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Bio-Based, Phthalate-Free Polyvinyl Chloride Plasticizer (20100213)

Phthalate Esters as Plasticizers in Polyvinyl Chloride

Phthalate esters are plasticizers used in polyvinyl chloride (PVC) to soften the hard PVC by 'lubricating' the areas between polymer strands so that it can be used in consumer products like inflatable pools and food packaging. Unfortunately, phthalate esters frequently leach from the plastic into human bodies. Consumers blame phthalate-based PVC plasticizers for many health issues, including birth defects and cancer. In response, the governments of the EU and US have either banned or strictly regulated certain phthalates used in consumer products.

Phthalate-free Polyvinyl Chloride Plasticizer

A phthalate-free PVC plasticizer based on vegetable oils can be manufactured using a single reactor synthesis which drastically lowers complexity. Due to the low price of the feedstock, the plasticizer can be manufactured at the same price with similar performance compared to the most commonly used, banned phthalate, dioctyl pthalate. The phthalate-free plasticizer has applications in medical devices, child products, and food packaging. Other bio-based phthalate-free plasticizers are twice as expensive or not compatible as a primary plasticizer.

BENEFITS AND FEATURES OF PHTHALATE-FREE PVC PLASTICIZER

- Safer and less regulated than phthalate-based PVC plasticizers with similar performance and cost to dioctyl phthalate
- Can be half the cost of other bio-based PVC plasticizers
- Manufactured using a single reactor synthesis which means process can be scaled-up quickly

Researchers

Dharma Kodali, PhD

Research Professor, Department of Bioproducts and Biosystems Engineering

External Link (www.bbe.umn.edu)

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