

Investigation of Pure Metals by High-Pressure Torsion

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High-pressure torsion (HPT) is a typical severe plastic deformation process where a thin disc is placed between two anvils under a high pressure and giant shear strain is introduced by rotating the two anvils with respect to each other. It has been shown that the ultrafine-grained microstructures and resultant work hardening are achieved after processing by severe plastic deformation. In this study, different high purity metals were processed using HPT and the evolution of mechanical properties and microstructures were investigated as a function of strain, pressure and basic physical properties of metals. The hydrogen absorption behavior in pure Mg after processing by HPT was also investigated.

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