

HYDROGEN APPLICATIONS

Innovations and the need for safe and efficient processes are constantly driving development with increasingly challenging application parameters. For static and semi-dynamic H₂-applications, we supply O-rings and custom seals made of specially developed EPDM and low-temperature FKM materials. These have excellent properties in terms of material integrity and permeability.

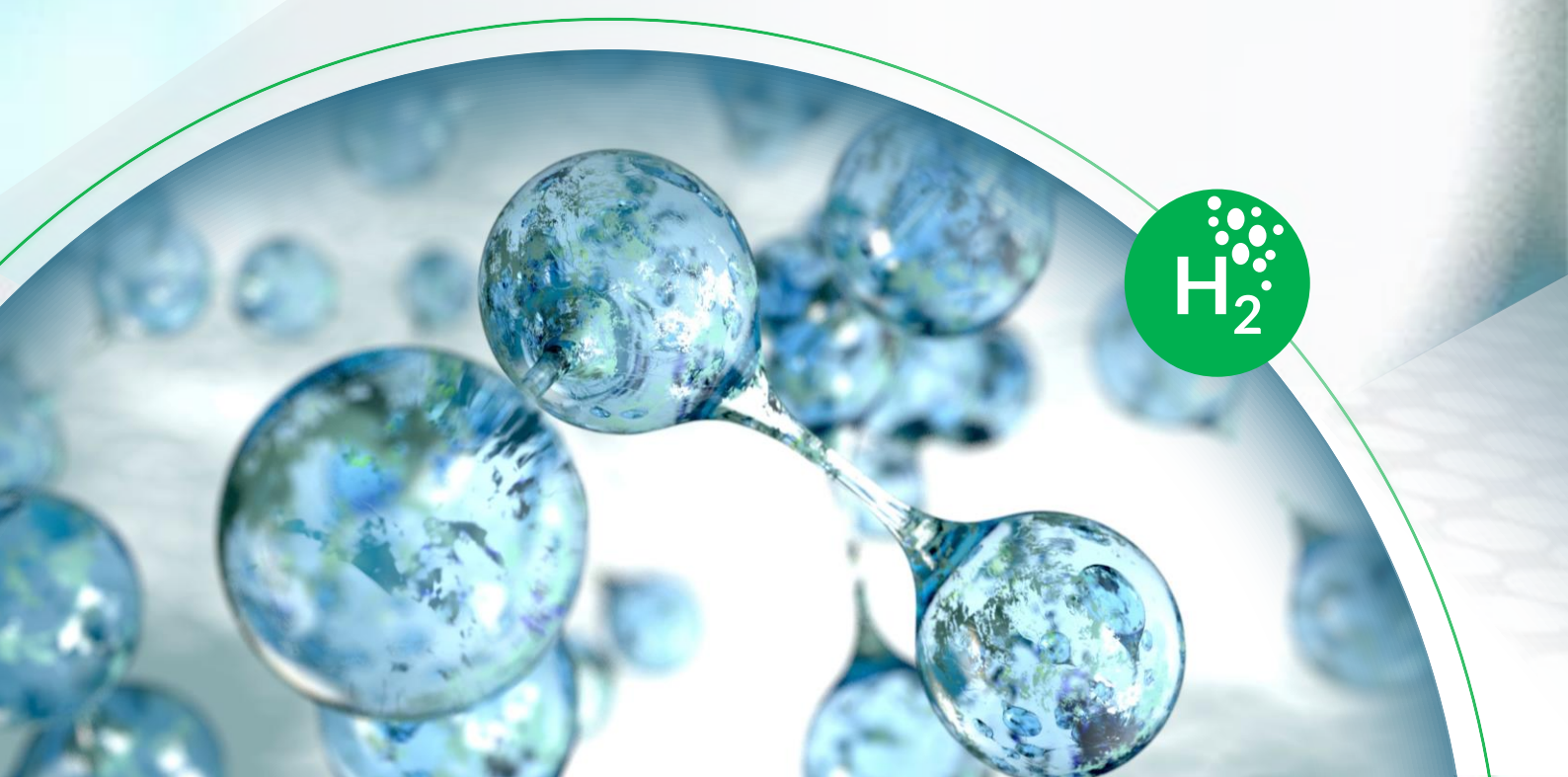
APPLICATIONS: our H₂G-seals can be found in electrolysers, compressors, valves, connectors, sensors and pumps along the H₂ supply chain. All our selected materials are RGD compliant*.

Material	VB090LT3	VB090LE1	EB070ST0	EB090ST1
ASTM Code	FKM	FKM	EPDM	EPDM
Colour	●	●	●	●
Hardness [Sh. A]	90	90	70	90
Temp. [C°]**	-55/200	-50/200	-45/150	-50/150
Compr. Set [%]	25	21	18	16
Hours at Temp.	72h/175 °C	72h/175 °C	24h/90 °C	24h/90 °C

* Except EB070ST0 (low pressure H₂-applications up to 20 bar)
 ** Constant service

DYNAMIC SEALS AND BACK-UP RINGS: H₂ applications often require the use of high-performance plastics. Depending on the application and temperature range, we offer different seal geometries and back-up rings made of UHMW-PE, PEEK and various PTFE compounds.

Material	UHMW-PEW	PEEKVIRY	PTFEVIRW	PTFE-CGB
ASTM Code	UHMW-PE	PEEK	PTFE virginal	PTFE CG
Colour	● ●	●	●	●
Temp. [C°]**	-150 / 90	-60 / 240	-180 / 260	260
Tensile strength [MPa]	17	110	27	13
Coefficient of friction	0,15 - 0,3	0,1 - 0,3	0,06 - 0,1	0,11 - 0,15





HYDROGEN: ENERGY IN TRANSITION

High-performance sealing systems in new cycles

Renewable energies
CO₂ neutral production of electricity enables environmentally (green) sustainable hydrogen production.

Hydrogen storage
Low temperatures and high pressures are the challenges in hydrogen storage. Modern tanks and sealing materials allow virtually loss-free storage at below -250 °C or at over 700 bar

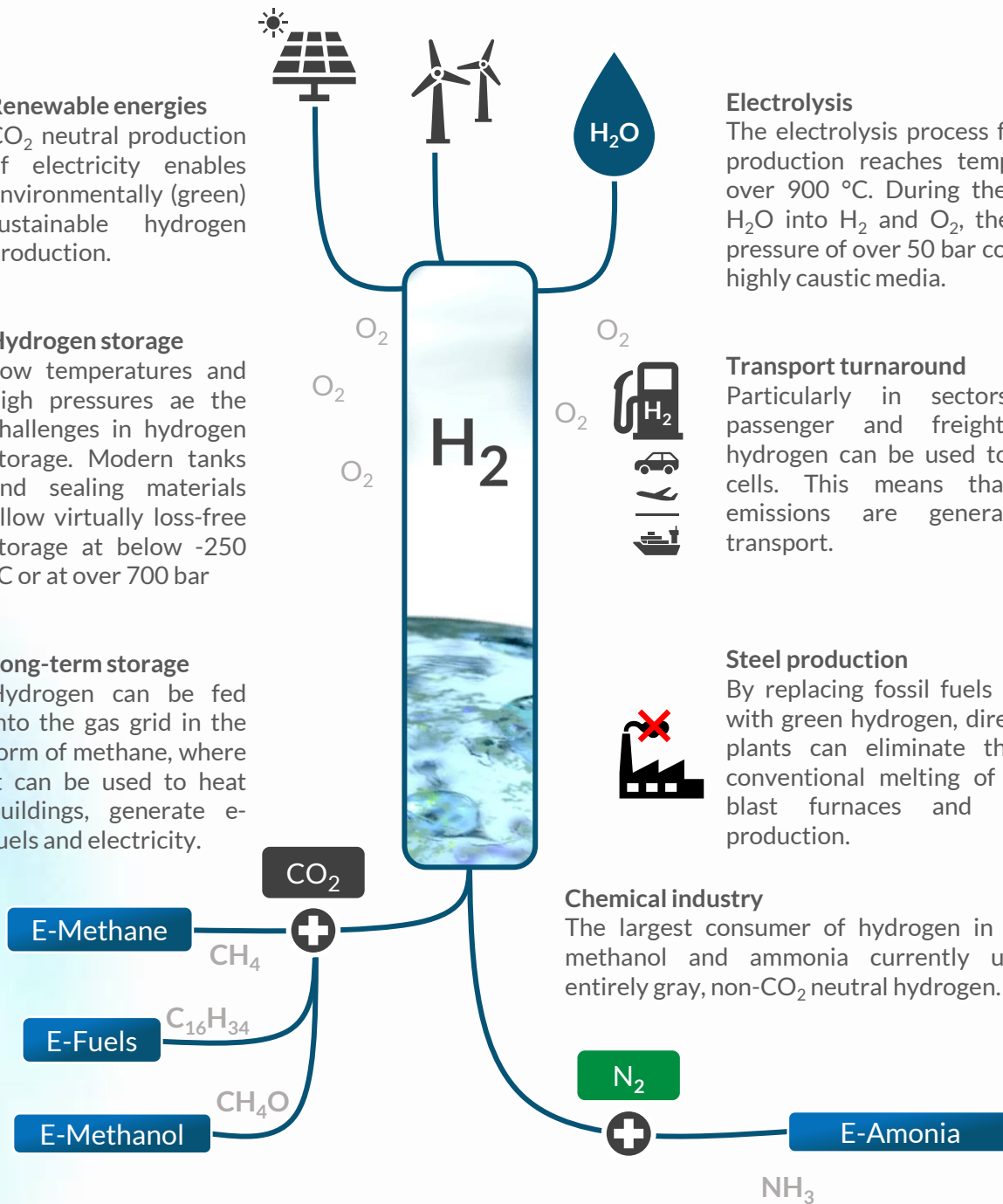
Long-term storage
Hydrogen can be fed into the gas grid in the form of methane, where it can be used to heat buildings, generate e-fuels and electricity.

Electrolysis
The electrolysis process for hydrogen production reaches temperatures of over 900 °C. During the splitting of H₂O into H₂ and O₂, there is also a pressure of over 50 bar combined with highly caustic media.

Transport turnaround
Particularly in sectors such as passenger and freight transport, hydrogen can be used to power fuel cells. This means that no local emissions are generated during transport.

Steel production
By replacing fossil fuels such as coal with green hydrogen, direct reduction plants can eliminate the need for conventional melting of raw iron in blast furnaces and drive steel production.

Chemical industry
The largest consumer of hydrogen in the form of methanol and ammonia currently uses almost entirely gray, non-CO₂ neutral hydrogen.



H₂G - GITIS HYDROGEN SERIES

Sealing products from our H₂G series are already in use in applications such as valves, connectors and FCEV fueling.

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