Steinhagen,

**Modifying surfaces in a targeted manner, gaining new material properties and composites:**

Plasma technology solves numerous material issues

**Plasma makes it possible: Plasma technology is a sought-after tool in almost all branches of research and industry to make processes more efficient and profitable - or to make them possible in the first place. Plasmatreat GmbH, a leading developer and manufacturer of atmospheric plasma technologies and systems, offers effective solutions for numerous material issues with its plasma applications: Plasma can be used to specifically change surfaces in order to process previously incompatible materials together and enable completely new material composites.**

Switching to a new or recycled material, or changing the additives used for a material, can affect an entire process and, for example, cause the required adhesion between different materials to no longer exist. Plasma applications help to improve the bonding of different materials as required. A classic field of application in industry is the change from an engineering plastic to a less expensive standard plastic in order to save costs.

**Plasma applications: Changed properties, better adhesion**

Plasmatreat GmbH has developed various solutions for surface treatment: Fine cleaning with Openair-Plasma gently and safely removes release agents and additives from surfaces. Plasma activation increases the surface energy and enables or strengthens the subsequent adhesion of adhesives and coatings. The special PlasmaPlus process uses its nanocoating to create functionalized surfaces with specific properties, such as an anti-corrosion coating or an adhesion promoter layer. Innovative control systems ensure process control and reproducibility.

**Improved haptics, appearance and bonding**

Whether replacing an expensive engineering plastic with less expensive material or using materials that are difficult to machine - Plasmatreat opens up completely new, revolutionary possibilities for users and develops individual, customer-specific solutions. Thanks to Openair-Plasma, a manufacturer of white goods (tumble dryers) is now using a base module made of low-cost polypropylene (PP). Openair-Plasma technology enables reliable bonding between the floor module and foamed soft component made of polyurethane (PUR). Similarly, Openair-Plasma ensures reliable and economical processes in the automotive sector for sealing headlights and in medical technology for manufacturing dialysis and oxygenator housings. In medical technology, the spot-applicable, inline-capable Openair-Plasma technology enables the use of adjusting wheels for inhalation devices made of polyoxymethylene (POM), a plastic that is well-suited but normally difficult to print. In current projects, Plasmatreat is researching, among other things, the use of the PlasmaPlus nanocoating in medicine for improved osseointegration of implants made of high-end plastics. "Plasma applications offer an inexhaustible field of application. They enable material connections that make production in numerous industries safer, more reliable, more cost-effective, simpler and more environmentally friendly. Numerous companies approach us with unresolved material issues. In very many cases, we find a feasible solution," says Erhard Krampe, head of the Plasmatreat Academy at Plasmatreat.

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

***Info box:***

**How plasma technology optimizes industrial processes**

When plasma with its high energy level comes into contact with materials, it changes the surface properties, e.g. from hydrophobic to hydrophilic. Fine cleaning of metal and glass, for example, with Openair-Plasma from Plasmatreat gently and safely removes dust, grease, release agents and additives from surfaces. In the case of plastics, in addition to cleaning, an increase in surface energy is brought about by so-called activation through the introduction of hydroxyl groups into the plastic surface. In both cases, an optimized wettability of the substrate surface can be achieved and the adhesion ability significantly increased. In this way, long-term stable adhesion of adhesives and coatings is achieved. With Plasmatreat's PlasmaPlus technology, the application (deposition) of nanocoatings can additionally produce specifically functionalized surfaces with defined properties, e.g. an adhesion promoter layer.

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**About Plasmatreat**

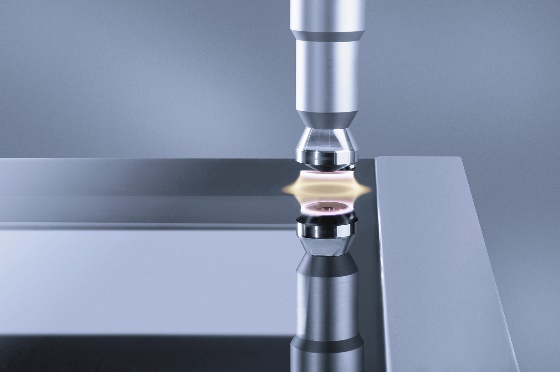
Plasmatreat is an international leader in the development and manufacture of atmospheric plasma systems for the pretreatment of substrate surfaces. Whether plastic, metal, glass or paper - the industrial use of plasma technology modifies the properties of the surface in favor of the process requirements.

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.

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**Image:**



A rotary nozzle is used to pre-treat larger surfaces, such as an oven door, with plasma before plastic retaining rails are bonded into the oven door. Treatment with plasma supports the durability of the product. (Copyright Plasmatreat GmbH)