

## Crystallization characteristics of crosslinked High Density Polyethylene using Supercritical Fluid

조항규, 홍순만<sup>1</sup>, 유기풍, 임종성\*  
서강대학교; <sup>1</sup>한국과학기술연구원  
(limjs@sogang.ac.kr\*)

The crystallization, and mechanical of decrosslinked crosslinked-high-density polyethylenes using supercritical fluid were investigated by DSC, WAXS, DMTA and POM.

Silane-crosslinked high-density polyethylenes were successfully decrosslinked in a supercritical fluid condition. The residual gel content of the decrosslinked samples decreased with the reaction temperature. The crystallization behavior, mechanical properties of the decrosslinked samples were influenced considerably by the gel content. As the gel content increased, the network gel structure restricted the chain mobility of polymer molecules in the melt state and hindered their crystallization. Thus, the non-terminal yield behavior in the melt state was enhanced and the crystallinity decreased. The dynamic elastic modulus of the decrosslinked sample in solid state increased with the increase in the crystallinity.