

SAATI Hydrogen

High Precision PFAS-Free Fabrics & Components Made of PEEK & PPS for Hydrogen Applications

FOR THE MANY, BY THE FEW

—SAATI

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with
SAATI

SAATI S.p.A. Via Milano, 14-22070 Appiano Gentile (CO), Italy | www.saati.com

FOR
THE
MANY,
BY
THE
FEW

SAATI produces many products for all types of markets that find their way into the daily life of billions of people. We are leaders in both process and microfiltration, screen printing, and personal and vehicular multi-threat protection products.

Over Eighty Years of Innovative Action

SAATI is a multinational group with corporate headquarters that have been situated in northern Italy since 1935. Today SAATI is a leading force in the development, manufacturing and commercialization of high tech filter media & chemicals.

SAATI's passion and creativity are the foundation for an unsurpassed tradition of continuous innovation in the filtration markets. This endless pursuit is what drives SAATI's dedicated customer-centric R&D to functionalize products beyond simple filtration.

SAATI's wide range of synthetic textiles and fabricated parts in Polyester, Nylon, Polypropylene, PEEK and PPS are the ideal engineered solution for demanding microfiltration applications.

Through specialized processing and rigorous inspection, SAATI ensures consistent lot quality across tolerances, uniformity, strength, stability, and cleanliness for applications with pore sizes from 7 to 3,000 microns.

Perfecting the Art of Precision Woven Fabrics

With over 1,000 employees spread across multiple facilities worldwide, and a strong established track record in innovation and manufacturing excellence, SAATI's mission is to improve the life of every person every day – through working with both customers and partners to create a safer, healthier and cleaner world.

To guarantee product reliability, SAATI constantly runs tests and has all of the strictest and most up to date certifications that validate the consistency, performance, quality and characteristics of each item.

Specific SAATI fabrics are tested and certified in accordance with USP CLASS VI/ISO 10993 Regulations, and these fabrics are inspected and transformed into customized shapes in Class 10,000/ISO Class 7 Clean Rooms in accordance with UNI ISO 9001 regulations.



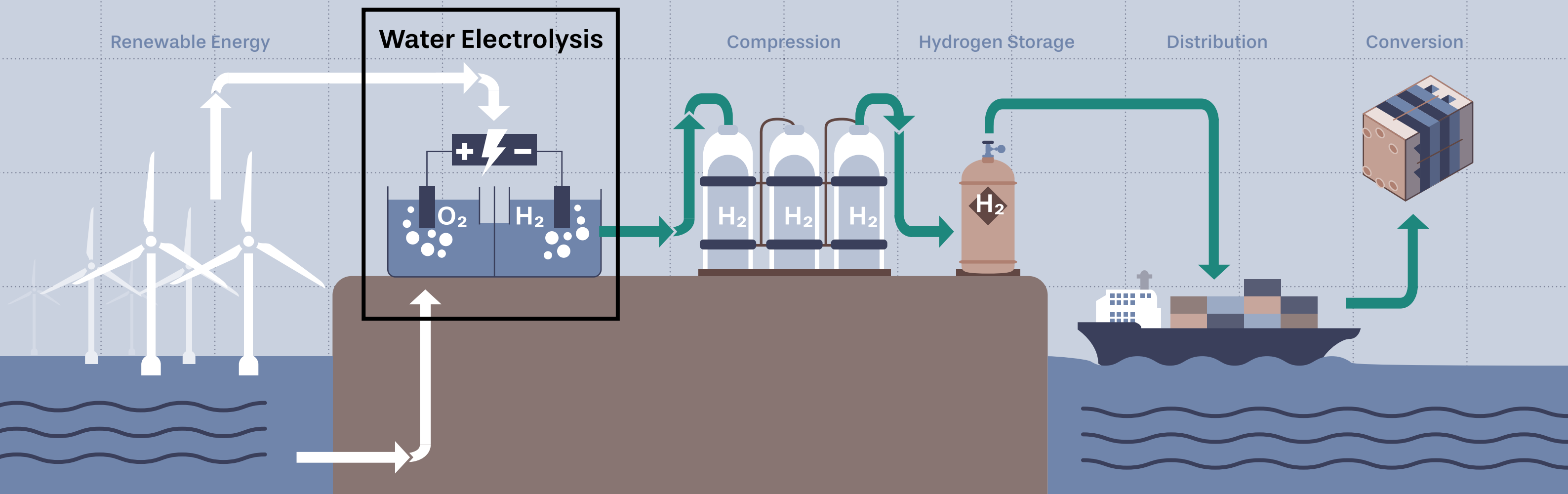
Customer Driven Innovation

Thanks to a direct presence in many countries, it is easy for customers to reach out, wherever they are located, and the response is always prompt. SAATI staff has a high level of technical expertise and dedication, and is always aiming to find the best solution for the customer's requirements.

SAATI sales representatives and engineers understand their customers' applications, working closely with staff in both the production and R&D departments to offer the customized solutions that best meets their needs.

The quality of SAATI's products is backed by the dedication and expertise of SAATI's customer service. Thanks to offices, warehouses, storage and fabrication facilities throughout the world, SAATI provides strong local support, expert responses to customer inquiries, strong engineering capability, technical support and fast delivery around the world.

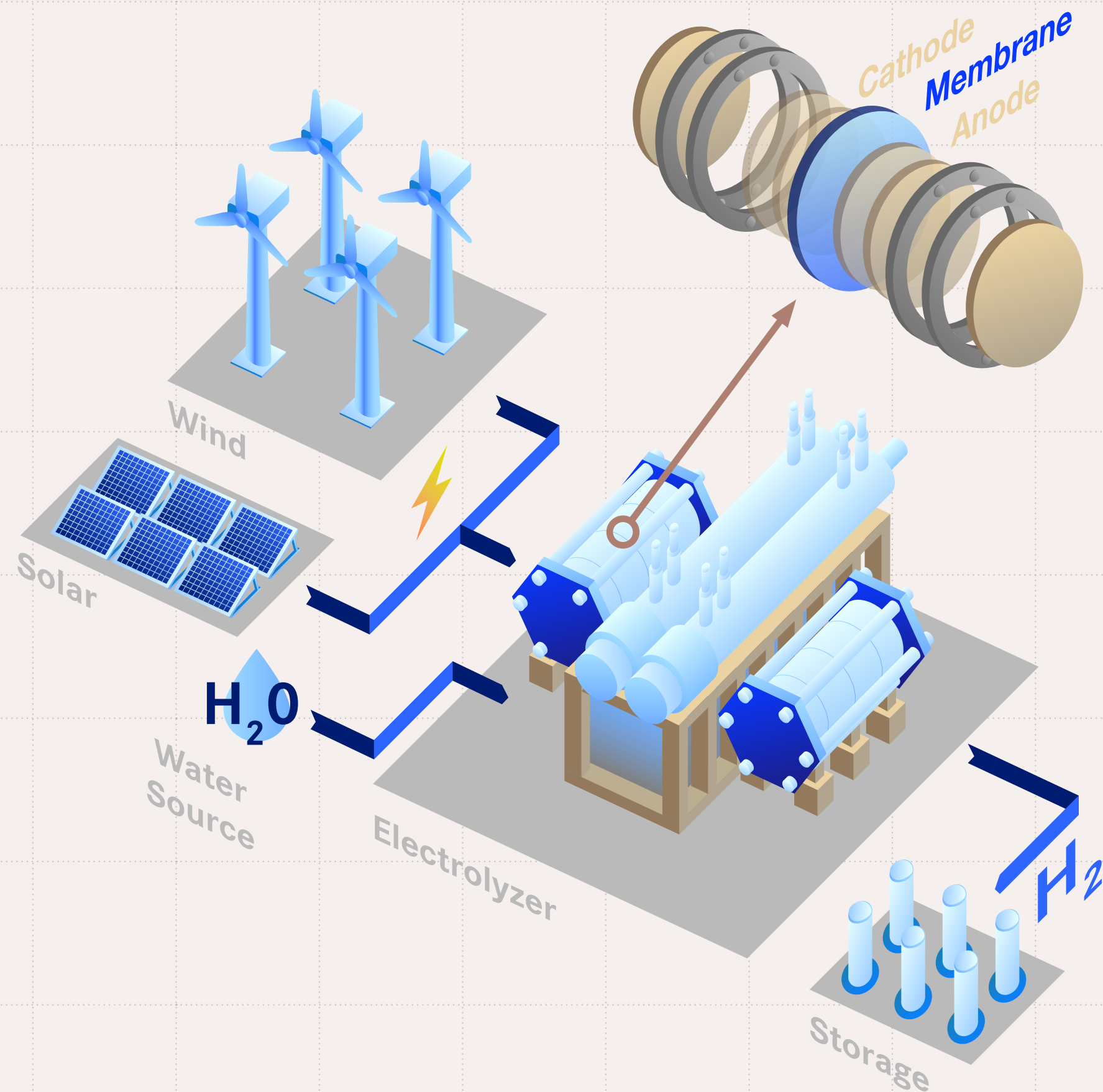
SAATI in the Hydrogen Value Chain



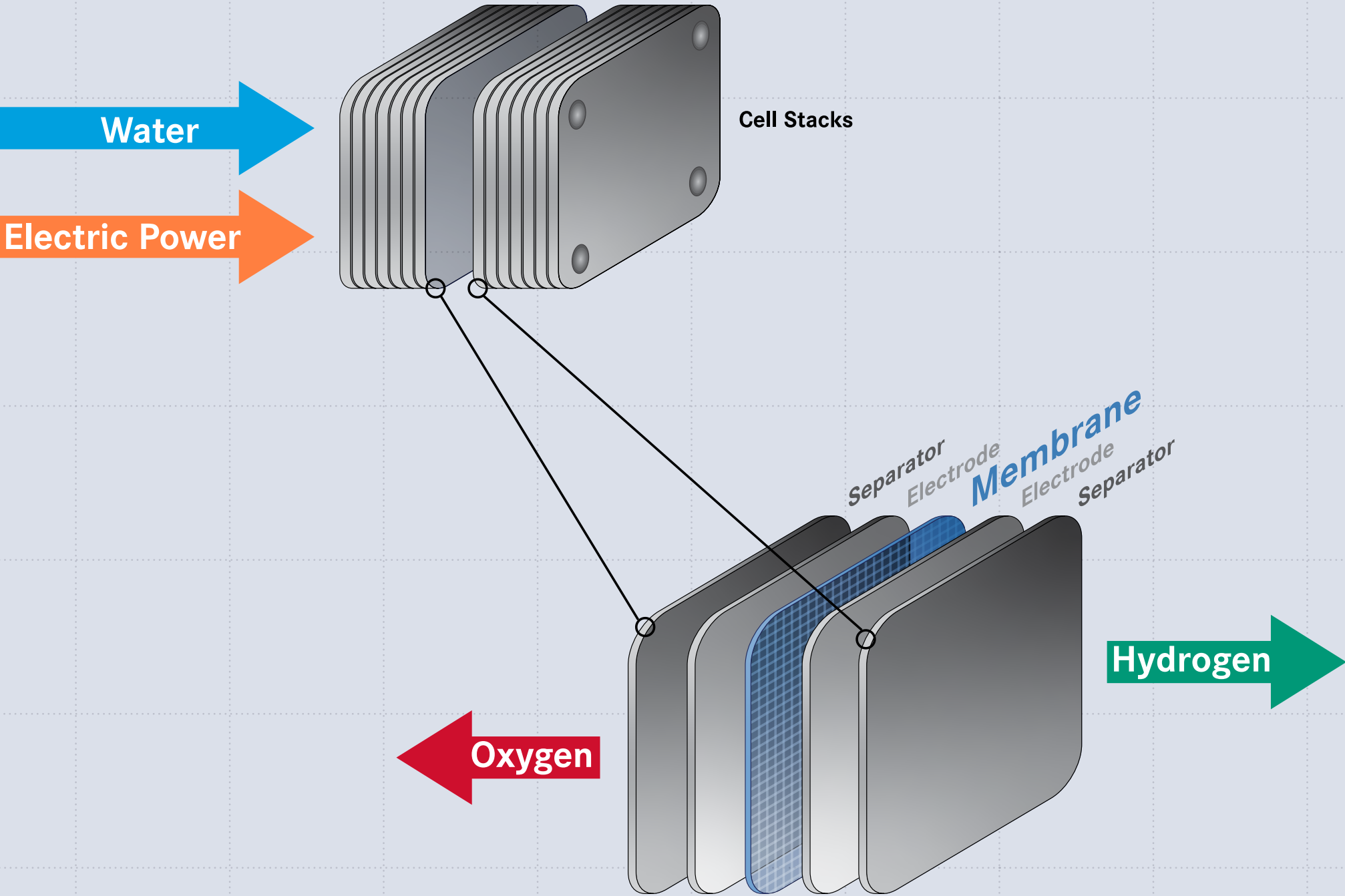
Our Focus

PFAS-Free Components for
the Generation of Hydrogen
From Water and Energy

- Alkaline Water Electrolyser
- PEM/AEM Water Electrolyser

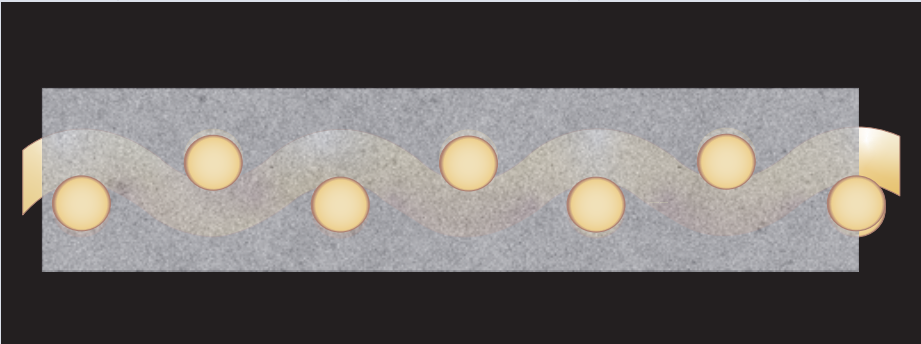


Inside the Application

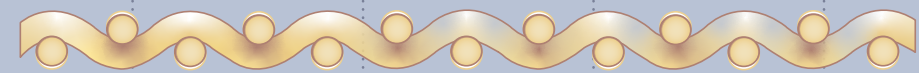
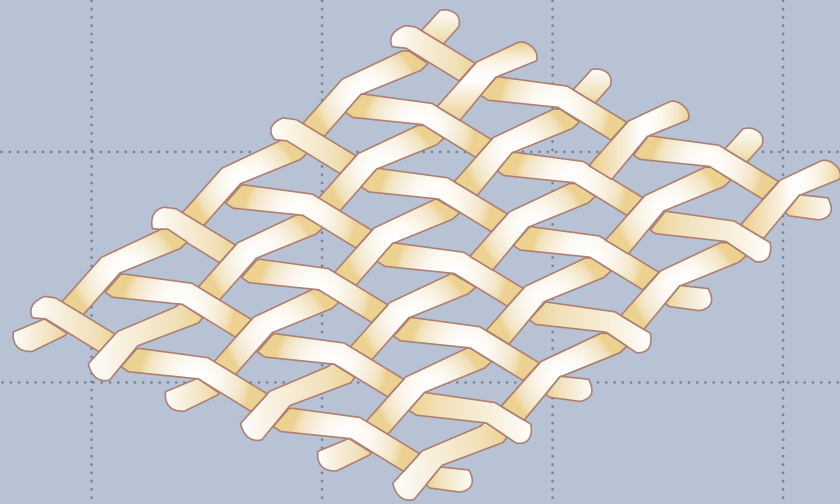


Membrane Reinforcement

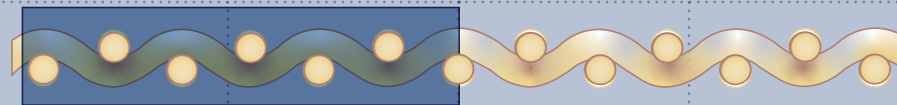
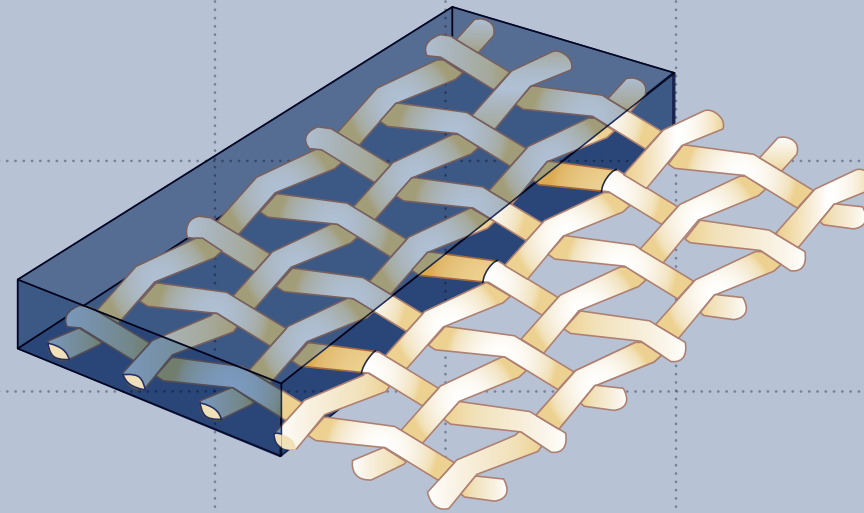
Membranes require a mechanical reinforcement to withstand the necessary high pressure. SAATI offers solutions in PEEK & PPS monofilament woven meshes that can fulfill this function.



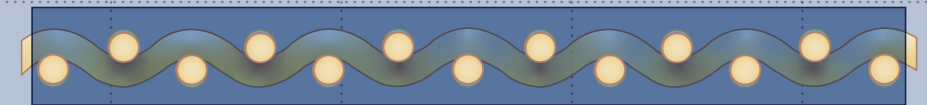
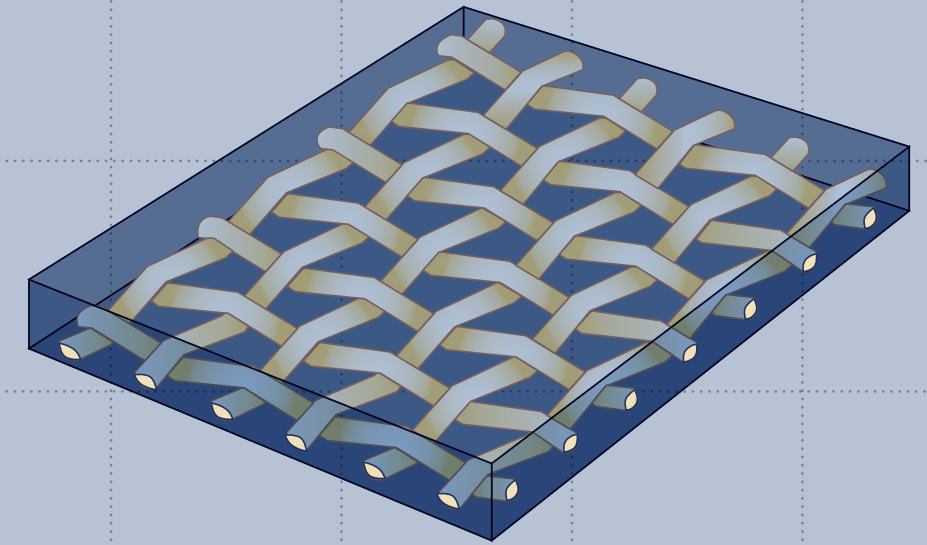
Technical Fabrics in Energy Systems



SAATI Monofilament woven fabric



Membrane Manufacturing

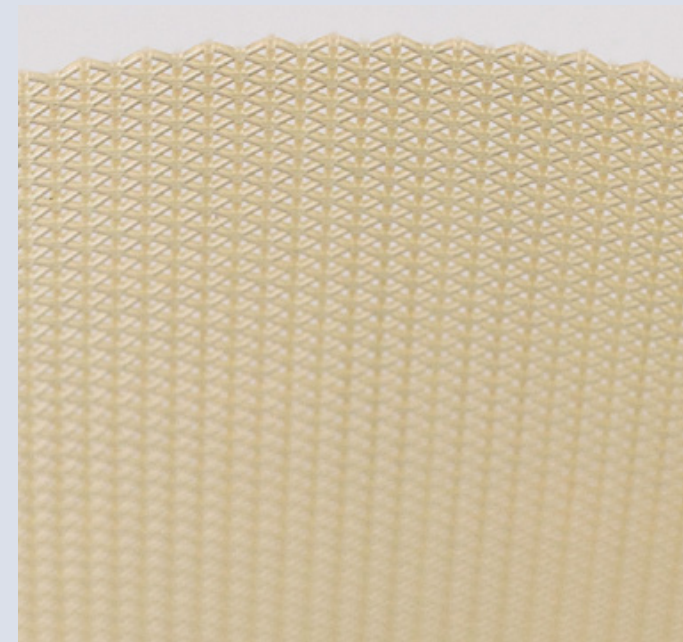
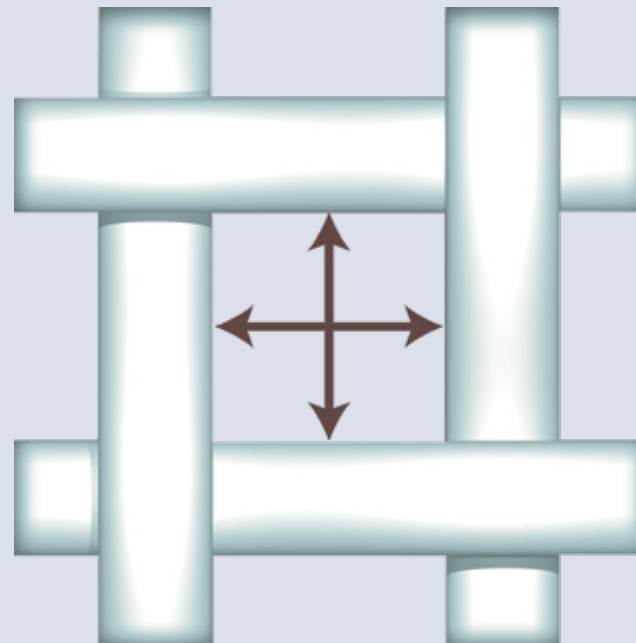


Reinforced Membrane

- SAATI's woven meshes play a vital role in energy conversion and storage systems
- They find application in electrolyser stacks, serving as feed channel spacers or as mechanical reinforcement within the membrane
- The woven fabrics act as support in thin film composite membranes, enhancing their properties through casting, lamination, or coating

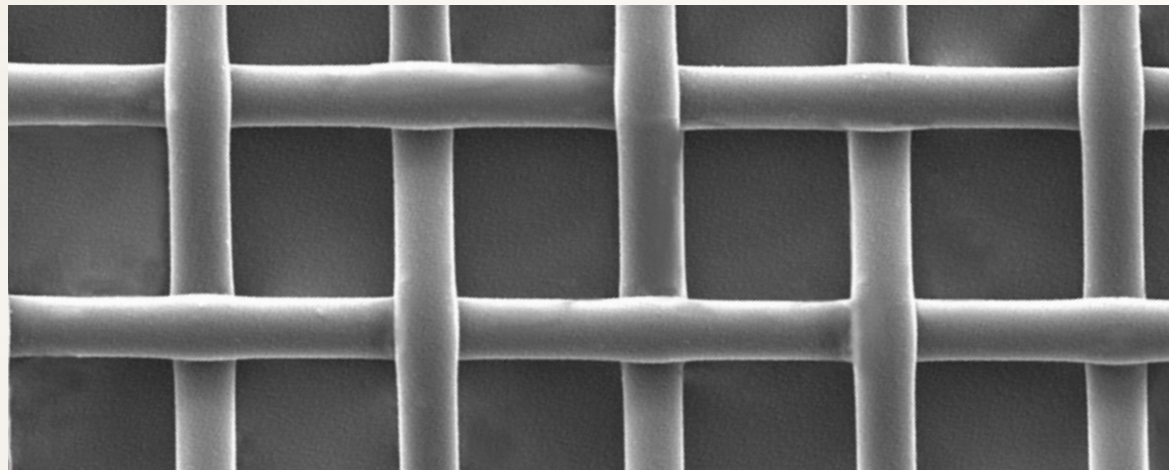
Precision in Weaving and Mechanical Stability

- SAATI differentiates itself by weaving precise monofilaments, resulting in fabrics with accurate mesh openings and **surface planarity**
- This precision is ideal for membrane preparation: a careful yarn selection produces fabrics with high open area and uniform thickness
- The tailored open area can enhance membrane transport properties when used as **reinforcement**
- Despite high porosity, SAATI's fabrics exhibit high **mechanical resistance** due to the use of exclusive high tenacity monofilaments
- The manufacturing process, involving weaving and thermosetting, ensures **stability** of thread interlacing, providing resilience in both warp and weft directions



Tailored Solutions for Challenging Environments

- SAATI addresses challenges in high-temperature environments by offering fabrics in advanced polymers like **PPS** (Polyphenylene Sulfide) and **PEEK** (Polyether Ether Ketone)
- These materials withstand high temperatures and demonstrate excellent chemical resistance in harsh electrolysis environments

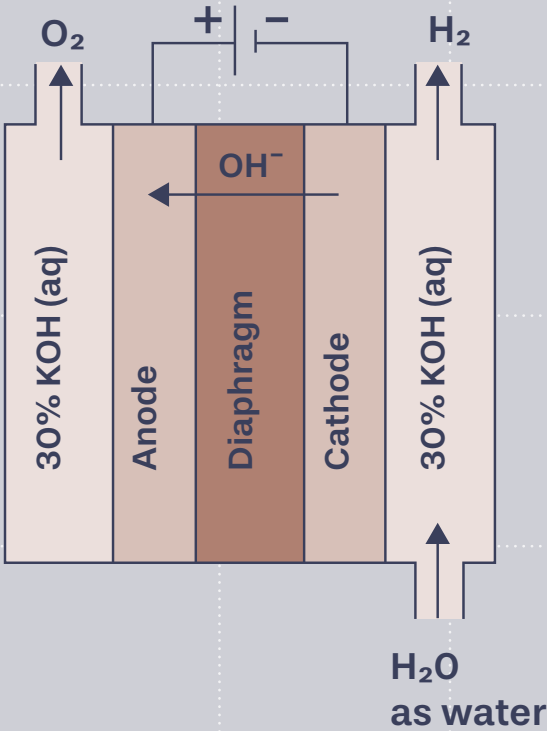


Our Products

- SAATI pioneers the hydrogen generation market with advanced PPS and PEEK mesh solutions
- SAATI is actively researching and developing new mesh technologies to meet the evolving demands for reduced thickness in this market

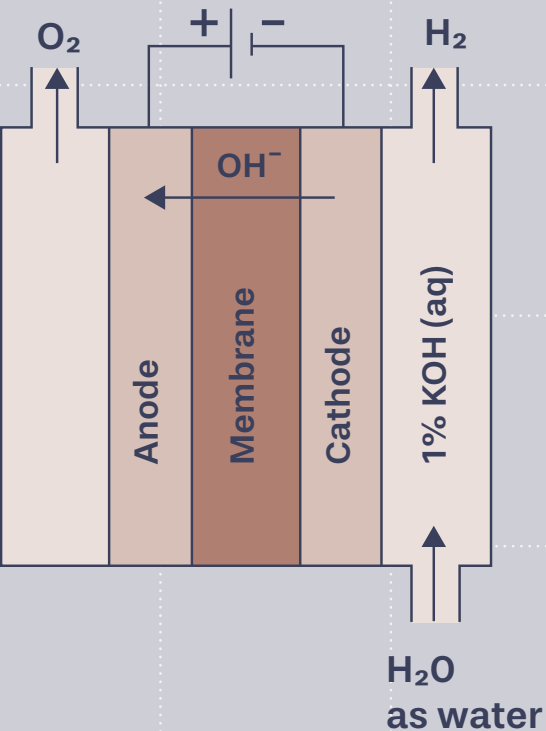
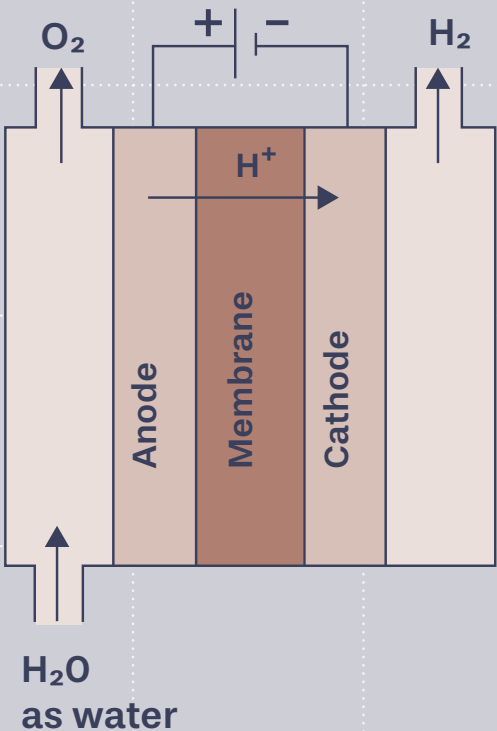
Alkaline Water Electrolyser

- SAATIfil PPS 145/50 – 100 µm thickness



PEM/AEM Water Electrolyser

- SAATIfil PEEK 105/55 – 65 µm thickness
- SAATIfil PEEK 195/75 – 65 µm thickness
- SAATIfil PEEK 220/60 – 105 µm thickness



Fabricated Components

Ribbons

SAATI motion fabrics can be economically slit using heat or, if a tighter tolerance and improved edge quality are needed, the fabrics can be ultrasonically slit.

Production Technology involved: Heat, Ultrasonics.

Tubes - Cut to Length

For all applications requiring molded cylindrical filters, SAATI offers fabrics tubes and rectangles with two open ends, cold or laser cut to length.

Many applications can accept the quality of a cold cut tube in view of its economic advantage.

On the contrary, if the component must have one end sealed and one end open, SAATI is able to combine the two technologies in the same process and supply tubes with one ultrasonically sealed end.

Ultrasonic technology is also applied to the realization of rectangle filters.

Production technology involved: Cold (Die-Cut), Heat, Ultrasonic.

Continuous Tubes

Two layers of filter media are simultaneously slit with heated blades to form a continuous tube.

Ultrasonically welded tubular ribbons, although similar in construction to heat slit items, can be produced in a wide range of sizes, including very small ones.

Two or more narrow layers can be attached using ultrasonic slitting, a fine filtration media can be supported or protected with a coarser one.

Production Technology involved: Heat, Ultrasonics.

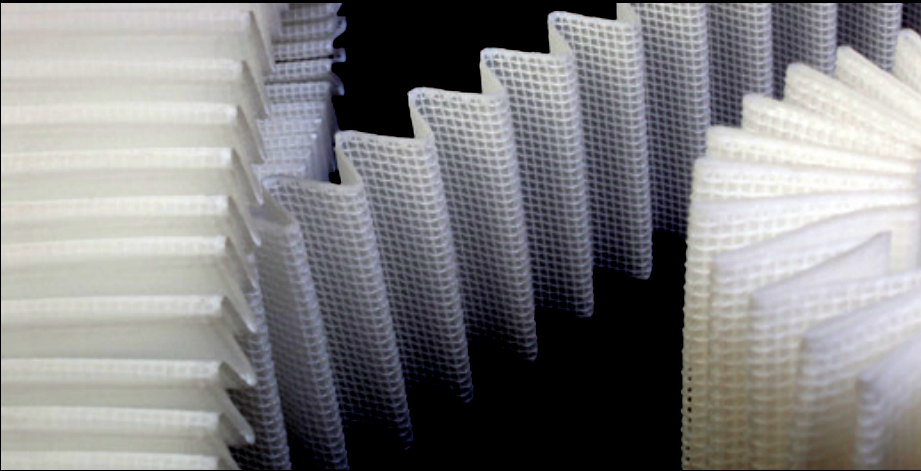


SAATI not only designs and produces precision woven fabrics but has the ability to engineer them into finished or partly finished products. Thanks to processing equipment and long experience, SAATI provides fabrics cut-to-fit, lot-to-lot consistency and high quality custom fabricated parts, in almost any requested shape.

Pleated Components

Mono or Multi-layer pleated components such as pack, ribbon and cartridges, can be manufactured for all applications requiring high filtration capacity in a narrow space.

Production technology involved: Heat And Ultrasonics.



Shapes

Cold or Laser cut parts can be provided in almost any shape or size with nominal dimensional quality.

One or more layers of fabrics can be ultrasonically cut or sealed into virtually any shape using a CNC plotter, assuring a faithful reproduction of design.

Production Technology involved: Cold (Die-Cut), Ultrasonics, Laser.



Sustainable Fabric Solutions

- The implementation of PFAS-free membrane reinforcements is critical in response to ECHA and other regulations aimed at reducing the use of per- and polyfluoroalkyl substances due to their effects on health and the environment
- Non-PTFE-based membrane reinforcements address the need for more sustainable solutions that comply with directives prohibiting the use of PFAS
- SAATI's focus on materials like PEEK and PPS aligns with sustainable guidelines, providing fluorine-free solutions
- Co-developed PEEK and PPS monofilaments enable fabric production with thicknesses below 100 µm, reducing environmental risks associated with (per)fluorinated chemicals



SAATI S.p.A. -**World Headquarters**

Via Milano 14
22070 Appiano Gentile Italy
Phone: +39 031 9711
info.IT@saati.com

SAATI France S.A.S

74 Route de Bapaume - Sailly-Saillisel
80360 - France
Phone: +33 3 22 85 77 00
saatifrance@saati.com

SAATI Serigrafia Iberica S.A.U.

P.I. "El Mijares" c/Industria 13 - 12550
Almazora (Castellon) - Spain
Phone: +34 964550688
info.ES@saati.com

SAATI Americas Corp.

201 Fairview Street Ext.- Fountain Inn
- South Carolina 29644 - USA
Phone: +1 (864) 601-8300
info.US@saati.com

SAATI Technical Fabric (Tianjin) CO. Ltd

Cross of Saida 2nd Branch Road, Saida Century
Avenue, Xiqing Ec.Dev. Area - Tianjin - China
Phone: +86 22 23960843
info.CN@saati.com

OOO SAATI Russia

Shvetsova Street, 23 house, 198095,
St. Petersburg, Russia
Phone: +79 062788343
info.RU@saati.com

SAATI Korea Ltd

SK Ventium 101-601 - Dangeong-dong, Gosan-ro
166, Gunpo-si, Gyeonggi-do, South Korea, Zip 15850
Phone: + 82 31 429 9337
info.KR@saati.com

SAATI**Deutschland GmbH**

Ostring 22 - D-46348 Raesfeld - Germany
Phone: +49 2865 95800
info.DE@saati.com

SPT - Sales + Marketing GmbH

Kurpfalzring 100a - 69123 Heidelberg - Germany
Phone: +49 62 21 | 77 876-27 **info.DE@saati.com**

CST Colour Scanner Technology GmbH

Koenigsberger Str. 117 - 47809 Krefeld - Germany
Phone: +49-2151-1592260
office@c-s-t.de

SAATI Advanced Chemicals LLC

201 Fairview Street Ext.- Fountain Inn
- South Carolina 29644 - USA
Phone: +1 (218) 628-2217
info@ikonics.com

WuXi TianYi Precision Fabrics Co., Ltd.

No. 28, Xigang West Road, Donghutang,
Donggang Town, Xishan District, Wuxi City - China
Phone: +86 510-88791064
info.CN@saati.com

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