

Designed for Molecular Recycling: A Lignin-Derived Semi-aromatic Biobased Polymer

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Materials

Name	Company	Catalog Number	Comments
Reaction 1: Green Knoevenagel condensation			
Ammonium bicarbonate	Sigma Aldrich	>99%	
Ethanol	Boom	Technical grade	
Ethyl acetate	Macron	99.8%	
Hydrochloric acid	Boom	37%	
Malonic acid	Sigma Aldrich	99%	used as received
Sodium bicarbonate	Sigma Aldrich	>99.7%	
Syringaldehyde	Sigma Aldrich	98%	used as received
Reaction 2: Hydrogenation			
Magnesium sulfate	Macron	99%	dried
Raney™ nickel	Sigma Aldrich	>89%	
Sodium hydroxide	Boom	Technical grade	dissolved
Reaction 3: Acetylation			
Acetic anhydride	Macron	>98%	
Acetone	Macron	>99.5%	
Sodium acetate	Sigma Aldrich	>99%	
Reaction 4A: Polymerisation			
1,2-xylene	Macron	>98%	
Sodium hydroxide	Boom	Technical grade	finely powdered
Zinc(II)acetate	Sigma Aldrich	99.99%	
Reaction 4B: Depolymerisation			
Sodium hydroxide	Boom	Technical grade	dissolved
Sulfuric acid	Macron	100%	
Analysis			
CDCl ₃	Cambridge Isotope Laboratories, Inc.	99.5%	
CF ₃ COOD	Cambridge Isotope Laboratories, Inc.	98%	
Dimethylformamide	Macron	>99.9%	

Hexafluoro-2-propanol	TCI Chemicals	>99%	
Methanol	Macron	>99.8%	
Tetrahydrofuran	Macron	>99.9%	