

World Biodiesel Congress & Expo

December 5-7, 2016 San Antonio, Texas, USA



Joseph S M Samec

Stockholm University, Sweden

Green diesel from black liquor in 3 steps

Lignin in black liquor from the kraft process was converted to standardized diesel in only three steps. In a first step, lignin was precipitated from the black liquor by carbon dioxide to generate a solidified Lignoboost® lignin. This lignin was then esterified by tall oil fatty acid to generate an esterified lignin named Renol® which was solubilized in a light gas oil to form a homogeneous mixture. This mixture can be processed in a conventional hydroprocessing unit to yield a green diesel with EN590 specifications. The process is somewhat tunable so that both gasoline and diesel fractions can be generated. This innovation could structurally convert current pulp mills to become modern biorefineries to produce both paper pulp and the esterified lignin that can be transformed by an oil refinery to produce green fuels. As lignin is considered a waste stream from the pulp mill this fuel would not increase land use or compete with food production. In addition, since all infrastructure and logistics are available, implementation of this technology should be smooth. The implementation of this technology in a pulp mill will be discussed.

Biography

Joseph S M Samec received his PhD from Stockholm University in 2005 with Prof. Bäckvall as supervisor. He did a short research for Prof. C P Casey at the University of Wisconsin, Madison. After a Postdoctoral training with Prof. R H Grubbs at California Institute of Technology during 2006-2007, he was appointed as Assistant Professor at University of Uppsala in Sweden. He is currently Associate Prof. at Stockholm University. His research interest focuses on green chemistry in organic synthesis and biomass processing and applications. In 2012, he founded RenFuel, a start-up company that is producing biofuels from Lignin.

joseph.samec@su.se

Notes: