

## **FLOW INDUCED CRYSTALLIZATION: THE EFFECT OF UNIAXIAL EXTENSION**

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In this paper the effect of uniaxial extension on the crystallization of a linear low-density polyethylene and a high-density polyethylene is examined by using rheometry coupled with differential scanning calorimetry (DSC). Uniaxial extension experiments were performed at temperatures below and above the peak melting point of the polyethylenes in order to characterize its flow induced crystallization behavior at extensional rates relevant to processing. The degree of crystallinity of the stretched samples was quantified by DSC i.e. by analyzing the thermal behavior of samples after stretching. Analysis of the tensile strain hardening behavior very near the peak melt temperature revealed that crystallization depends on temperature, strain and strain rate. In addition it was revealed that a very small window of temperatures spanning just 1-2 degrees Celsius can have a dramatic effect on polymer crystallization.