# TEST LINE #4

## Bioethanol reforming

Technical data sheet

*July 2025*

H2shift

# Test Line 4: Bioethanol reforming

| **Operating conditions** | | **Notes** |
|---|---|---|
| *Temperature* | *Value* | |
| Maximum process temperature [°C] | 40 | |
| Minimum process temperature [°C] | ambient | |
| *Pressure* | *Value* | |
| Maximum operating pressure [bar(a)] | 17.5 | |
| Off-gas operating pressure [bar(a)] | 1,3 | |
| Allowable unit pressure drop [bar] | 0,7 | |
| *Capacity Range* | *Value* | |
| Nominal capacity [Nm3/h] | 10 | H2 product |
| Maximum capacity range [%] | 200 | |
| Minimum capacity range [%] | 40 | |
| *Hydrogen Recovery* | *Value* | |
| Maximum $H_2$ recovery [mole %] | *92* | |
| Minimum $H_2$ recovery [mole %] | 75 | |
| | | |
| **Chamber layout, reactor configuration, samples, and similar** | | **Notes** |
| *PSA Skid dimensions* | *Value* | |
| Height [m] | 2,95 | |
| Length [m] | 4,65 | |
| Width [m] | 1,3 | |
| Adsorbent volume [L] | 228 | |
| Adsorption beds | 4 | |
| Buffer beds | 2 | |
| **Formulated Pannel** | | **Notes** |
| *Gases (inlet)* | *Value* | |
| $H_2$ [kg/h] | 2,85 | Nominal value |
| $N_2$ [kg/h] | 38,68 | Nominal value |
| $CH_4$ [kg/h] | 5,94 | Nominal value |
| CO [kg/h] | 1,15 | Nominal value |
| $CO_2$ [kg/h] | 13,23 | Nominal value |
| | | |
| *Utilities* | *Value* | |
| Demi water | Yes | |
| $N_2$ for purging and leak test | Yes | Temperature range: amb-80°C; Pressure range: 6-10 barg |
| | | |
| **Gas analysis** | | **Notes** |
| *Instruments* | *Value* | |
| Continuous gas analyzer with IR/TCD sensors for specific gases | Yes | $H_2$, $CH_4$, CO, $CO_2$ , $O_2$ (dry gas) |
| Gas chromatography | Yes | $H_2$, $CH_4$, CO, $CO_2$, $O_2$, $N_2$, ethylene, ethane (dry gas) |
| | | |
| **Control and acquisition system** | | **Notes** |
| *Control system* | *Value* | |
| Programmable control system [yes/no] | Yes | Control system allows programmable cycles, can be modified |
| Remote control [yes/no] | Yes | Control system installed on local PC, possible remote control |
| **Electrical Power Supply** | | |
| *Voltage* | | |
| Instrumentation and control [V] | 200 | |
| Electric heat tracing [V] | 200 | |
| *Frequency* | | |
| Instrumentation and control [Hz] | 50 | |
| Electric heat tracing [Hz] | 50 | |