

We hereby provide information about our organisation with the intention to team up with other CCUS experts. We are interested in discussing new project proposals to upcoming ACT Calls related to subjects listed below.

1. Name of Institution

Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Department High-temperature Separation and Catalysis HTSC

2. Specialities field within CCS

We offer a scalable, on-site production technology for pure oxygen - O₂. It is characterized by a very low electricity demand (0.2 kWh/m³ O₂) but needs also high temperature heat (> 850 °C). In combustion, O₂ produced by our technology enables a saving of primary fuel combined with CO₂ capture but also an efficiency increase in power production (Internal Combustion Engines, Graz or Allam cycles). A totally new second route uses O₂ delivering ceramics for direct fuel oxidation at the solid. This process driven by the reaction needs no electricity but is able to increase gas pressure in a so-called self-pressurizing combustion. In contrast to typical power production by internal combustion, no compression work is necessary to generate very high gas pressures.

Accordingly, much higher efficiencies are possible compared to processes for power production mentioned before. In a third route, we are dealing with P2X using H₂ and CO₂ in catalytic membrane reactors to produce synthetic fuels and chemicals.

3. Website

https://www.ikts.fraunhofer.de/en/departments/environmental_process_engineering/high_temperature_separation.html

4. Contact person:

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