Steinhagen, August 9th, 2023

**Functionalization of surfaces with Openair-Plasma - for powerful and robust fuel cells**

World market leader Plasmatreat shows innovative pretreatment method for the first time at hy-fcell 2023 in Stuttgart, Germany

**Plasmatreat GmbH will be exhibiting for the first time at the hy-fcell International Expo and Conference on 13-14 September in Stuttgart - hall 4, booth D51. The world leader in atmospheric plasma technology will be demonstrating to trade visitors from the international hydrogen and fuel cell industry how innovative plasma surface treatment can be used to improve the manufacture of fuel cells, resulting in more efficient and robust end products.**

When hy-fcell 2023 opens its doors in September, the trade will be able to gain a comprehensive insight into the technological progress in the field of hydrogen and fuel cells. At the booth of the high-tech company Plasmatreat from Steinhagen, North Rhine-Westphalia, Germany, visitors can experience surface treatment with atmospheric pressure plasma (Openair-Plasma) using metal bipolar plates as an example. The effect of the plasma on the substrate surface will be demonstrated live. This fine cleaning of the material cleans it down to the pores and prepares it optimally for subsequent processes. For example, the use of Openair-Plasma improves the adhesion of the sealing material or adhesive between the bipolar plates, speeding up the production process. Openair-Plasma also expands the range of adhesives that can be used. This can lead to significant cost reductions in the fuel cell assembly process. Interested parties can see the success of plasma surface treatment for themselves on site.

**Compact Plasma Treatment Unit (PTU) for Openair-Plasma and PlasmaPlus**

In addition, Plasmatreat will be demonstrating at hy-fcell trade show how robotic plasma treatment of various fuel cell parts can be carried out both selectively and over large areas. The fully automated Plasma Treatment Unit PTU1212 will be available at the show. On a footprint of just 120 x 120 cm, the unit contains everything required for a plasma pretreatment process - from the generator to the robotic unit, plasma nozzles and control technology to the Plasma Control Unit (PCU), in which various quality assurance modules and control units are installed. Visitors will see how the surface is first cleaned in the cell using a plasma nozzle and then a nanocoating is applied to the surface using a special plasma nozzle from the PlasmaPlus technology range. This coating provides a long-term hydrophilic effect. This long-term hydrophilicity is an important property of the bipolar plates: It determines the efficiency of the fuel cell. If the hydrophilicity decreases over time, the overall efficiency of the fuel cell will decrease. By activating and coating with PlasmaPlus, however, long-term hydrophilicity is realized and the production of long-lasting and efficient fuel cells is possible.

**Future-proof solution - optimized fuel cell production**

Lukas Buske, member of the Plasmatreat management team and responsible for the battery market segment, emphasizes: "The various plasma applications, e.g., activation, cleaning and coating, that we will be showcasing at hy-fcell 2023 help to further improve and increase the performance of fuel cells. They help manufacturers to improve their product, make it more environmentally friendly, reduce their carbon footprint and achieve additional safety for the entire system. With our innovative Openair-Plasma pretreatment process, we are contributing to the production of robust and high-performance fuel cells - this has already generated a lot of interest in the industry and reinforces our intention to set new standards in this important segment.

Fuel cells are seen as having an important role to play in meeting the challenges of climate change, as they are known as a green technology.

Plasmatreat will be exhibiting at the hy-fcell International Expo and Conference on 13-14 September in Stuttgart: Hall 4, Booth D51.

More information is available at: [www.plasmatreat.com](http://www.plasmatreat.com)

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***Info box:***

**How Openair-Plasma and PlasmaPlus optimize industrial processes.**

When plasma with its high energy level comes into contact with materials, it changes the surface properties, for example from hydrophobic to hydrophilic. Plasma technology requires only compressed air and electricity for operation. Fine cleaning with Openair-Plasma gently and reliably removes dust, release agents, additives, plasticizers and hydrocarbons from surfaces. Especially with non-polar plastics, plasma treatment achieves surface activation. It supports the increase of surface energy by introducing hydroxyl groups and thus improves adhesion in subsequent processes such as bonding, printing, painting and sealing. Plasmatreat's PlasmaPlus technology can also be used to create targeted functionalized surfaces with defined properties by applying (depositing) nanocoatings, e.g. as an additional adhesion promoter layer.

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**About Plasmatreat**

Plasmatreat is an international leader in the development and manufacture of atmospheric plasma systems for the pretreatment of substrate surfaces.

Whether plastic, metal, glass or paper – the industrial use of plasma technology modifies the properties of the surface in favor of the process requirements.

Openair-Plasma® technology is used in automated and continuous manufacturing processes in almost every industrial sector. Examples include the automotive, electronics, transportation, packaging, consumer goods and textile industry, but the technology, cost and environmental advantages of the plasma technology are used in medical technology and in the renewable energy sector as well.

The Plasmatreat Group has technology centers in Germany, USA, Canada, China, and Japan. With its worldwide sales and service network, the company is represented in more than 30 countries by subsidiaries and sales partners.

More information is available at: [www.plasmatreat.com](http://www.plasmatreat.com)

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**Images:**



Fine cleaning of bipolar plates for durable and robust fuel cells with Openair-Plasma technology. (Copyright: Plasmatreat GmbH)