

MEASUREMENT OF DYEING BEHAVIOR USING PVDF'S REAL-TIME DYEING BEHAVIOUR MONITORING SYSTEM

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Microfiber is unique in drape, lustre, texture, and appearance. The market is gradually expanding not only for high-grade fabrics with soft touch like artificial suede but also for high-performance breathable and waterproof fabrics, highly hygroscopic knitted fabrics, cleaners, filters and dustproof clothing as well as industrial applications. Particularly PVDF, which is used as a waterproof material for mobile phones, is made of polyvinylidene fluoride $[\text{CH}_2\text{-CF}_2]_n$. It has a melting point of 170°C and a thermal decomposition temperature of 300°C or higher with thermoplastic resin having thermal resistance obtained by polymerization of vinylidene fluoride (1, 1-difluoroethene) with PVF2 or PVDF, so that injection and extrusion, and various moulding methods of compression are applicable. This polymer is a type of fluorocarbon resin, which is excellent in mechanical properties and can be made into a highly crystalline resin. However, the research and development of dyeability is not necessary because there is no need for a product, and information is also lacking. This study selected optimized dyeing conditions of PVDF using real-time dyeing behaviour monitoring system. The real-time dyeing behaviour monitoring system consists of a laboratory dyeing machine and a measuring device, and a real-time analysis program for dyeing behaviour. As a result of PVDF staining, it was possible to dye with various colours.

Biography

Seok Il Hong is currently working at the Korea Institute of Industrial Technology. He is engaged in R & D related to dyeing process automation, smart factory, smart wearable ware, and safety protection products. Especially, we are carrying out various studies using real-time dyeing behaviours analysis system.

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