

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 electrolyzers, compressors, valves, connectors and pumps along the H₂ supply chain. All our selected materials are ED compliant. (*)

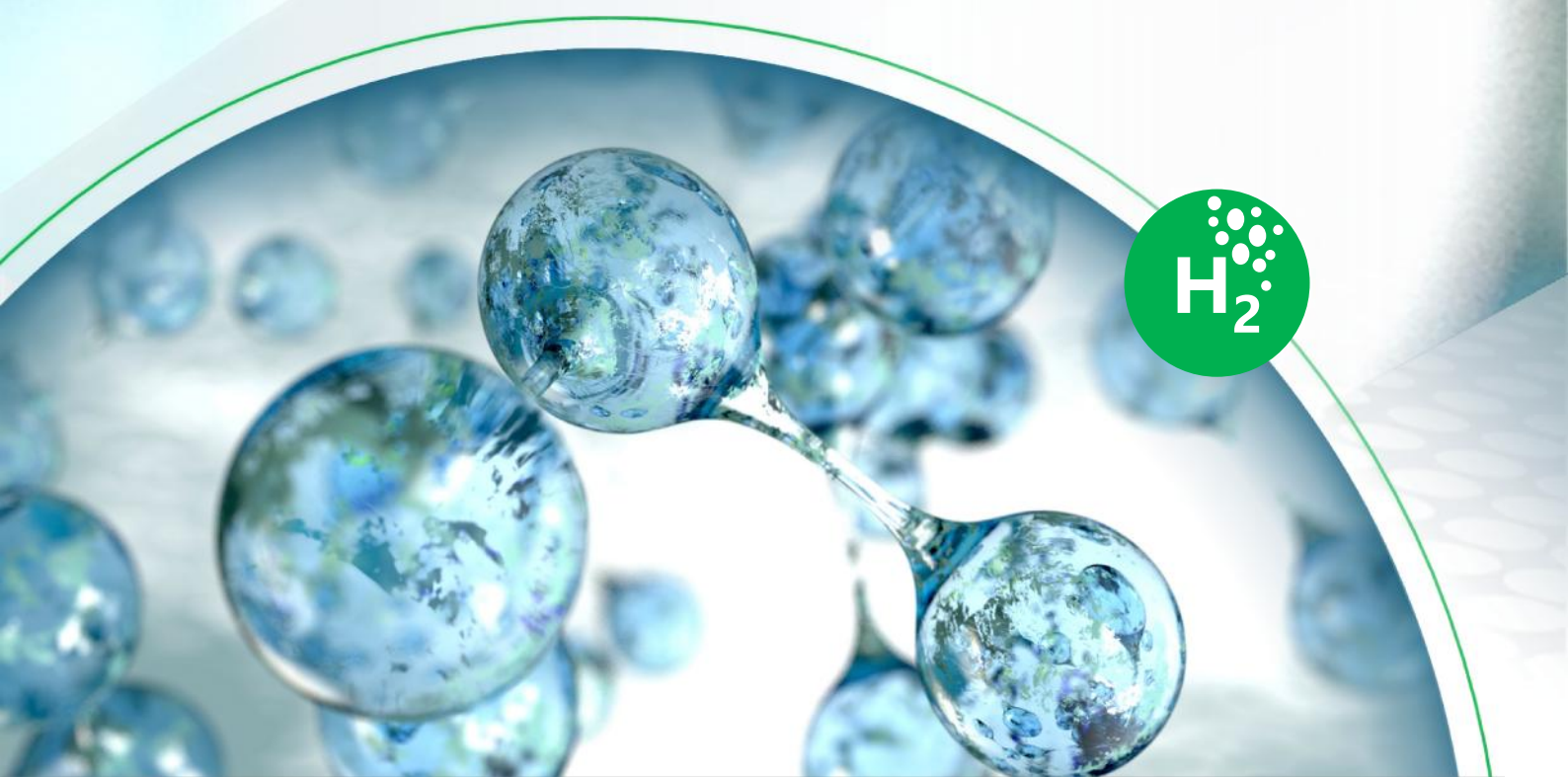
Material	VB090LT3	VB090LE1	EB090ST1
ASTM Code	FKM	FKM	EPDM
Colour	●	●	●
Hardness [Sh. A]	90	90	90
Temp. [C°] (**)	-55/200	-50/200	-50/150
Compr. Set [%]	25	21	32
Hours at Temp.	72h/175 °C	72h/175 °C	24h/150 °C

(*) NORSOK M710 in hydrogen: Test pending.

(**) 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°] (**)	-200 / 110	-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

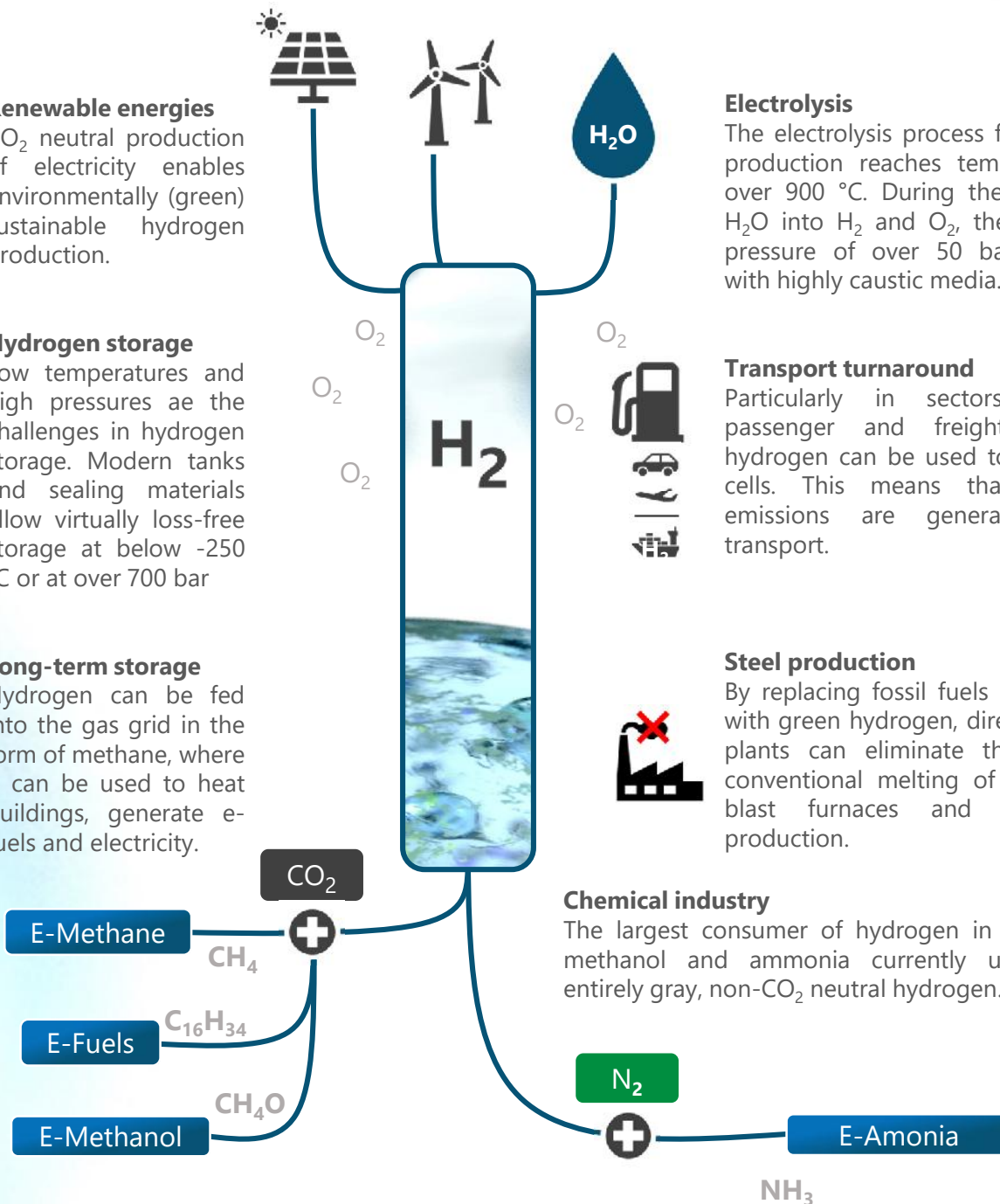
Particularly in sectors such as passenger and freight transport, hydrogen can be used to power fuel cells. This means that no local emissions are generated during transport.

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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GITIS SRL - via Rocca, 4 - 24067 Sarnico - BG - ITALY / Sede operativa: GITIS SRL - via Colombara del Bosco, 26 - 25031 Capriolo - BS - ITALY / www.gitis.it / C.F. n. 00844470161 C.F. e P. Iva n. 00844470161
Averis GmbH - Hofener Straße 64 - 70736 Fellbach - GERMANY / Tel. +49 711 88872837 www.averis-lab.com / HRB Stuttgart 757053 - USt-ID: DE 306390337

SEALING YOUR SUCCESS

