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Circular Carbon for resilient Chemical value chains enabled by Plasma Technology

S. Renninger

Cyclize GmbH, Stuttgart, Germany

Cyclize introduces an innovative plasma reforming technology to advance the carbon circular economy by converting CO₂ from point sources and non-recyclable waste into syngas, a mixture of carbon monoxide and hydrogen. Syngas serves as a primary building block for the chemical industry. Leveraging their patented plasma reforming technology, Cyclize thus reduces the reliance on natural gas as a feedstock. The technology contributes to resilient and sustainable value chains in a changing geopolitical landscape. It is scalable and requires no green premium at scale.

The plasma dry reforming process can use up to 5 kg of CO₂ as feedstock per kg of waste, ensuring an overall CO₂-negative footprint. A variety of non-recyclable post-consumer and industrial waste streams, such as liquids, automotive waste, refuse derived fuel or composites can be employed.

Economic feasibility hinges on robust process design and near-perfect energy efficiency. To achieve this, Cyclize develops key components, such as plasma reactors and power electronics, as well as the overall process application in a growing interdisciplinary team. Following successful demonstration on a lab- and pre-industrial scale, Cyclize is now progressing the first commercial application.

The presentation aims to give an overview of the technology, its performance, applicable value chains, and the state of its development.