MOre Transport fuels from Organic Residues

Publieke samenvatting / Public summary

Korte omschrijving

MOTOR starts with paper sludge provided by Smurfit Kappa. Contaminants are removed prior to fermentation to i-propanol, butanol, ethanol and hydrogen (IBE)by WFBR. IMENZwill develop efficient enzyme-based procedures to hydrolysepaper sludge to feedstock for fermentation. WFBR will engineer IBE producing bacteria to produce the hydrolytic enzymes selected by IMENZ. The condensation of theIBE alcohols to branched and linear long chain Guerbet alcohols is done by chemo-enzymatic catalysisat WFBR. The Guerbet alcohols are subjected tohydrotreatmentby Kuwait Petroleumtomake hydrocarbons for biofuel application,using the hydrogen produced in the fermentation as investigated by HyGear.SeaNRGcontributesto the market analysis of the MOTOR production process. ECN part of TNOwill evaluate the techno-economic potential of this route andwill screenthe environmental effects from a life cycle analysis perspective. The results from all WP'swill be used fora plan for exploitation and commercialization of the technology

Resultaat

The final result of MOTORis a new production process giving biofuels designed for application in diesel engines to reduce the carbon footprint of end users in thelong haulheavy duty automotive, marine and aviation industry. The source of this biofuel is 2ndgeneration biomass and the production technology is a novel combination of engineered bacteria for fermentation, smart downstream processingand enzymatic condensation of the fermentation products. Theproduction technology

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Publicaties en materialen / Publications and attachments

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proceeds at ambient temperatureand pressure with new bacteria and biocatalysts to give more and better fuel from organic residues as compared to thermocatalytic processes. MOTOR includes the option for use of hydrogen from the fermentation in the hydrotreatment to givethe hydrocarbonsas endproduct. The result from the techno-economic analysis is the identification of process units where further improvement may be needed to achieve a cost-competitive real scale production process.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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