

## 전단응력장치를 이용한 비정질 합금의 소성 향상

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### Abstract

The shear stress externally applied promotes the structural changes, such as free volume generation and nanocrystallization, in an amorphous alloy. Recently, many researches reported that these structural changes associated with deformation play a key role on the improvement of the plasticity of the amorphous alloy. This means that plasticity of the amorphous alloy can be enhanced by using an appropriate shearing process that can help promote the structural changes of the alloy. In this study, we processed the amorphous alloy via shear deforming techniques (ECAP : equal channel angular pressing), to induce the structural changes within the amorphous alloy. The deformed alloy exhibited a significant enhancement in the plasticity. The microstructural changes induced by deformation were investigated using thermal analysis and transmission electron microscopy. Herein, we present the mechanism underlying the enhancement in the plasticity from the viewpoint of the structural changes shown by the alloy.

**Keywords** : amorphous alloy, plasticity, ECAP, free volume

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