

Extraction of Cellulose Derivative from Poplar Wood

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We conduct the dissolution of wood and the phosphorylation of cellulose in ionic liquids at the same time. Cellulose derivative is directly synthesized from wood – ionic liquids solution. FT-IR, Elemental Analysis and ¹H & ¹³C-NMR experiments demonstrated the presence of phosphorous-containing group located on the cellulose chain in the phosphorylated samples. SEM and XRD analyses revealed that the crystallinity of raw wood was changed from cellulose I-crystalline phase to amorphous phase in the products. The phosphorylated wood is cellulose-rich material, containing a small amount of lignin. The advantages of this product are good water-solubility and good flame-retardant property which might open potential applications in biochemical processes.