

## $\text{Bi}_2\text{Te}_3\text{-PbTe}$ 계 열전소재의 자연나노구조체 형성 및 특성

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**Abstract :** The microstructures and properties of alloys in the pseudo-binary  $\text{Bi}_2\text{Te}_3\text{-PbTe}$  system were investigated as a first step towards the design of nanostructured materials with enhanced thermoelectric properties. The liquid alloys were cooled by water quenching method. Dendritic and lamellar structures were observed clearly by using environmental scanning electron microscope(eSEM) and electron probe micro analyzer(EPMA) take into account composition ratio between  $\text{Bi}_2\text{Te}_3$  and  $\text{PbTe}$ . The compound  $\text{Pb}_2\text{Bi}_6\text{Te}_{11}$  precipitated as a metastable phase under all conditions. The structure of those samples changed from dendritic to lamellar by increasing  $\text{Bi}_2\text{Te}_3$  ratio of composition.