SEMINAR ANNOUNCEMENT

Catalytic ethanolysis of Kraft lignin with a Mo-based catalyst in supercritical ethanol

Yongdan Li
School of Chemical Engineering
Tianjin University, China

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ABSTRACT

We report the complete ethanolysis of Kraft lignin over an α-MoCl1-x/AC catalyst in pure ethanol at 280 oC to give high-valued chemicals of lower molecular weight. A maximum overall yield of 1.64 g/g lignin of the 25 most abundant liquid products (LP25) has achieved. The LP25 consists of C6 to C10 esters, alcohols, arenes, phenols and benzyl alcohols with an overall heating values of 36.5 MJ/kg. No oligomers and char are formed during this process. With our catalyst, ethanol is the only effective solvent for the reaction. Supercritical ethanol on its own degrades Kraft lignin into a mixture of small molecules and molecular fragments of intermediate size with molecular weight in the range 700 – 1400, differing in steps of 58 units, which is the weight of the branched chain linkage C3H6O in lignin. Hydrogen is found have a negative effect on the formation of the low molecular weight products. A predominance of the C6 alcohols and C8 esters, accounting for 82 wt% of the LP25, is observed.

Refreshments will be served before the seminar.