

Isobutene production from waste gases via engineered microbes

Publieke samenvatting / Public summary

Aanleiding

Feasibility testing of waste gas conversion to isobutene via engineered microbes up to pilot scale (10 L custom-built ATEX gas fermentation bioreactor at Bio Base Europe Pilot Plant).

Doelstelling

Perform a considerable scale up (100x) validation of syngas to isobutene conversion technology at end-user (technical evaluation of Syngip's technology at pilot scale at Bio Base Europe Pilot Plant).

Korte omschrijving

Syngip BV has developed a microbial cell factory to convert industrial waste gases into isobutene. This molecule is an important product for the chemical industry. Global consumption of isobutene is over 15 million tons. Production of isobutene from syngas and industrial waste gases is a very innovative approach and to date, the microbial cell factory developed by Syngip is unique in its kind. The intent of this project is to show the energy saving potential of the technology when used in gas fermenters using laboratory gas compositions corresponding to major off-gas compositions produced by steel industry. The BBEU 10 L stainless steel, pressurized, ATEX-conform fermenter built in 2013 will be used and can be operated in continuous mode with cell recycle. The scope of this collaboration would be to first confirm the proof-of-concept of the Syngip strain on lab-scale and secondly to evaluate the potential of the strain when applied in a pilot scale 10 L gas fermenter, where a better mixing and gas

Projectinformatie / Project information

Projectnummer / Project number
TEEI216054

Subsidiebedrag / Grant amount
€ 49.390,00

Algemene informatie / General information

Penvoerder / Secretariat
Syngip B.V.

Publicaties en materialen / Publications and attachments

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supply can be provided. End-users are ArcelorMittal (steel producer) in collaboration with Bio Base Europe Pilot Plant (Gent, Belgium) and DOW Benelux BV.

Resultaat

The technology offers the potential of significant energy savings compared to traditional production routes and promises big steps towards a more circular economy (respecting the Lansink ladder as demanded by European authorities). Recovery and conversion of a steel mill gas into a chemical is a better way to use “waste” than simply burn it.

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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