy and the coating system due to the interdiffusion between them can be dramatically aggravated by further increasing temperature. The novel diffusion barrier type bond coat, therefore, is a solution to this issue. This book introduces how to form a rhenium-based diffusion barrier on a nickel-based superalloy. The formation process and thermal stability of the diffusion barrier are discussed through analyzing its macro- and micro-structures by XRD, EBSD, EPMA, SEM, and TEM, etc. This work provides the fundamental knowledge about the novel coating system, and should be especially useful to researchers and students in high-temperature materials science and technology. 204 pp. Englisch.



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