HySelect

Efficient water splitting via a flexible solar-powered Hybrid thermochemical-Sulphur dioxide depolarized Electrolysis Cycle

www.hyselect.eu

HySelect Press Release – Project Kick-Off

09.02.2023

Clean Hydrogen Partnership

Co-funded by the European Union

Kick-Off Meeting

On the 9th of February 2023 the HySelect Kick-off meeting took place in Brussels, Belgium.

In this meeting the consortium partners gathered in Brussels, where they presented their organizations and their role in the project as well as the planned activities and related work packages. A general introduction was given to the project by the project coordinator German Aerospace Center (DLR).

Project Consortium

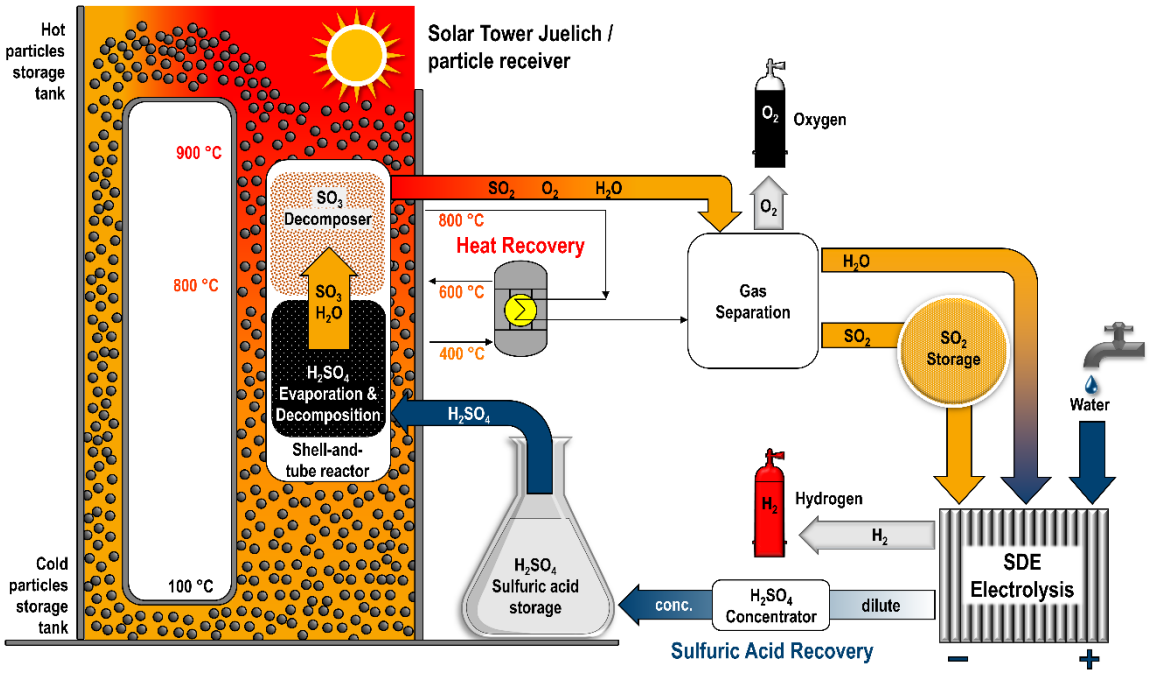
DLR	German Aerospace Center	DE	
CERTH	Centre for Research and Technology Hellas	GR	
AALTO	Aalto University	FI	
ENEA	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	IT	
FENR	FEN Research GmbH	AT	
GRILLO	Grillo Werke AG	DE	

Project Summary

HySelect will demonstrate the production of hydrogen (H2) by splitting water via concentrated solar technologies (CST) with an attractive efficiency and cost, through the Hybrid Sulphur cycle (HyS) and will introduce, develop and operate under real conditions a complete H2 production chain focusing on two innovative, full scale plant prototype core devices for both steps of the HyS cycle:

- An allothermally heated, spatially decoupled from a centrifugal particle solar receiver, sulphuric acid decomposition-Sulphur trioxide splitting (SAD-STS) reactor.
- A Sulphur dioxide depolarized electrolyzer (SDE) without expensive Platinum Group Metals (PGMs).

Integration of a heat recovery system to exploit the temperature difference within the cycle and boost the overall process efficiency. In the course of the work, non-critical materials and catalysts will be developed, qualified and integrated into the plant scale prototype units for both the acid splitting reactor and the SDE unit.



Experimental work will be accompanied by component modelling and overall process simulation and culminate with a demonstration of the complete process integrating its key units of a 750kWth centrifugal particle receiver, a hot particles storage system, a 250kWth SAD-STS and a 100kWe SDE into a pilot plant.

Testing for a period of at least 6 months in a large-scale solar tower, driven with smart operation and control strategies, will establish the HySelect targeted efficiency and costs. An overall process evaluation will be carried out in order to assess the technical and economic prospects of the HySelect technology, directly linked to the know-how and developments of the sulphuric acid and water electrolyzers industries.

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