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Review of Fibrillation Condition by Drawing of Repeated and Extruded Polyarylate LCP Droplet for Nanofiber Manufacturing

LCP(Liquid Crystal Polymer) is a high strength polymer which shows characteristics that are the rigid main chain and molecule's arrangement which has directivity. 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 electricity spinning and sea-island type, it still has difficulties that electricity spinning has a low output and sea-island type is restricted to reduce fiber diameter. It will be effective to solve the existing problems as mentioned above that if material of droplet shape is able to become a consecutive fiber morphology through stretching process. The research that deal with making continuity through the way to regulate size of droplet has not yet been achieved in existing dissertations of manufacturing of fibers related to droplet stretching method. This study is planned to verify control of droplet via study of its behaviors that are influenced by repetitive extrude LCP and PET blend substance and confirms size changes of droplet while it is extrude repeatedly. These changes show size growth according to increase number of extrusion and changes of droplet's location are checked as well. Distribution of droplets were observed to LCP and PET blending process for conjugate spinning. Droplets were distributed relatively evenly in the initial extrusion process. But the secondary and third the size of the droplet was increased and the phenomenon was founded that the droplet was gathered in the center. 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, to analyze distribution and component of droplet was conducted. Also miscibility of LCP/PET was analyzed.

Biography

Prof. Han-Yong Jeon, geosynthetics/technical organic materials researcher and he was the 32nd President of Korean Fiber Society (2014~2015). He has published more than 843 papers in domestic and international conferences. He wrote 20 texts including 'GEOSYNTHETICS' and also published 132 papers in domestic & international journals. He has awards of Marquis Who'sWho - 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.

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