

Summary for Public Release***Polymer products from lignin through de-aromatization and COOH functionalization***

Name of Applicant: U. of South Carolina

Project Director/Principal Investigator(s): Prof. Chuanbing Tang

Major Participants: Ingevity Corporation, Sandia National Laboratories

Project Objectives:

Evaluate chelator-mediated Fenton processes for generating water-soluble polymeric material from lignin that is suitable for marketing as a dispersant, water-purification agent, or water-absorbing material. The lignin feedstocks for this project will be pine lignin from the kraft process (Ingevity lignin) and corn stover lignin isolated using a dilute acid biomass pretreatment followed by mechanical refining and enzymatic hydrolysis (biorefinery lignin).

Description of the Project:

The project focuses on a new method to convert lignin into valuable products. Currently, in the biofuels industry lignin is burned for heating value and therefore has a low economic value. We propose to use a room temperature oxidative process to selectively open the aromatic rings within the lignin structure and generate polymeric polyacid material that functions as a commercial dispersant, water purification agent, or water-absorbent material.