Steinhagen, Germany, February 18th, 2026

**Plasma as a Key Technology for Joining Window Profiles**

Innovative surface pretreatment for plastic, composite, and metal profiles—efficient, primer-free, and sustainable

**Plasmatreat GmbH, a specialist in atmospheric plasma technology for surface pretreatment, will be exhibiting for the first time at the 2026 Fensterbau Frontale trade fair in Nuremberg from March 24–27. At the leading international trade fair for windows, doors, and facades, Plasmatreat will demonstrate how Openair-Plasma can reliably solve key challenges in the manufacture and further processing of window profiles, from coating and painting to direct glazing.**

**Increasing Demands on Materials and Processes in Window Construction**

In today's window profile manufacturing, a wide variety of materials must be reliably bonded together. PVC, polypropylene, wood-plastic composites, and aluminum profiles each have specific requirements for surface pretreatment. At the same time, the variety of profile geometries is increasing. In addition to standard products, semi-finished products such as welded frames, complex insulation profiles, and facade elements are being manufactured more frequently. These products require a uniform surface finish for subsequent production steps, such as bonding, even in areas that are difficult to access. Manufacturers often face the challenge of combining high process reliability, rising quality standards, and economic efficiency.

**Limitations of Conventional Pretreatments**

Traditionally, wet chemical processes or primers have been used for pretreatment in profile manufacturing. Although these methods are well-established, they are facing increasing pressure. Emissions, solvents, drying times, and regulatory and legal requirements complicate their use and increase process costs. Additionally, primers are often material- and application-dependent, limiting reproducibility and flexibility in everyday production.

Therefore, alternatives that do not require chemicals, are inline-capable, and deliver stable adhesion values at high process speeds are sought, e.g., for coating, regardless of material or geometry.

**Openair-Plasma: Inline Pretreatment Without Chemicals**

Plasmatreat's Openair-Plasma technology meets these requirements. This atmospheric plasma pretreatment cleans and activates surfaces using a combination of compressed air and electrical energy. It reliably removes organic contaminants, such as additives or release agents, while simultaneously increasing surface energy to improve wettability. This ensures that films, paints, and adhesives will adhere permanently, even to low-energy substrates, such as PVC or polypropylene.

Compared to primer treatment, the plasma process is dry, solvent-free, and requires no additional logistics. Plasma treatment is local and selective, and it can be flexibly integrated into existing extrusion and processing lines.

**Proven in Key Profile Manufacturing Applications**

In window manufacturing, Openair-Plasma is used for profile coating, painting plastic and metal profiles, and manufacturing spacer profiles, among other applications. Plasma pretreatment enables secure, automated bonding with 1K PU adhesives in direct glazing, for example. Activation occurs immediately before the adhesive is applied, ensuring consistent high quality.

Plasma pretreatment delivers reproducible results and meets the requirements of the values specified in the RAL quality assurance standard when using suitable adhesives; these values are measured directly and after thermolysis and hydrolysis tests. Values comparable to those achieved with conventional primer processes are attained here, with significantly reduced process costs and a positive impact on the carbon footprint.

**Economical, sustainable, and future-proof – live at Fensterbau Frontale**

Since Openair-Plasma does not require chemicals, there is no need for storage, emissions, or disposal of consumables. This reduces costs, simplifies processes, and improves the environmental balance. Existing production lines can usually be retrofitted with little effort.

With its first appearance at Fensterbau Frontale, Plasmatreat is establishing itself as a technology partner for the window and facade industry, demonstrating how quality, efficiency, and sustainability can be combined in profile manufacturing.

Visitors can speak with plasma experts at booth 150 in hall 3 and observe Openair-Plasma technology and plastic treatment in action. The company is bringing various plastics to Nuremberg that will be activated onsite using a plasma system. The plasma treatment and increase in surface energy of the plastic will also be demonstrated live. Visitors can therefore see for themselves how plasma treatment works and how effective it is.

For more information, please visit: [www.plasmatreat.com](http://www.plasmatreat.com)

**Please find Images and Image Captions on the last page of this document.**

***Infobox:***

**Optimizing Industrial Processes with Plasmatreat's Plasma Technology**

When plasma comes into contact with materials, it acts on the top layer of the surface. This removes contaminants and alters the surface chemistry. These changes increase surface energy, reduce the contact angle, and improve wettability. These changes create stable conditions for subsequent processes, such as bonding, painting, printing, sealing, or coating. Plasmatreat offers a technology portfolio tailored to process environments and component geometries.

Openair-Plasma® operates at atmospheric pressure using jets and typically requires compressed air. This technology enables the selective, inline-compatible cleaning and activation of surfaces in open manufacturing processes. Additionally, HydroPlasma® uses water to eliminate organic and inorganic contaminants, and the REDOX®-Tool specifically removes oxide layers from metallic surfaces.

Aurora Plasma is used in a vacuum chamber. This creates a defined process space in which the treatment is applied evenly across the entire surface. Low-pressure plasma is ideal for uniformly treating complex 3D geometries and enables etching and microstructuring processes.

PlasmaPlus® can be used to apply ultra-thin, functional nanocoatings in both processes, giving surfaces defined chemical and physical properties. Typical applications include adhesion-promoting, conformal, and crevice corrosion protection coatings.

For more information, visit [www.plasmatreat.com](http://www.plasmatreat.com)

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**About Plasmatreat**

Plasmatreat is a global leader in developing and manufacturing plasma systems for surface treatment. The company offers a comprehensive technology portfolio for the targeted cleaning and activation of surfaces with Openair-Plasma® and Aurora-Plasma, thereby reliably stabilizing them for subsequent processes.

Openair-Plasma® operates at atmospheric pressure, while Aurora-Plasma operates at low pressure. Additionally, PlasmaPlus® enables the functionalization of surfaces through defined nanocoatings. Thus, Plasmatreat supports manufacturers in reliably preparing surfaces for demanding subsequent processes, such as bonding, painting, printing, or sealing.

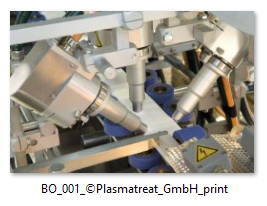
These solutions are used in a variety of manufacturing processes across numerous industries, including automotive, electronics, medical technology, aviation, packaging, consumer goods, and renewable energies. As a dry process, plasma technology reduces the need for solvent-based pretreatments and other environmentally harmful processes, positively influencing costs and environmental impact.

The Plasmatreat Group has technology centers in Germany, the United States, Canada, China, and Japan, and has a global sales and service network of subsidiaries and partners in over 30 countries.

For more information, visit [www.plasmatreat.com](http://www.plasmatreat.com)

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**Pictures and captions:**



In window construction, Openair-Plasma is used for cleaning and activation, including profile coating, painting plastic and metal profiles, and manufacturing spacer profiles. (Copyright: Plasmatreat GmbH)



Profiles made from a wide variety of materials, such as PVC, polypropylene, wood-plastic composites, or aluminum, have specific requirements for surface pretreatment, which can be met with Openair-Plasma. (Copyright: Plasmatreat GmbH)