



# POWER-TO-LIQUID TECHNOLOGY

## INERATEC GmbH

By using greenhouse gases and renewable energy, INERATEC offers a sustainable and CO<sub>2</sub>-neutral alternative to fossil products.

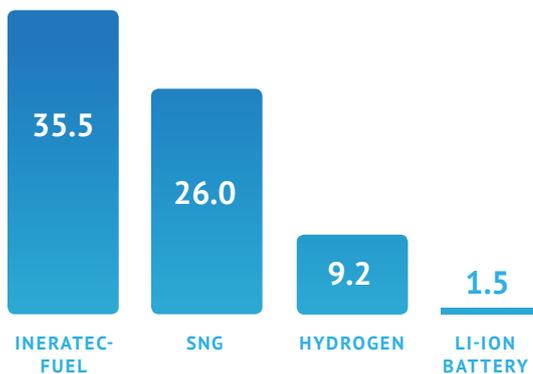
INERATEC engineers, builds and supplies compact chemical plants which can be integrated into containers, thus enabling a decentralized use and providing modular extendibility.

### TECHNOLOGY

The plant's core is the innovative, micro-structured reactor technology. Due to its large surface area and the intensified heat and mass transfer, the reactor is particularly compact. It provides high load flexibility as well as quick start-up and shut-down times.

### APPLICATION

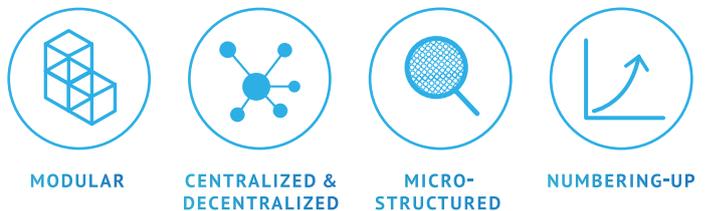
Energy supply from renewable sources is subject to natural fluctuations. Because of their high flexibility, the plants are ideal for the storage of renewable energy in the form of synthetic hydrocarbons, such as Diesel, gasoline and kerosene. The latter are characterized by their high storage capacity and energy density.



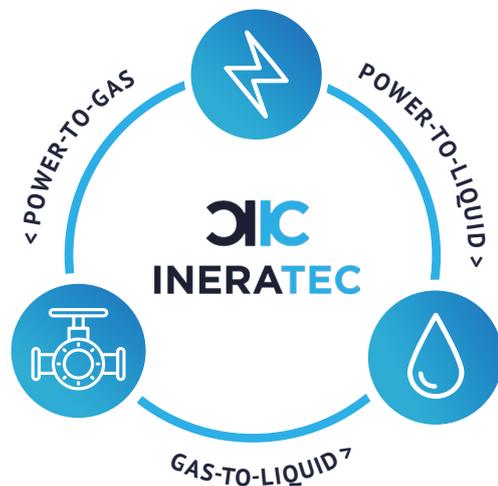
VOLUMETRIC ENERGY DENSITY IN MJ/L

Synthetic hydrocarbons provide the highest energy density.

## USE CASES



## PROCESSES



### POWER TO LIQUID (PTL)

Renewable hydrogen and CO<sub>2</sub> are converted into synthetic hydrocarbons.

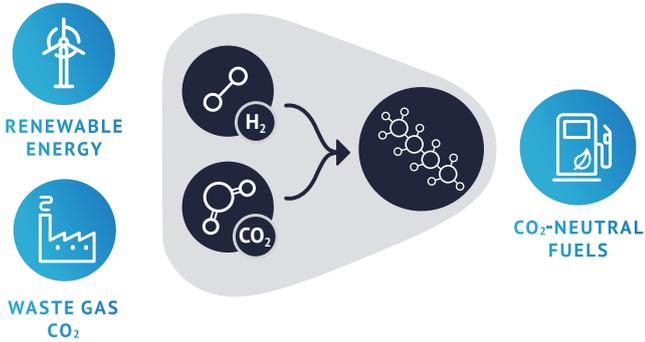
### POWER TO GAS (PTG)

Renewable hydrogen and CO<sub>2</sub> are converted into synthetic natural gas (SNG).

### GAS TO LIQUID (GTL)

Methane containing gases are converted into synthetic fuels and waxes.

## POWER-TO-LIQUID

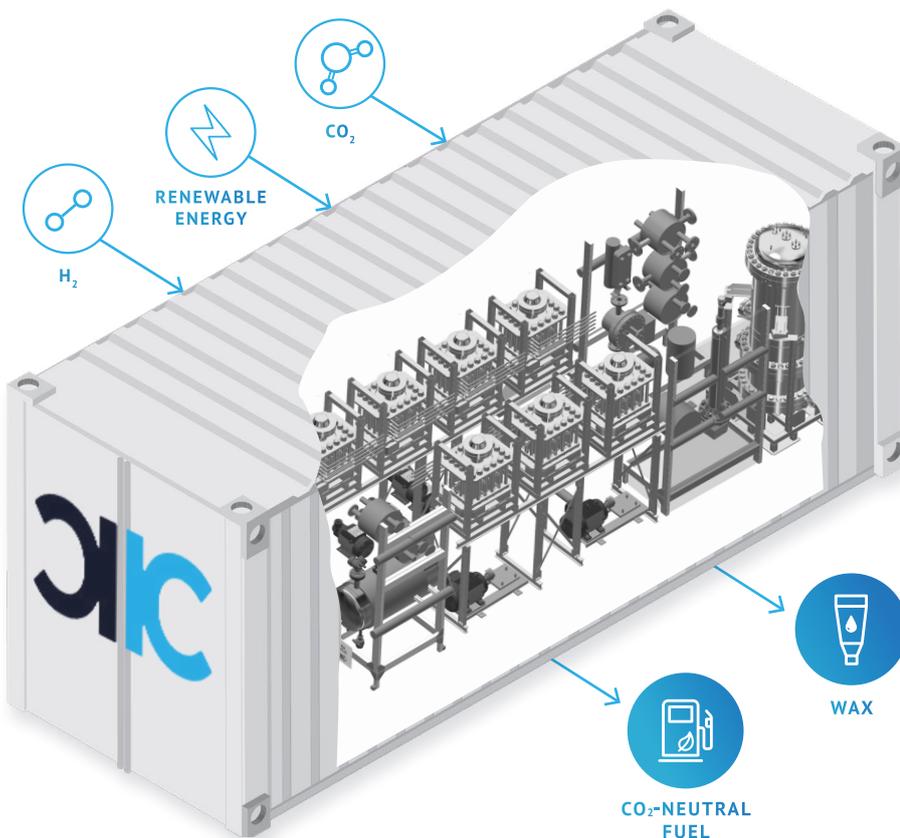


In the PTL-process, renewable electricity and CO<sub>2</sub> are used as raw material. Renewable hydrogen, obtained via electrolysis and the greenhouse gas CO<sub>2</sub>, is converted into synthesis gas. In the subsequent Fischer-Tropsch synthesis, climate-neutral synthetic fuels and valuable chemical products are produced which are particularly pure and free of sulfur and aromatics.

## SYNTHETIC PRODUCTS



In the PTL process, a variety of synthetic hydrocarbons can be produced which have a wide field of application. The fuels can be used especially in the domain of mobility, be it for automobile or air traffic. The waxes can be used in the areas of chemical industry as well as in the manufacturing industry, where they can replace fossil products.



### TECHNICAL DATA

(per PTL-module)

**H<sub>2</sub> consumption**  
up to 20 kg per hour

**CO<sub>2</sub> consumption**  
up to 150 kg per hour

**Yearly production**  
up to 500 tons per year

**Plant efficiency**  
~70%  
(+potential waste heat recuperation)

**Start-up time**  
< 1 hour

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