

The Effect of Organoclay in Combination with other Polymer Processing Aids on the Extrusion of Polypropylene

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Abstract

Product quality and, in general, processing windows and rates of production in the extrusion of molten polymers are limited by various flow instabilities (mainly melt fracture) that are observed at high production rates. While there still are unresolved issues in comprehending these phenomena, industry demands for process optimization dictate the employment of processing aids for product quality improvement and energy requirement reduction. In this review paper, most commercially used processing aids are discussed, the purpose of this work is to investigate the effect of Boron-nitride, Nano-clay and Fluoropolymer PPA on the polypropylene (PP) flow instabilities. In this work, the Capillary rheometer is used in order to simulate the flow behavior and to determine the shear rate at which smooth extrudates can be produced. Moreover, the Parallel-plate rheometer is used in order to study of the effect of PPAs on the linear viscoelastic behavior of the PP. The results indicate that using the combination of PPAs reduces the flow instabilities more effectively and improve the extrusion process.

Islamic Azad University, Kiana holds a master degree in polymer engineering. Parallel with working at Arsamplast, Kiana investigates her master thesis at Science and Research Branch of Islamic Azad University of Iran under the supervision of Dr. Milad Mehranpour a professor at Science and Research Branch of Islamic Azad University of Iran with consultant of Dr. Hossain Nazockdast, professor at Amirkabir Technical University. While there, they achieved an improvement in extrusion processing of polypropylene by using a combination of PPA using Organoclay.

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Biography:

Kiana Entezami is the R&D Specialist at Arsamplast Co. at the same time prior Master student of Polymer Engineering at Science and Research Branch of Islamic Azad University of Iran where she works to improve her knowledge on Compounding industry and polymer processing In 2015-2020 with Arsamplast Co., Entezami has run few projects regarding polymer compounds such as developing new products for automobile applications such as ESD PE, Anti-hydrolysis PA and etc. A graduate from Science and Research Branch of