ROAD2PILOT

Publieke samenvatting / Public summary

Aanleiding

The project aims to address the pressing global challenge of efficient waste management and reduction of CO2 emissions. The focus is on cellulosic waste, with the goal of circularizing the cellulose materials industry and mitigating the environmental consequences associated with conventional production processes. The patented CELLiCON G2 technology transforms cellulosic waste into high-quality crystalline and quasi crystalline cellulose and nanocellulose (CNC), which can be applied in valuable products like packaging materials, textiles, and coatings. This not only reduces accumulation of cellulosic waste, but also minimizes the carbon footprint of end products. Key-feature of the technology is the use of a unique aqueous salt solution, which allows for low temperature operation at low cost, making it economically viable. After extensive lab-scale experiments the next necessary step in the development of the G2-technology is the construction of a pilot-plant. Operating the pilotplant will give a better understanding of the process and the critical parameters affecting the techno-economics, as well as providing larger quantities of CNC.

Doelstelling

The primary goal of the project is to develop a comprehensive engineering plan for constructing a pilot plant dedicated to producing high-quality nanocellulose from various cellulosic (waste) streams. The project aims to ensure the pilot plant is not only technically feasible, but the process is also economically viable and aligned with market

Projectinformatie / Project information

Projectnummer / Project number
TESN24-03736239
Subsidiebedrag / Grant amount
€ 85.455,00

Algemene informatie / General information

Penvoerder / Secretariat
Cellicon B.V.

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needs. Based on the information gathered within this project a go/no-go decision can be made concerning the next steps in the development of the G2-technology. The project contributes to the objectives of the TSE Industry Studies by focusing on CO2-reducing measures other than hydrogen and green chemistry. The project's G2-technology reduces CO2 emissions by at least 5 kg CO2/kg product, transforming cellulosic waste into valuable products, thus contributing to a cleaner, greener future.

Korte omschrijving

The project is divided in thee work-packages. The first package focuses on the validation of various unit operations for scale-up, including dissolution, filtration, adsorption, evaporation, and extraction. Also, a highlevel study will be carried out on the compatibility of materials with the solvent mixture. A major part of the project involves work package 2: basic engineering design for all unit operations at the desired scale of the pilotplant. Additionally, the sourcing of selected inputs will be investigated to determine the best cellulose feed-stock. The final work package includes a CO2-footprint analysis of the process (Scope 1 and 2 for one location), a market analysis, and the results of the previous work packages to update the business case to produce CELLiCON cellulosic products with the G2-technology. The project aims to develop a comprehensive engineering plan for constructing a pilot plant dedicated to producing high-quality nanocellulose from various cellulosic (waste) streams.

Resultaat

The project aims to yield significant results that will contribute to the development of a pilot plant to produce CELLiCON's cellulose products. The primary result will be a comprehensive engineering plan that outlines the design, layout, and specifications for the pilot plant. This will include essential components such as process flow diagrams, equipment sizing, utility requirements, and selected safety considerations. The project will also provide insights into materials compatibility, which will

inform equipment selection and materials of construction. The project will address bottlenecks and feasibility questions, providing valuable knowledge for the construction and operation of the pilot plant. The project will also result in an updated CO2-footprint calculation and business case for nanocellulose production using the G2-technology, which will be instrumental in discussions with investors and stakeholders. The final result will be a validated pilot-plant design and an analysis of the sourcing market, which will facilitate the financing of the further development and construction of the future demo plant.

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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