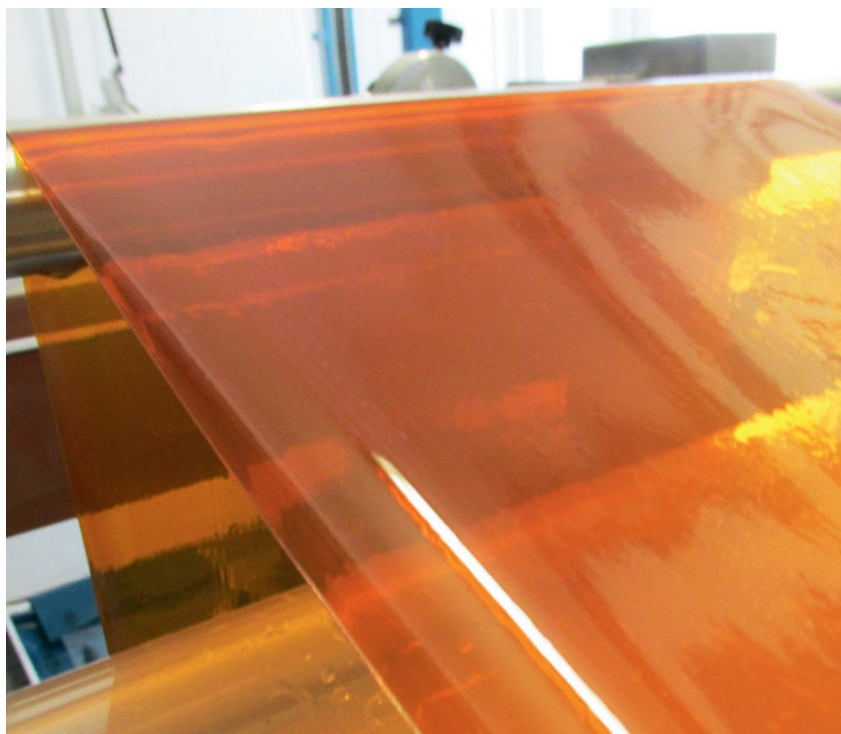


Celtec® membrane for high-temperature PEM fuel cells



The Celtec® membrane is the core of high-temperature membrane electrode assemblies (MEA) that can be used for fuel cells and electrochemical hydrogen separation. This MEA operates at temperatures between 120 and 180 °C, tolerates large concentrations of carbon monoxide and is capable of running independently of humidification. This technology enables fuel cell systems to become simpler and more cost effective.

BASF has been manufacturing the Celtec® membrane since 2005. In a global network with science and partners, BASF has continuously adapted the membrane properties to the varying requirements of hydrogen separation and fuel cells. The membrane is produced by a sol-gel process.

Applications of Celtec®

Membrane electrode assemblies based on Celtec® membrane enable an operating temperature of 120 to 180 °C, tolerance to impurities and a reduced need for humidification.

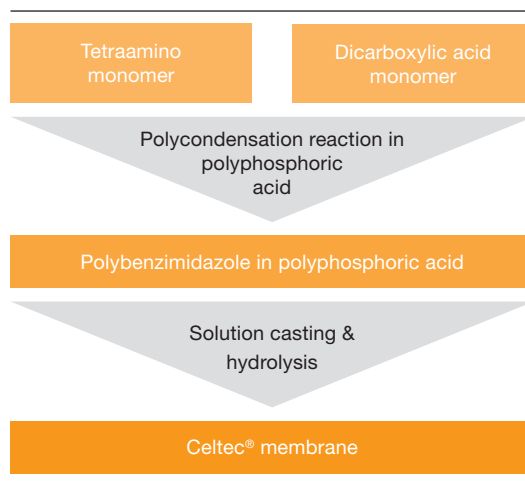
- High-temperature polymer electrolyte membrane (HT-PEM) fuel cell: system manufacturers can easily integrate stack and reformer, enabling higher efficiency, robustness and simplicity.
- Electrochemical hydrogen separation: enables the energy-efficient separation of diluted hydrogen below 20 % concentration without partial pressure difference.

Celtec® membrane

Specifications	Target value
Thickness (µm)	400 (+/- 40)
E-module (N/mm ²)	>3
Compression (%)	20 < p < 25
Acid concentration (wt %)	55 (+/- 4)
Acid content (mg/cm ³)	810 (+/- 50)
Acid content (mg/cm ²)	34 (+/- 3)
PBI content (mg/cm ³)	77 (+/- 12)
I.V. value (dL/g)	>4.50

BASF New Business will support you in testing and qualifying the membrane for your product development.

Membrane synthesis



Want to know more? Please contact us:

Europe	USA	Japan	Korea	China
Dr. Carsten Henschel	Raj Agrawal	Yoshifumi Takemoto	Han Yu	Pearl Chen
Phone: +49 621 60-47866	Phone: +1 346-252-4225	Phone: +81 3 3796-5273	Phone: +82 2 3707-3125	Phone: +886 2 2518 7678
Mobile: +49 172 6608868	Mobile: +1 832-451-8291	Mobile: +81 90 9541-6161	Mobile: +82 10 2829-1346	Mobile: +886 972 328112
carsten.henschel@basf.com	rajat.agrawal@basf.com	yoshifumi.takemoto@basf.com	han.yu@basf.com	pearl.chen@basf.com

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