

# News Release

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## Upscaling of green hydrogen production with specialty plastic Ultrason®

- **BASF's polyarylethersulfone combines exceptional stability with optimal processing where other materials fail to meet the requirements**
- **For larger, more robust and durable parts like frames, gaskets and separator membranes in different water electrolyzers technologies**
- **Showcased at BASF booth, Fakuma 2024: hall B4, booth 4303**

Efficient electrolyzers are key in advancing the green hydrogen economy. For the development of larger, more efficient and durable electrolyzers, BASF offers a unique partnership to the energy sector: a tailored portfolio of polyarylethersulfones (PSU, PESU, PPSU) for components in water electrolyzers used for producing green hydrogen – combined with application know-how and reliable local technical support for part design. Backed by BASF's deep understanding of complex injection-molding applications and membrane casting, BASF helps customers in upscaling electrolyzer technology, thus pushing the transformation to clean energy. BASF's portfolio for electrolyzer parts includes Ultrason® grades for frames, gaskets and separator membranes. This can be experienced first-hand at the BASF booth at Fakuma 2024, Germany where an electrolyzer frame sample will be exhibited.

Ultrason® is ideally suited for metal replacement in various components of alkaline water (AWE), proton exchange membrane (PEM) and anionic electrolyte membrane (AEM) electrolyzers. The amorphous polymer shows outstanding temperature and chemical resistance. Its excellent performance under highly demanding conditions

includes thermoplastic processing for structural parts and constant high purity for separator membranes. Ultrason's temperature-independent mechanical properties make it suitable for current (90 °C) and future (> 120 °C) electrolyzers.

BASF's polyarylethersulfone also enables long lifetime of electrolyzers: it withstands the high compressive forces of electrolyzer systems and shows great hydrolytic stability. The BASF thermoplastic can be used for small as well as large injection-molding and extrusion components. All these advantages lead to lower-weight electrolyzers and higher freedom of design for different construction needs when compared to metal.

### **Ultrason® accelerates green hydrogen production**

With bigger, long-lasting and robust electrolyzers the efficiency of green hydrogen plants can be increased. "You want to develop parts for water electrolyzers with special focus on higher operating temperatures and longer lifetime? We support all interested companies with choosing the right Ultrason® grade and offer our experience during part and tool design, up to final serial manufacturing", says Erik Gubbels from Global Business Development Ultrason® at BASF. "We are a global partner but act locally when it comes to developing high-quality injection-molded parts and high-performance separator membranes. With more than 30 years of know-how in plastic processing, material performance and membrane production, we at BASF are the perfect match for your electrolyzer project saving you time and costs so that you can become a frontrunner in the electrolyzer market."

Especially for membranes, Ultrason® is well-known for its superior advantages like low cyclic dimer content and a constantly high material quality enabling stable spinning solutions for membrane casting. This is the reason why Ultrason® is considered the market standard in membranes used in the water filtration and dialysis industry for more than 25 years: BASF has profound application and process know-how in this field and is the ideal partner for bringing the technology to the next level in hydrogen applications.

Ultrason® is the trade name for BASF's product range of polyethersulfone (Ultrason® E), polysulfone (Ultrason® S) and polyphenylsulfone (Ultrason® P). The high-performance thermoplastic is used to manufacture water filtration membranes, stylish, durable and safe household and catering applications as well as lightweight

components for the automotive and aerospace industries. Ultrason® brands can substitute thermosets, metals and ceramics in many applications because of their extraordinary property profile.

More information: [www.ultrason.basf.com](http://www.ultrason.basf.com)

#### **About BASF's Performance Materials division**

BASF's Performance Materials division is at the forefront of the much-needed sustainability transformation in plastics. Our products are co-created with customers around the globe to bring innovations to major industry sectors such as transportation, consumer goods, industrial applications, and construction. Our R&D focuses on all stages of the plastics journey: Make, Use and Recycle. The MAKE phase is about improving how plastics are made, from product design to the choice of raw materials and the manufacturing process itself. The USE phase enhances plastics' strengths such as light weight, robustness, and thermal resistance. At the end of the product lifecycle, the RECYCLE phase looks at how to close the loop to achieve a circular economy. In 2023, the Performance Materials division achieved global sales of €7.2 billion. Join #ourplasticsjourney at: <https://www.performance-materials.basf.com>

#### **About BASF**

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 112,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €68.9 billion in 2023. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the United States. Further information at [www.basf.com](http://www.basf.com).