



Ultrafine Grained Microstructures in Bulk Materials

By Arkanti, Krishnaiah

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Severe Plastic Deformation | The fabrication of bulk materials with ultrafine grain sizes has attracted much attention in the last decade because of the recognition that these materials exhibit numerous attractive properties including high strength, toughness and a potential for utilization in superplastic forming operations at elevated temperatures. The present investigations were carried out to evaluate the effect of severe plastic deformation techniques of repetitive bending and straightening, groove pressing and equal channel angular extrusion for production of ultrafine grained metallic materials. Commercial pure Al and Cu were used for these investigations. The GP process was also conducted at cryo-temperature in order to determine the effect of cryogenic deformation on final grain size and grain refinement. Post deformation annealing studies were also carried out on Al and Cu subjected to groove pressing to study the thermal stability of the deformed microstructures. The GP and ECAE specimens were subsequently subjected to cold rolling to study the effect of conventional forming after SPD processing. Microstructure and mechanical properties were investigated after all these deformation operations. | Format: Paperback | Language/Sprache: english | 172 pp.



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