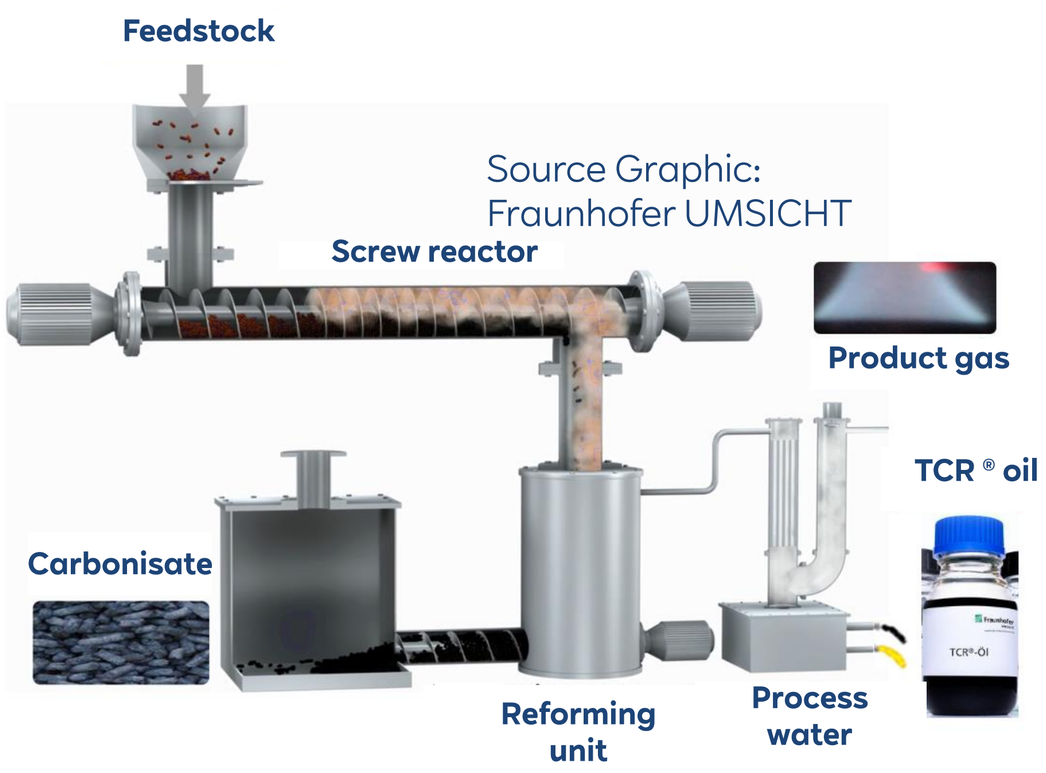
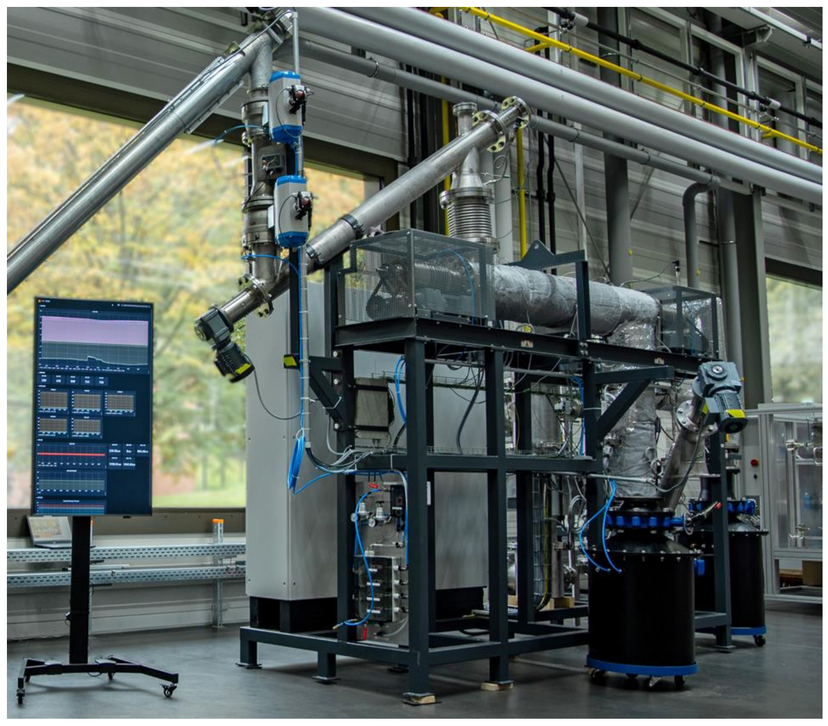
Innovation pathway

Sponsored by:
Ministerium für Wirtschaft, Innovation, Digitalisierung und Energie des Landes Nordrhein-Westfalen

TCR®: Thermocatalytic Reforming

TCR® is a process developed by Fraunhofer UMSICHT in which organic residues are converted into valuable materials under exclusion of air and at high temperatures. This produces a hydrogen-rich synthesis gas, biochar and a thermally stable bio-oil.





Fraunhofer UMSICHT will construct and operate a TCR® pilot plant at the RWE Innovation Centre from mid-2021. This plant, in which 30 kg of feedstock can be converted per hour, will convert dried sewage sludge in particular, in addition to other forms of biomass. This will be done in a two-stage process consisting of intermediate pyrolysis and catalytic reforming.

Special attention will be paid to the investigation of the liquid and solid products. They will be characterised in detail and their potential applications evaluated. While the liquid fraction containing oil can be processed into fuel, the use of carbonisate as a feedstock for further high-temperature conversion processes is conceivable, e.g. in the neighbouring MFC high-temperature conversion plant.

The TCR® plant is part of the Innovation and Technology Centre for the Material Use of Sustainable Carbon Sources (**C**arbon **C**onversion) (German: **I**nnovations- und **T**echnologie**z**entrums zur stofflichen Nutzung nachhaltiger Kohlenstoffquellen) in North Rhine-Westphalia (ITZ-CC).

ITZ CC Innovations- und Technologiezentrum zur stofflichen Nutzung nachhaltiger Kohlenstoffquellen

Fraunhofer UMSICHT

RWE

RUHR UNIVERSITÄT BOCHUM RUB

RWE Innovationszentrum