



FREQUENCY ANALYSIS AS A TOOL FOR DESCRIBING THE INSTABILITIES OF POLYMER MELT IN EXTRUSION PROCESS

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Increasing requirements which extruded polymeric products must accomplish, impose to characterize in a quantitatively way the factors having a considerable effect on extrusion instability. Investigation has been realized by use of a rheological measurement device which includes singles screw extruder, rheological die, signal acquisition and analysis system. Due to specially designed measurement track and modern signal processing technique, the separation of cyclic instabilities from received signals (representing course of pressure) and the definition of its influence on extrusion process are possible.

This paper demonstrates example of frequency analysis (especially fast Fourier transform) as a tool to control extrusion process. The sharkskin, stick-slip and melt fracture were studied under various processing conditions, giving an opportunity to describe the separate high frequency pressure fluctuations by using fast Fourier transform, and to create spectra base that can be used to define particularly distortions in further investigations.