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Study on the plasticiser type for biobased microcrystalline cellulose filled polylactic acid composite (Conference Paper) (Open Access)

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Abstract

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The aim of this work was to study the effect of different type of plasticisers, i.e., polyethylene glycol (PEG) and coconut oil (CO), on the properties of microcrystalline cellulose (MCC) filled polylactic acid (PLA) composite. The sample compounding was carried out via melt blending method. The properties of the plasticised MCC filled PLA composites were characterized by tensile, thermal gravimetric analysis (TGA) and scanning electron microscopy (SEM). It was found that CO showed a better plasticising effect, with improvement in elongation at break by 12% as compared to neat PLA and higher decomposition temperature at 302°C. © Published under licence by IOP Publishing Ltd.

SciVal Topic Prominence

Topic: Lactic acid | Blending | cold crystallization

Prominence percentile: 99.698

Reaxys Database Information

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Indexed keywords

Engineering controlled terms:

- Blending
- Crystalline materials
- Gravimetric analysis
- Plasticizers
- Polyesters
- Process engineering
- Scanning electron microscopy
- Solvents
- Thermogravimetric analysis

Engineering uncontrolled terms

- Bio-based
- Coconut oil
- Decomposition temperature
- Elongation at break
- Melt-blending methods
- Micro-crystalline cellulose
- Poly lactic acid
- Thermal gravimetric analyses (TGA)

Engineering main heading:

- Cellulose

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