

Novel POX-rWGS reactor

Our process is Power-to-Liquid (PtL). Renewable Energy is used to split water vapor (H_2O) to hydrogen (H_2) and oxygen. In this first plant, E-fuel 1, Hydrogen from electrolysis is mixed with carbon monoxide (CO) in the waste gas to form syngas, which is converted to normal paraffinic hydrocarbon liquids in a Fischer-Tropsch reactor. We have filed a patent for the E-fuel 1 process.

In E-fuel 1, a modified POX-rWGS syngas reactor, which we also have filed a patent for, that converts 100% CO_2 to syngas will be tested and qualified for use in the commercial E-fuel 2 plant with a capacity of 200 million liters. E-fuel 2 will be able to use syngas from 100% CO to 100% CO_2 . Hydrocarbon gas and unconverted CO_2 from the FT-reactor is converted to syngas in the POX-rWGS-reactor, a combination of a POX reactor and a reversed water gas shift reactor.