

CHEMISTRY THAT MATTERS™



# STRIVING FOR A HYDROGEN ECONOMY?

DISCOVER OUR SPECIALTY POLYMERS THAT  
MAY HELP ACCELERATE YOUR SUCCESS



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# SABIC'S SPECIALTIES BUSINESS A GLOBAL LEADER IN ENGINEERING THERMOPLASTICS

SABIC's Specialties Business is focused on challenging technology endeavors that deliver fundamental progress to the way the world travels, communicates, works and lives.

Leveraging global application technology centers, we provide solutions to a wide range of industrial partners based on our deep materials expertise in specialty engineering thermoplastic resins, compounds, sheet and film, filaments and additives.

Together, we're making **Chemistry that Matters™**.







## OUR SPECIALTY POLYMERS CAN SUPPORT THE HYDROGEN REVOLUTION

The products of SABIC's Specialties Business can enable the Hydrogen revolution all the way from the energy production, conversion of hydrogen, to the final use such as in fuel cells, electrolyzers and its infrastructure.

**PERFORMANCE** The cleanliness and stability of our lightweight specialty polymers can potentially help to overcome failures caused by the poisoning of fuel cell and membrane materials.

**EFFICIENCY** Our specialty polymers can offer design freedom, function integration and reduction of production steps when compared to other (multi)-materials.

**COSTS** Replacing metals by our specialty polymer solutions may help to reduce corrosion-related costs, extend lifetime, and offer a lower production cost.



**REQUEST MATERIAL SAMPLES OR DEVELOPMENT SUPPORT**

Reach out to the SABIC Specialties team!

<https://bit.ly/hydrogen-contact>

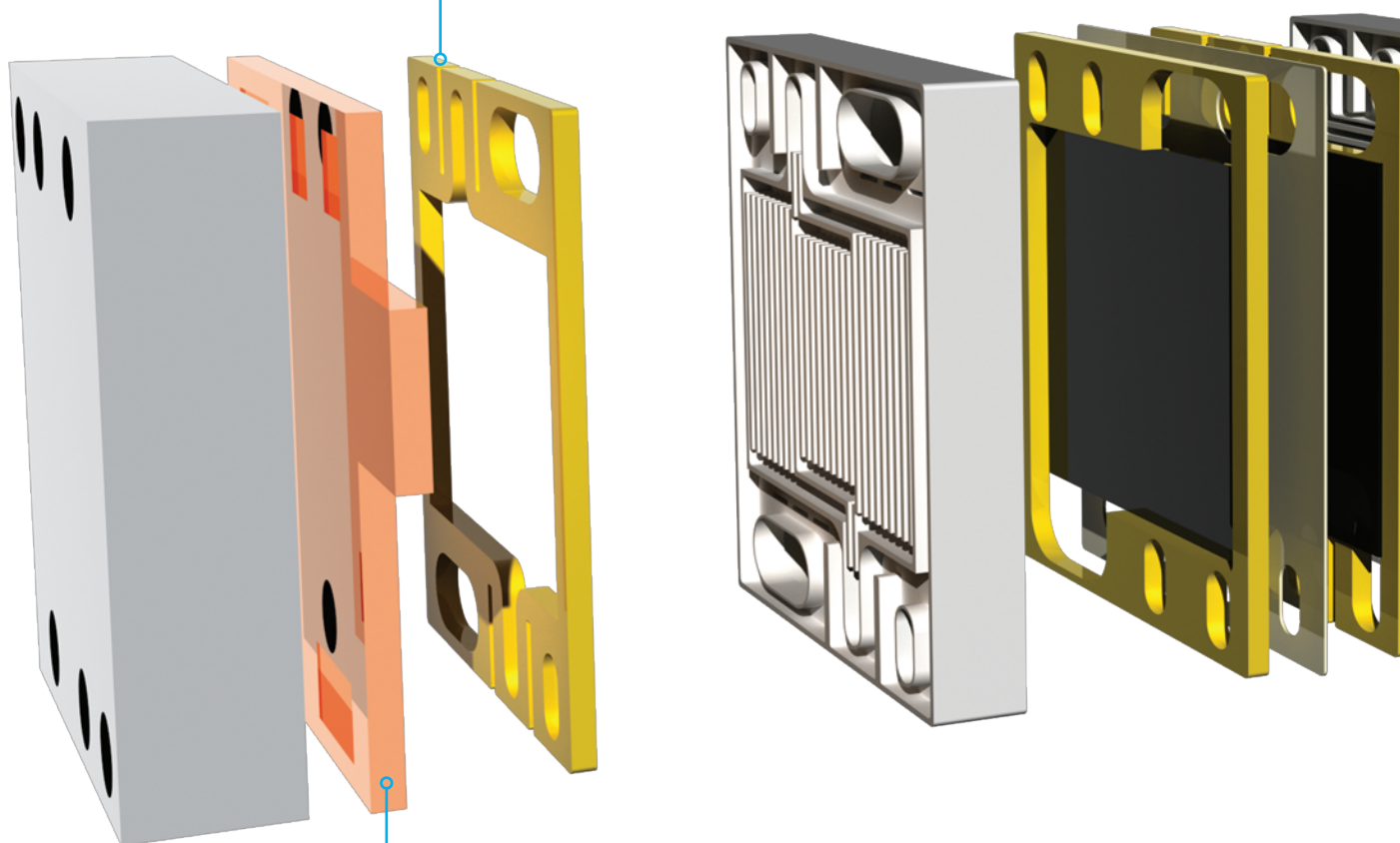
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# POTENTIAL SPECIALTY POLYMER SOLUTIONS FOR FUEL CELLS

## SEALING / SUB-GASKETS

SABIC's ULTEM™ resin is proven to bring exceptional dimensional stability, strength, stiffness, and can endure harsh environments. Its ease of processing and cleanliness have the potential to improve productivity and efficiency.

- ULTEM 1000/1010 (K) resin
- ULTEM film



## CURRENT COLLECTOR

ULTEM films can offer excellent handling through metallization and winding. The improved thermal performance compared to other thermoplastic film enables a quicker metallization, thereby potentially reducing production cost.

- ULTEM UTF120 film
- ELCRES™ HTV150A film

As commonly known in the industry, many of these examples related to fuel cell applications are illustrative and translatable for possible solutions in **Electrolyzer** applications, although decision making will be (partly) driven by other factors.

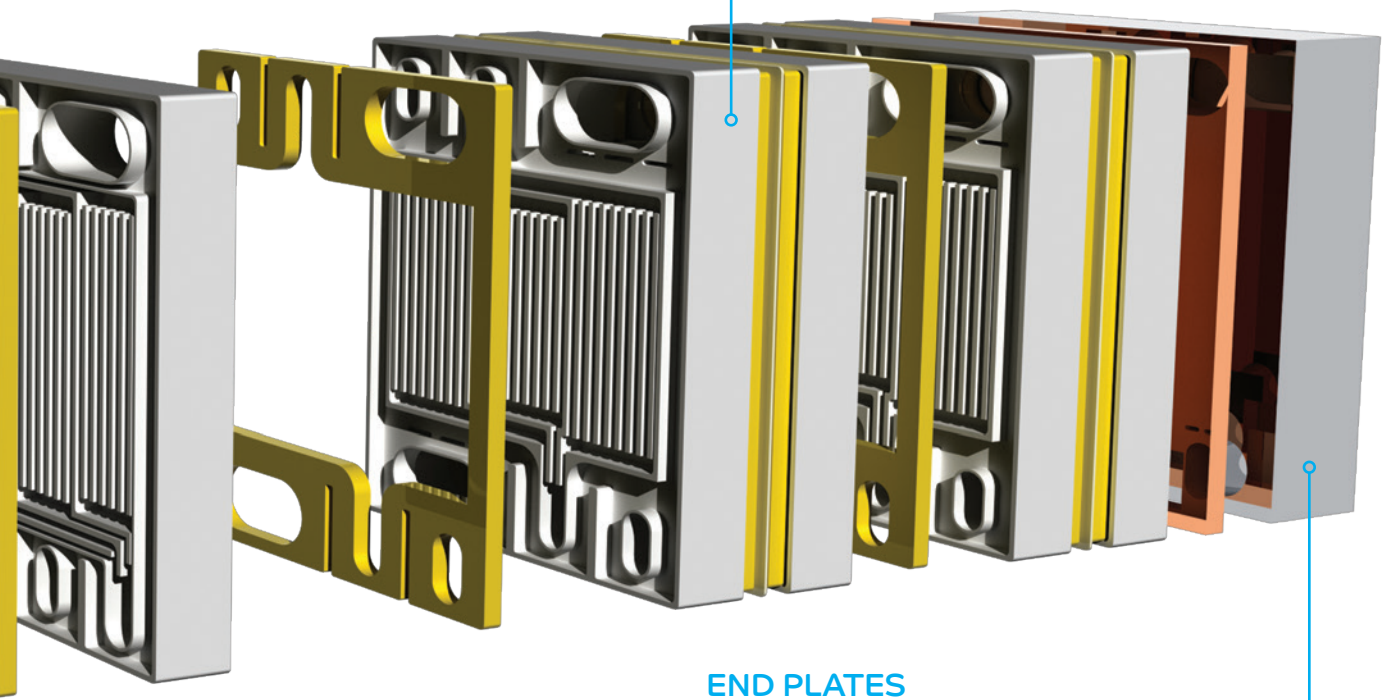
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## BIPOLAR PLATE

Composite bipolar plates can offer improved lifetime by preventing corrosion. The use of specialty thermoplastic solutions can potentially remove multiple processing steps such as straightening, laser cutting, etc. from production to end use, offering the possibility to improve overall cost of ownership.

- STAT-KON™ ER010494 resin
- ULTEM AUT200



## END PLATES

SABIC's Specialty business can offer a highly filled resin portfolio with exceptional dimensional properties including bending and compressive strength while reducing weight.

- NORLYL™ GTX840 resin
- THERMOCOMP™ OFM46 resin

## CASING

The STAT-KON product line can offer durability and stable performance for potential use in casings. These performances are on top of the typical requirements like strength & stiffness, shielding and processability.

- STAT-KON Products
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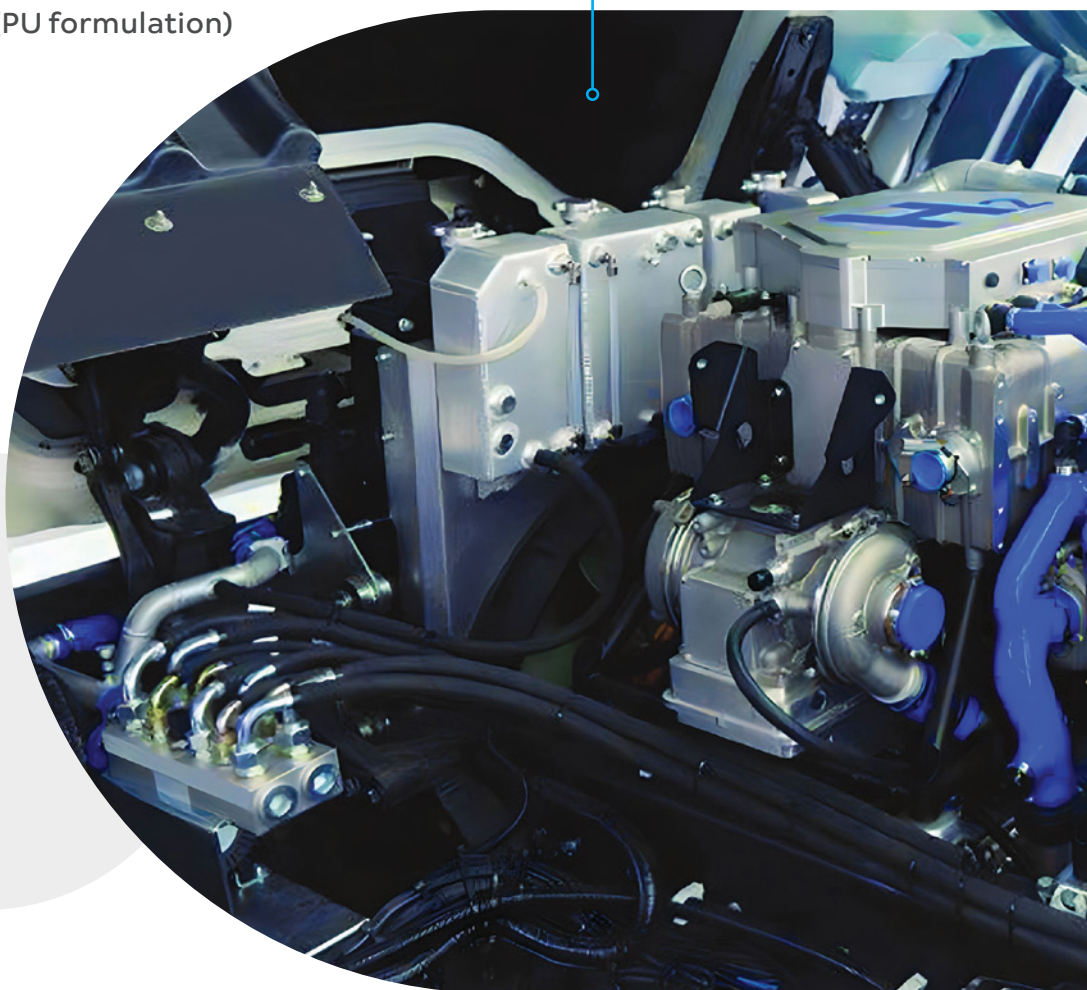
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# POTENTIAL SPECIALTY POLYMER SOLUTIONS FOR PERIPHERAL COMPONENTS

## HYDROGEN AND OXIDANT (AIR) DELIVERY

The systems delivering the (purified) hydrogen fuel and the oxidant (usually oxygen or air) to the fuel cell stack, include **pumps, valves** and **o-rings**. NORYL™ resin grades offer inert and chemical resistant materials with improved heat performance when compared to incumbent.

- NORYL AP2001G resin (PU formulation)
- NORYL GTX830 resin
- NORYL GFN3 resin



## WATER MANAGEMENT SYSTEM

The system managing the water stream in the fuel cell and electrolyzer stack includes, but are not limited to, **humidifiers, condensers, piping, fittings**. The thermal and mechanical performance of SABIC's Specialty solutions make them well-suited for such application.

- NORYL GTX830 resin
  - ULTEM™ 2300 resin
  - LNP™ OFC08XXP resin
  - NORYL GFN3 resin
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## THERMAL MANAGEMENT SYSTEMS

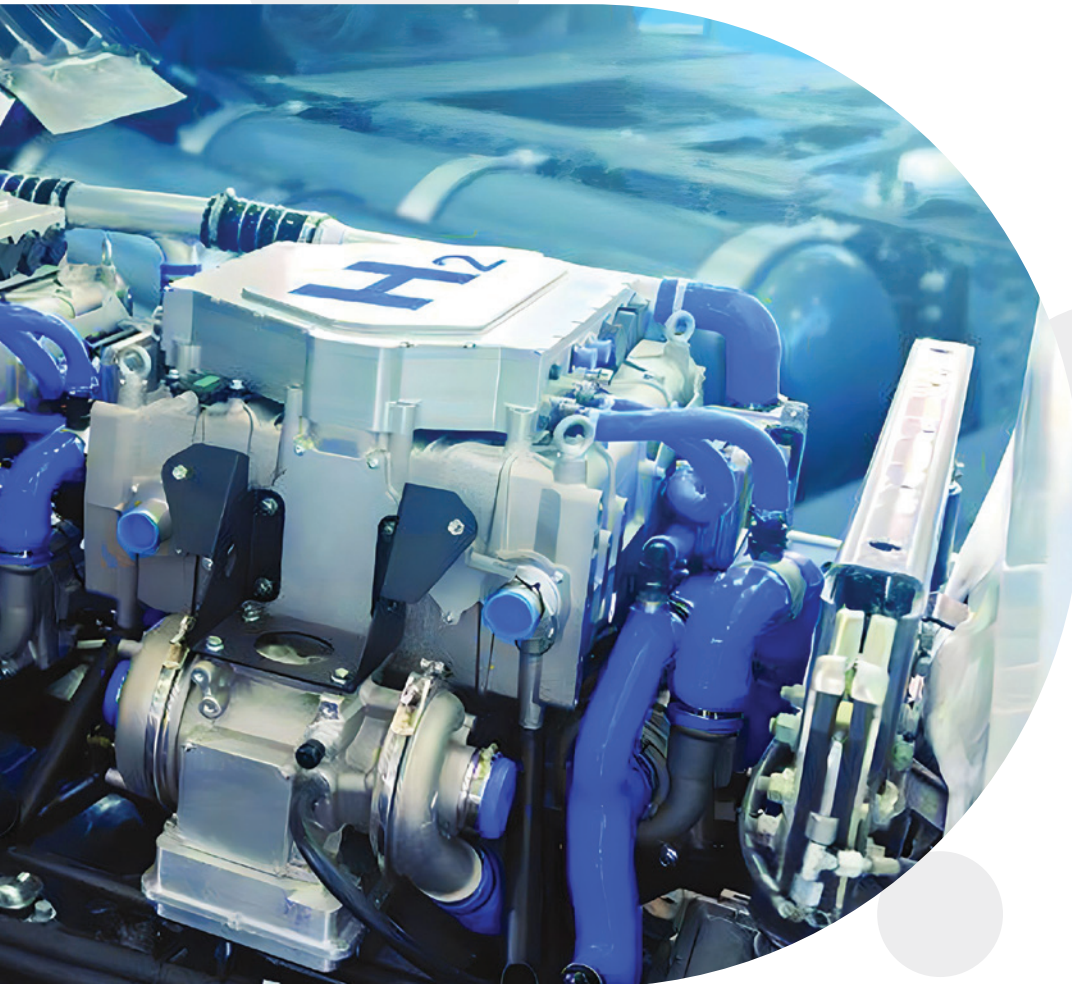
The system maintaining the optimal operating temperature of the fuel cell stack includes **heat exchangers, coolers, and pumps**. SABIC's KONDUIT™ resin grades offer excellent thermal stability, thermal conductivity and mechanical performance.

- KONDUIT resin
- LNP™ XHT2141

## HOUSINGS, TRAYS, FASTENERS

For auxiliary applications like **housings, trays and fasteners**, various light-weight high-temperature polymers are available offering strength, toughness, ductility, and corrosion-resistance.

- NORYL™ GTX830 resin
- ULTEM™ 2300 resin
- LNP™ OFC08XXP resin



## SENSORS

Water purification is important to ensure high efficiency and prevent poisoning of the fuel cell.

- ULTEM 2300 resin

## POWER CONDITIONING SYSTEM

The system regulating the voltage and current of the electrical output from the fuel cell stack includes **power inverters, converters, including DC/AC convertors**. SABIC Specialties business has a range of products that have the potential to be suitable for these applications

- NORYL GTX830 resin
  - ULTEM 2300 resin
  - LNP OFC08XXP resin
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## CONTACT INFORMATION

### AMERICAS

SABIC Americas

E [productinquiries@sabic.com](mailto:productinquiries@sabic.com)

T +1-800-845-0600

### ASIA PACIFIC

SABIC Shanghai

E [asiaproductinquiries@sabic.com](mailto:asiaproductinquiries@sabic.com)

T +86-21-2037-8118

### EUROPE

SABIC Bergen op Zoom

E [webinquiries@sabic.com](mailto:webinquiries@sabic.com)

T +31 164 292 911



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