

Properties of polyurethane using nanocellulose dispersed in isosorbide

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Polyurethanes are used in a wide variety of intermediates ranging from household products to industrial products, and are widely used in view of elastic materials, adhesives, coating materials and sealants. Nano-cellulose is one of the natural polymeric materials and is a bio-based material with excellent mechanical strength and wide surface area. However, when water, which is a storage medium of nanocellulose, is mixed with isocyanate, bubbles are produced by carbon dioxide. Therefore, application to polyurethane is limited. Because isosorbide is an environmentally friendly material extracted from natural materials, it is very useful in the bioplastics industry. Especially when used as a polyurethane chain extender, it has the advantage of significantly improving properties such as tensile

strength and elongation of the polyurethane. In this study, to overcome the disadvantages of master batch, storage stability and content, nanocellulose dispersed in water prepared by various methods was dispersed in isosorbide. In addition, mechanical properties were confirmed by applying isosorbide with nanocellulose dispersed to a polyurethane elastomer as a chain extender.

Biography

Dr. Song has completed his PhD in Chemical Engineering by Chonbuk National University. He work as Senior Researcher of Chemicals R&D Center at Samyang Corp. He has published more than 7 papers and has more than 30 conference presentations.

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