Details view

Knowhow offering

Title	Bio-derived ‘drop-in’ replacement for di-isocyanates in polyurethane production
Knowhow is available for	A method to prepare bio-based aromatic diisocyanates that were reacted with bio-based aliphatic diols to prepare high molecular weight polyurethane. containing potentially 100% renewable carbon content.
Summary	Dr Wadgaonkar and his team at CSIR NCL have synthesized new aromatic diisocyanates from lignin-derived phenolic acids: vanillic and syringic acids. The diisocyanates were used to synthesize poly(ether urethane)s, containing potentially 100% renewable carbon content, by reacting them with bio-based aliphatic diols. The chemical structures of diisocyanates and poly(ether urethane)s were confirmed using Fourier transform infrared, 1H NMR and 13C NMR spectroscopy. The inherent viscosities, number average molecular weights, dispersity values and other properties of the synthesized polyurethane were studied, and these data indicate the formation of reasonably high molecular weight polymers.
Advantages	100% bio-derived content low carbon footprint New aromatic bio-based diisocyanates synthesized in overall high yields High molecular weight bio-based polyurethane that can be cast into transparent and flexible films

Knowhow is listed under following categories

Knowhow from	
Scientific/ engineering subject areas	**Chemical sciences & engineering**
Investor interest categories	**Materials Technology including Nanotechnology**
Industries	**Polymers, Plastics, Elastomers, Fibers, Adhesives, Paints, Specialty Polymers, Natural Polymers, Fibers and Leather**
Customer categories and nature of business	**Businesses and other industries (B2B)**
Technology readiness levels	TRL B: Proof-of-concept demonstrated in lab scale

Related documents:

Database reference

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