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Han-Yong Jeon

Inha University, South Korea

Effect of LCP/PET blend composition and spinning parameters on nanofiber formation condition

Melt-blending method was performed to make nano fibers which have excellent properties of liquid crystal polymer(LCP). If nano fiber is manufactured depending on LCP, there is every possibility of utilizing in a higher value-added industry. Although there are some processes to produce nano fiber such as electrical spinning and sea-island fiber by conjugate spinning etc., it still has difficulties that electrical spinning has a low output and sea-island fiber by conjugate spinning using specified nozzle is restricted to reduce fiber diameter. It will be effective to solve the existing problems as mentioned above if to control of fibrillation shape is able to make a consecutive fiber morphology through spinning process. The research that deal with making continuity through the way to regulate size of fibril by sea-island fiber formation has not yet been achieved in existing dissertations of manufacturing of fibers related to spinning fibrillation method. This study is planned to verify control of sea-island fiber formation via study of its behaviors that are influenced by LCP and poly(ethylene terephthalate) (PET) blend composition and confirms size changes of fibril shape by spinning process. This fibrillation changes show fibril formation and morphology according to the spinning parameters including nozzle and spinning related condition. Distribution of nano fiber fibrillation were observed to LCP and PET blending process for conjugate spinning. Fibrillated fibers of sea-island morphology were distributed relatively evenly in the spinning parameters. Also, this phenomenon was assumed that the miscibility of LCP/PET and the flow characteristics correlate with the phenomenon, so conducted the analysis. In this study, effect of LCP/PET blending and spinning parameters on sea-island fibrillation to make nano fibers was investigated through morphological and crystallographical analysis.

Biography

Han-Yong Jeon is an Geosynthetics/Technical Organic Materials Researcher and he was the 32nd President of Korean Fiber Society during 2014-2015. He has published more than 843 papers in domestic and international conferences. He wrote 20 texts including 'GEOSYNTHETICS' and also published 143 papers in domestic and international journals. He has awards of Marquis Who's Who-Science and Engineering in 2003-2017 and also he got the 33rd Academy Award of Korean Fiber Society in 2006 and Excellent Paper Award of 2012 by The Korean Federation of Science and Technology Societies.

hyjeon@inha.ac.kr

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