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Examination of the Strain Hardening of Polymer Melts with Different Molecular Architectures via the Fibre Windup Technique

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The recently introduced fibre windup technique offers a comfortable and particularly fast possibility for extensional flow measurements on polymer melts via conventional, rotational rheometers. In collaboration with TA Instruments, we adapted this method to our ARES instrument. Considering some of the results, we will present the measuring technique and its implementation. Special attention is paid to the investigation of the sample's deformation homogeneity during the experiment.

Additionally, we discuss first results on a systematic study about the occurrence of strain hardening for polystyrene melts of different molecular architectures (bimodal versus long chain branched).