

STEP-UP: SEWGS Technology platform Upgrade

Publieke samenvatting / Public summary

Aanleiding

The Sorption-Enhance Water-Gas Shift (SEWSG) technology is a pre-combustion CO₂ capture technology that combines the necessary water-gas shift step in pre-combustion processing with the separation of CO₂ at high temperature. From its very conception, it has been clear that the technology has the potential to deliver very high performance in terms of efficiency, and the potential to outperform existing state-of-the-art technologies. The stepwise approach to development of the process has occurred within both a national and international context, in collaboration with many industrial partners. The steps taken in this continuous development have been supported by CATO-1, CATO-2, the EOS consortium CAPTECH and the EU projects CACHET and CAESAR. These project have taken an efficient idea on paper to a bench-scale demonstration in which the tentative assumptions made in the initial phases have turned out to be well defined with the technology now showing not only paper efficiency, but demonstrated experimental efficiency.

Doelstelling

In the STEP-UP project Kisuma Chemicals BV (sorbent manufacturer), Tata steel (user) and ECN (technology owner) work together to further improve the economic feasibility of the SEWGS technology i.e. reduce the costs of CO₂ avoided in which providing proof of the viability of the new sorbent material is the next step.

Korte omschrijving

The new sorbent will be validated in the PDU's with

Projectinformatie / Project information

Projectnummer / Project number

TKITOECA202-T2013-04

Subsidiebedrag / Grant amount

€ 129.400,00

Algemene informatie / General information

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2000 cycles under conditions representative for a BFG syn gas stream. The sorbent will be produced at an industrial production site, at the tonne scale, such that further scale-up issues will no longer be expected. The production process will be optimised in terms of producing a material with the optimal Mg-Al-K composition, and pellet density and porosity. The techno- economic assessments will conclude the STEP-UP project. Costs estimations of a full scale SEWGS-1500 unit, the long term performance data of the sorbent, the mass production sorbent costs etc. will be used as input. The SEWGS-1500 unit is a single train designed to capture 1500 tonne CO₂/day. This will all lay the groundwork in preparation of a pilot-scale demonstration in the near future.

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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