

# **EXPERIMENTAL AND THEORETICAL CHARACTERIZATION OF THERMALLY AND THERMO-OXIDATIVELY DEGRADED LOW-DENSITY POLYETHYLENE**

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Low density polyethylene was thermally and thermo-oxidatively degraded, and subsequently characterized in shear and uniaxial extensional flows. Formation of long-chain branches (LCB) was found to occur only during the first two hours of thermal degradation without air. In contrary by thermal degradation in air, the level of strain hardening increases during exposure times of 30 up to 75 minutes due to LCB formation, while it decreases for samples thermo-oxidized for 90 minutes due to chain scission overcompensating the effects of LCB formation and/or crosslinking. The elongational viscosities measured were quantitatively described by the Molecular Stress Function (MSF) model.