RENEWABLES
EVERYWHERE

SUNFIRE.DE

RENEWABLE SYNGAS FOR E-FUEL AND CHEMICALS PRODUCTION

SUNFIRE-SYNLINK SOEC

PRODUCT

Sunfire-SynLink SOEC is the world-leading high-temperature electrolysis solution based on solid oxide cells. The electrolyzer uses steam and CO_2 as feed to produce renewable syngas in only one process step. Smart integration of waste heat and CO_2 sources reduces electricity demand while flexible scaling enables a gradual phase-in of renewable syngas into existing infrastructures and processes.

APPLICATIONS

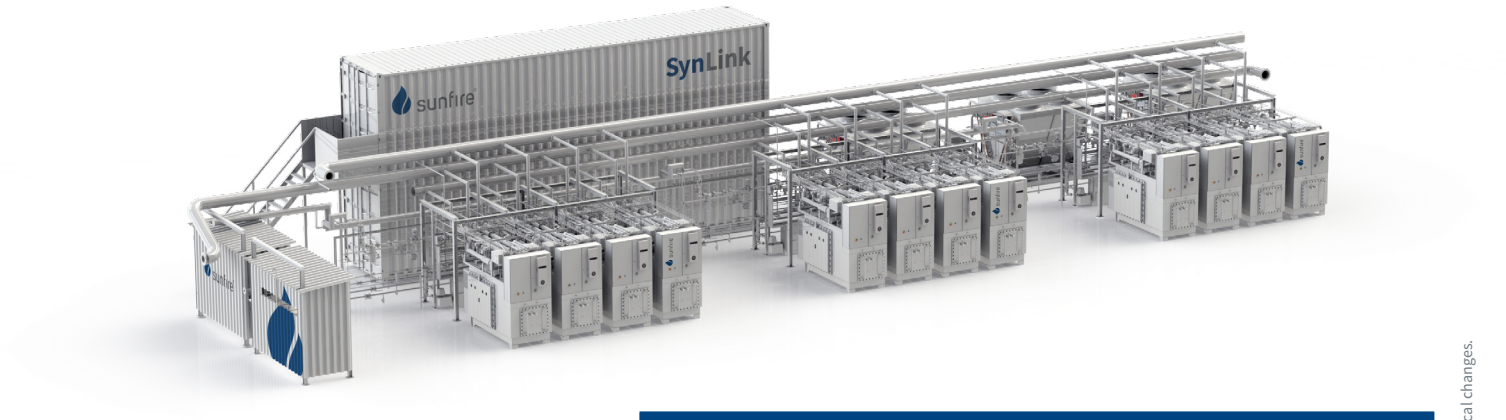
The electrolyzer provides renewable syngas as an essential feedstock for producing a variety of hydrocarbon products.

+ e-Fuel: Diesel, gasoline, jet fuel, marine diesel oil, etc.
+ Chemicals: Agrochemicals, pharmaceuticals, cosmetics, fine chemicals, etc.

CORE ADVANTAGES

+ **Co-electrolysis**
  High efficiency one-step conversion of CO_2 & water yields lowest syngas costs
+ **Versatility**
  Supply of a broad range of H_2:CO molar ratios
+ **Reliability**
  Certified electrolyzers with proven long-term operation
+ **Flexibility**
  Modular design simplifies scaling to any desired electrolysis capacity
+ **Sustainability**
  No use of PGM-based materials in electrolyzer production

SUNFIRE-SYNLINK SOEC – TECHNICAL DATA



	SYNLINK SOEC
Syngas production	
Net production rate	750 Nm^3/h
Production capacity dynamic range	5 % ... 100 %
Hot idle ramp time	< 10 min
Delivery pressure	0 bar(g)
Available H_2:CO ratios	1.5 ... 3.5
Power input and electrical efficiency	
System power rating (AC)	2,890 kW
Specific power consumption at stack level (DC)*	3.4 kWh/Nm^3
Specific power consumption at system level (AC)*	3.85 kWh/Nm^3
System electrical efficiency**	82 %
Steam input	
Consumption	560 kg/h
Temperature	150 °C ... 200 °C
Pressure	3.5 bar (g) ... 5.5 bar (g)
CO_2 input	
Consumption	730 kg/h
Temperature	0 °C ... 40 °C
Pressure	6 bar (g) ... 8 bar (g)
Other specs	
Footprint***	~ 300 m^2
Ambient temperature	-20 °C ... 40 °C

* Power consumption at ambient pressure
** Lower heating value of syngas (H_2: CO = 2) referred to AC power input
*** Average space requirement for a 2.89 MW system comprising all auxiliary systems

Disclaimer: For illustrative purposes, all above values are based on a syngas ratio (H_2:CO) of 2 and 100% pure CO_2 feed. Sunfire-Synlink is capable to deliver different syngas ratios and to process a wide range of CO_2 feedstocks, e.g. shares of hydrocarbons, CO, H_2, and H_2O. Any potential deviation of CO_2 feed will be evaluated by Sunfire.

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