

Detoxification of hydrolysate by reactive-extraction for generating biofuels (II)

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In the present study, we applied a reactive-extraction system consisting of tri-n-octylamine, n-octanol, and kerosene to remove fermentation inhibitors from hydrolysates. The effect of the compositions of extractants was assessed based on the removal of 5 major inhibitors from a simulated hydrolysate. Four organic solvents, n-pentane, n-hexadecane, tetradecane and n-octanol, were used as diluents for reactive-extraction. The removal yield of levulinic acid was high in the presence of n-hexadecane and n-octanol. However, 5-HMF was very efficiently removed using n-octanol. The removal yields of inhibitors were normalized to 30-min reactions. Because large quantities are required, methods for recycling extractants will be required so that the process will be economically feasible.