

# Electrochemical Hydrogen Separation

## Our customer segments

### Making hydrogen available at point

Hydrogen is the most abundant element in the universe—but unlocking its true potential here on Earth requires innovation. Naturally bound in compounds, hydrogen must be extracted and purified before it can be used for industrial processes. Traditional purification methods are energy-intensive, costly, and often impractical for small-scale or decentralized scenarios.

This is where **SIQENS Electrochemical Hydrogen Separation (EHS)** enters the game.

Our advanced EHS technology offers a smarter, more efficient way to extract and purify hydrogen directly from gas streams—including industrial off-gases and natural gas blends. Unlike conventional methods, SIQENS EHS operates with low energy demands and avoids the clogging issues caused by solid deposits, ensuring consistent performance and longer equipment life.

Whether you need high-purity hydrogen for local use, storage, or commercial distribution, SIQENS EHS enables cost-effective hydrogen recovery—right where it's needed.

#### Engineering Companies

- You have H<sub>2</sub> in your processes
- You want to distribute high-purity H<sub>2</sub>
- You want to recycle your H<sub>2</sub>
- Your engineers are expert integrators

#### High-precision Industrial Operators

- You handle and use industrial process gases 24/7
- You want to re-use your hydrogen to save costs
- You want a seamless technology integration

#### Oil and Gas Industry

- You have a R&D facility for hydrogen and other gases
- Your team of engineers want to lead technical developments
- You are ready for a technology project



Engineering Companies



High-precision Industrial Operators

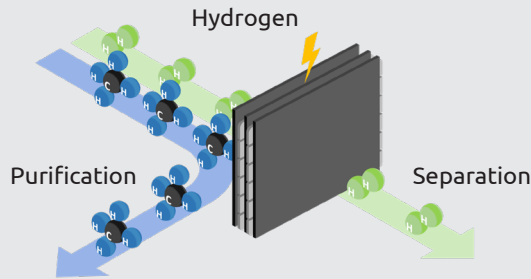


Oil and Gas Industry

## SIQENS EHS – Technical Data and Development

### Proof of Concept - Ready for Market

In close cooperation with our industry partners, SIQENS successfully completed a proof of concept for our Electrochemical Hydrogen Separation technology. The next step is increasing the development work by incorporating more partner projects and use cases. The data is showing the way forward. Be part of this exciting journey.



### SIQENS EHS - Technical parameters

H <sub>2</sub> content in feed gas	2% – 100%
H <sub>2</sub> recovery rate	up to 90%
Operating temperature stack	140 – 160°C
CO tolerance	2 vol%
Inlet pressure	2 – 15 bar
Inlet gas temperature	1 – 120 °C
Ambient temperature	1 – 45 °C
Energy consumption	1 – 4 kWh/kg H <sub>2</sub> (BOL to EOL)
Output pressure	0 – 7 bar(g)
Purity	99.99 %

Numbers are based on our project data from Haßfurt.



#### Compression

Highest efficiency  
 (>70%)  
 12 bar (plan: >30 bar)

#### High purity

Extracts and purifies  
 hydrogen up to fuel  
 cell grade:  
 > 99.99%

#### Modular

Provides hydrogen  
 on-site even at  
 small scale:  
 2 – 1000 kg/day

#### Efficient

90% less electricity  
 consumption  
 compared to water  
 electrolysis:  
 4 – 5 kWh<sub>e</sub>/kg H<sub>2</sub>



### Proof of Concept

Siqens' EHS system separates pure hydrogen (99.99%) from municipal gas in Haßfurt.