

Scale up your green hydrogen production?

We know ...



With BASF's specialty plastic Ultrason® – exceptional stability combined with optimal processing for high-performance electrolyzers!

 **BASF**
We create chemistry

Lead the transformation to clean energy!

The background features a large, circular, metallic component, likely a part of a turbine or engine, with a blue arrow pointing right. The arrow is semi-transparent and has a 3D effect, with a blue shadow and a white highlight. The overall color scheme is light gray and blue.

YOU WANT TO BE THE FRONTRUNNER
IN THE FUTURE GREEN HYDROGEN
ECONOMY? ARE YOU LOOKING FOR A
MATERIAL THAT BRINGS YOUR DESIGN
TO THE POLE POSITION IN THIS FAST
MOVING MARKET?



Ultrason® is the ideal material for you! With its high-performance **Ultrason® portfolio (PAES: polyarylethersulfones → PSU, PESU, PPSU)**, BASF offers a tailored material range which is ideally suited for various components in alkaline water (**AWE**), proton exchange membrane (**PEM**) and anion exchange membrane (**AEM**) electrolyzers.

Your benefits with Ultrason®:

- Exceptional chemical and high-temperature resistance
 - Design freedom due to thermoplastic processing
 - Lower weight electrolyzers via metal replacement
 - Stable membrane casting due to high and stable quality
 - Well-founded process knowledge for quick part design process
- We support you from choosing the **right Ultrason® grade** via part and tool development to the **final production of the parts**.
 - We are your **global partner** for developing high-quality plastic parts and high-performance membranes locally – with more than **30 years of know-how** in plastic processing (also for large parts), material performance and membrane production.
 - **Save time, costs and become a frontrunner in the electrolyzer market!**

Ultrason® accelerates green hydrogen production

BASF's Ultrason® grades are amorphous, high-performance polymers with outstanding temperature and chemical resistance as well as constant high purity.

Ultrason® provides **excellent material performance** under highly demanding conditions while being suitable for large parts. This enables long-lasting and robust electrolyzers, thus increasing manufacturing productivity for green hydrogen!



Key features of Ultrason®:

- **Exceptional chemical resistance also at elevated temperatures:** suitable for AWE, PEM, AEM electrolyzers
- **Temperature-independent mechanical properties:** different Ultrason® grades for current (90 °C) and future (> 120 °C) electrolyzers
- **Excellent compression properties:** Ultrason® withstands the high compressive forces of electrolyzer systems
- **Great hydrolytic stability:** Ultrason® enables long lifetime of electrolyzers
- **Low ion migration:** no catalyst poisoning due to ion migration from Ultrason®

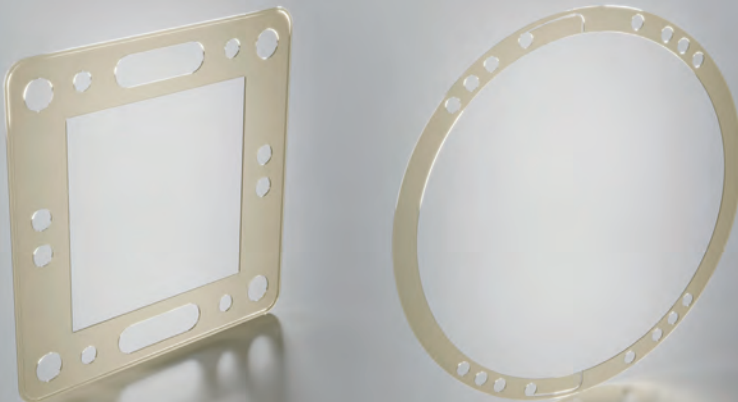
Ultrason® advantages for processing:

- **Thermoplastic processing:** suitable for small and large injection-molding and extrusion applications
- **Good melt stability:** allowing for stable processing
- **Lowest cyclic dimer content:** stable membrane spinning solutions
- **Constant high product quality:** enabling stable membrane casting

For large-scale production of reliable water electrolyzers

You want to develop **larger, more robust and durable parts for water electrolyzers** with special focus on higher operating temperatures and long lifetime?

Ultrason® is especially suited where other materials (e.g. steel or PPS) fail to meet the future requirements in AWE, PEM and AEM.



Ultrason® is the **membrane market standard** used in the water filtration and dialysis industry for over 25 years. BASF has **profound application and process know-how** in this field and is the ideal partner for bringing this technology to the next level in hydrogen applications.



Ultrason® for frames/spacers:

- Suitable for high-temperature electrolyzers
- Exceptional chemical resistance
- Good dimensional stability
- Excellent compression properties
- Low ion migration

Ultrason® for subgaskets:

- Outstanding chemical resistance
- Good dimensional stability
- Low ion migration
- Ideal for film extrusion, also at low film thickness

Ultrason® for separator membranes/diaphragms:

- Suitable for low and high temperature electrolyzers
- Exceptional chemical resistance, even in alkaline environments (pH > 14)
- High and constant material quality
- Lowest dimer content in the market
- Stable spinning solution in all common solvents



Tailored Ultrason® grades for different electrolyzer technologies and applications

BASF offers a tailored Ultrason® portfolio for the individual **performance requirements** of today's and next-generation AWE, PEM and AEM electrolyzers to enable **large-scale production** of green hydrogen.

Product	Description	Frames	Gaskets	Membranes
Ultrason® S 2010	Standard medium viscosity injection-molding grade	✓		
Ultrason® S 2010 MR	Standard medium viscosity injection-molding grade with improved mold release for complex parts	✓		
Ultrason® S 3010	Higher viscosity injection-molding and extrusion grade with improved toughness and chemical resistance	✓	✓	✓
Ultrason® S 3010 MR	Higher viscosity injection-molding grade with improved toughness and chemical resistance, improved mold release for complex parts	✓	✓	
Ultrason® S 3010 MR BK	Higher viscosity injection-molding grade with improved toughness, chemical resistance, improved mold release for complex parts; colored black	✓		
Ultrason® P 2510	Medium viscosity injection-molding and extrusion grade with superior flowability, toughness and chemical resistance	✓	✓	
Ultrason® P 3010	Higher viscosity injection-molding and extrusion grade with superior toughness and chemical resistance	✓	✓	
Ultrason® P 3010 MR BK	Higher viscosity injection-molding and extrusion grade with superior toughness, chemical resistance, improved mold release for complex parts; colored black	✓		
Ultrason® P 3010 MR WT	Higher viscosity injection-molding and extrusion grade with superior toughness, chemical resistance, improved mold release for complex parts; colored white	✓		
Ultrason® P 3010 WT	Higher viscosity injection-molding and extrusion grade with superior toughness, chemical resistance; colored white	✓		
Ultrason® S 6010	Standard high viscosity membrane grade			✓

Further information on Ultrason® can be found on the internet:

www.ultrason.basf.com



Explore the full potential of Ultrason® and
find the suitable grade for your application!

Ultrason® Product Selector on www.ultrason.basf.com

**If you have technical questions
on the products, please contact
the Ultra-Infopoint:**



Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out own investigations, and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (May 2025)