Steinhagen, September 10th, 2024

**Openair-Plasma: Improving the adhesion of plastic surfaces - live at Fakuma 2024:**

Plasmatreat shows environmentally friendly and efficient surface treatment of (recycled) plastic to improve subsequent processes

**Atmospheric-pressure plasma technology has already established itself as a game-changer for surface treatment in industrial manufacturing processes, supporting the subsequent processing of plastics. The technology enables the targeted modification of surface properties in order to prepare them perfectly for the requirements of subsequent processes such as bonding, printing, painting, sealing and coating. Plasmatreat GmbH, headquartered in Steinhagen, Germany, the world's leading supplier of equipment and systems in this field, will be demonstrating the benefits of this high-performance and environmentally friendly technology for all types of plastic components live at Fakuma 2024 at Stand 1210 in Hall A1. Together with partners such as Glaub Automation & Engineering GmbH, specialists in automation and industrial software services, and DJM B.V., provider of customized inkjet solutions, the company will present various systems and applications for plasma technology.**

**Openair-Plasma expands the range of plastics for material selection**

For technical, economic and environmental reasons, a manufacturer's decision to use a particular type of plastic can have a significant impact on the entire production process - especially with regard to the required adhesion properties, e.g. when applying adhesives or printing. This is where Openair-Plasma technology as a surface pretreatment method plays a decisive role in material selection and substitution. Through targeted surface modification of difficult-to-process plastics such as PP and PE, it significantly increases the adhesion of adhesives and paints in industrial applications. Originally incompatible plastics can often be joined together using plasma. This gives manufacturers the advantage of a wider choice of materials, allowing them to replace expensive engineering plastics with cheaper commodity plastics or recycled materials, for example.

In Friedrichshafen, visitors can see the various applications of plasma technology: the surface activation of plastic components is demonstrated in a PTU1212 (Plasma Treatment Unit). In this application, gentle activation takes place using an Openair-Plasma rotation nozzle. The second nozzle in the PTU is a special PlasmaPlus coating nozzle: by adding a silicon-like precursor to the plasma jet, nano-thin layers can be deposited on plastic surfaces without the use of solvent-based chemicals. Depending on the application, the surface is given different properties, such as an adhesion-promoting property.

**Live on stage: Openair-Plasma treatment and subsequent tape application**

How plasma treatment works and how the treatment affects plastic surfaces, e.g. when a tape is applied afterwards - all these questions and more will be answered at Plasmatreat in Hall A1 on Stand 1210. First of all, the plasma experts will be demonstrating on the live plasma table how test specimens made of various plastics, such as PP and PE, but also ABS, are activated. At the same time, visitors can have the technology and the effect of plasma surface treatment explained to them. They will then have the opportunity to apply a tape to test specimens on the automated demo system from partner Glaub Automation and prove the effectiveness of the treatment with Openair-Plasma using various tests. Glaub Automation offers various application heads, with which adhesive tapes (single-sided or double-sided adhesive, with liner or without), pads and foams can be applied fully automatically. Manufacturers appreciate the precision, repeatability and flexibility they get with Glaub Automation systems.

**Demonstrating injection molding in a different way: HoliPress 16 manual plastic injection molding machine**

Injection molding will not be neglected at Plasmatreat this year either: with the manual plastic injection molding machine HoliPress16 from partner HoliMaker, test specimens made of PP will be activated on one side with Openair-Plasma and then overmolded with TPU. Visitors will be able to see for themselves the adhesive strength of the TPU on the PP sample. HoliPress enables the production of high quality, functional prototypes and small series, requiring very small quantities of test material and standardized injection molds.

Openair-Plasma treatment can be used on both small and large injection molding machines, automated in the process or even inline in the injection molding process. In the in-mold plasma process, the plasma nozzle is integrated into the mold. Plasma flows through the channel via an activation channel and integrated exhaust, activating the molded part.

**2 in 1 - Plasma treatment and printing of PP live at Plasmatreat**

In cooperation with partner DJM, visitors to the Plasmatreat stand will be able to see how PP luggage tags are treated prior to printing. The entire surface of the plastic tags will be treated with Openair-Plasma and then printed with UV-curing ink. This rotary nozzle can be used to pre-treat small areas of the surface to increase the adhesion of inks, paints or adhesives. The system includes a generator that is compact and easy to use.

Interested parties can meet with Plasmatreat's experts to have their luggage tags printed and see for themselves the effectiveness and functionality of plasma treatment.

**New Plasma System for the EPDM Market**

Another system on stand 1210 in hall A1 will demonstrate the automated plasma treatment of EPDM door profiles. The system features a compact design. The door profiles are activated with several static nozzles and prepared for the subsequent application of VOC- and solvent-free adhesives and coatings in the form of flock or bonded coatings. Plasma technology also offers significant process advantages for this application. Thanks to the number of nozzles, the profile can be pre-treated selectively or over its entire surface. Conventional pretreatment methods such as mechanical brushing or primer application are completely replaced by this plasma system. This allows manufacturers to increase the level of automation and reproducibility of the pre-treatment process in production, while reducing their carbon footprint.

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

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**Images:**



The Plasma Treatment Unit (PTU) demonstrates surface activation and coating of plastic components. (Copyright: Plasmatreat GmbH)

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Plasma pretreatment enables structural bonding of adhesives as well as tapes for automotive applications. (Copyright: Plasmatreat GmbH)

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PlasmaPlus technology uses nano-thin coatings to add special properties to surfaces according to process requirements, such as an adhesion-promoting layer.

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