

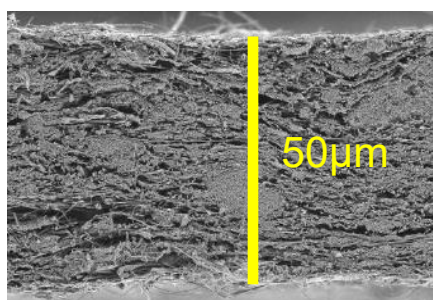
## NEWS RELEASE

### Teijin Develops Industry's Thinnest Level Gas-diffusion Layer for Smaller and More Functional Fuel Cells

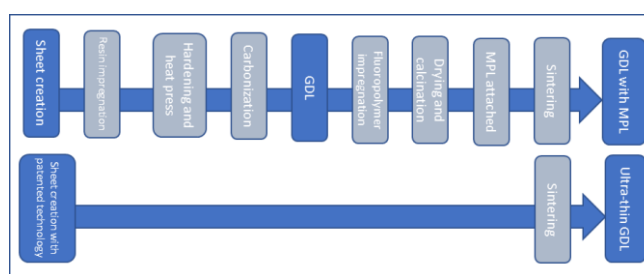
Tokyo, Japan, March 13, 2023 --- [Teijin Limited](#) announced today that it has developed a gas-diffusion layer (GDL) with a thickness of just 50 micrometers, the industry's thinnest level, by combining the company's ultra-fine fibrous carbon and para-aramid fiber using proprietary papermaking technology. Teijin expects its new GDL to contribute to the realization of smaller, more functional and lower cost fuel cells, the demand for which is expanding.

The GDL is a component used inside a fuel cell to supply hydrogen and oxygen, collect electrons generated by the chemical reaction of the electrodes, and drain water generated in the process.

The GDL's microporous structure incorporates Teijin's *PotenCia*<sup>®</sup> fine carbon fiber and *Twaron*<sup>®</sup> para-aramid fiber, which are combined in a manufacturing process that has been sped up by deploying proprietary paper-making technology. *PotenCia*<sup>®</sup> enables the new GDL to achieve excellent conductivity without damaging the catalyst layer inside the fuel cell while *Twaron*<sup>®</sup> contributes to high durability and water repellency. As a result, a conventional microporous layer (MPL) is not required, allowing the new GDL to be slimmed down to 50 micrometers, which is less than half the thickness of a conventional GDL. The new GDL is also expected to reduce production costs by shortening the manufacturing process as well as reducing the number of raw materials required.



Cross section of Teijin's new GDL



Manufacturing conventional GDL (above) and new GDL

Teijin is now verifying the GDL's gas diffusion and thermal conductivity, both indispensable for high performance, and also its contribution to reduced environmental impact. Concurrently, Teijin plans to develop new materials that could use the GDL, such as electrode films, in partnership with other companies that share Teijin's vision for achieving smaller and more functional fuel cells.

Teijin leveraged its extensive experience with fiber-processing technology to develop *PotenCia*<sup>®</sup>, an ultrafine fibrous carbon featuring long fibers and high crystallinity. To take advantage of the carbon's thermal conductivity and other special properties, Teijin

focused on the possibility to realizing an extra-thin GDL for fuel cells. GDLs usually comprise a conductive fiber sheet made of durable carbon, which is combined with a water-repellent MPL that prevents the accumulation of water but increases the GDL's thickness, thereby lowering the fuel cell's power performance while adding to the manufacturing cost.

Going forward, Teijin expects to strengthen its development of high-performance materials and solutions for advanced fuel cell products under the company's long-term vision of becoming a company that supports the society of the future.

### **About the Teijin Group**

Teijin (TSE: 3401) is a technology-driven global group offering advanced solutions in the fields of environmental value; safety, security and disaster mitigation; and demographic change and increased health consciousness. Originally established as Japan's first rayon manufacturer in 1918, Teijin has evolved into a unique enterprise encompassing three core business domains: high-performance materials including aramid, carbon fibers and composites, and also resin and plastic processing, films, polyester fibers and products converting; healthcare including pharmaceuticals and home healthcare equipment for bone/joint, respiratory and cardiovascular/metabolic diseases, nursing care and pre-symptomatic healthcare; and IT including B2B solutions for medical, corporate and public systems as well as packaged software and B2C online services for digital entertainment. Deeply committed to its stakeholders, as expressed in the brand statement "Human Chemistry, Human Solutions," Teijin aims to be a company that supports the society of the future. The group comprises some 170 companies and employs some 20,000 people across 20 countries worldwide. Teijin posted consolidated sales of JPY 926.1 billion (USD 7.2 billion) and total assets of JPY 1,207.6 billion (USD 9.4 billion) in the fiscal year that ended on March 31, 2022.

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