Steinhagen, April 3rd, 2025

**Sustainability in the Plastics Industry**

Plasma technology as the key to greener processes

**In times of increasing global environmental responsibility, plasma technology is becoming more and more the focus of the plastics industry. Plasmatreat GmbH, the global market leader for atmospheric pressure plasma, is setting new standards in plastics processing with its innovative developments Openair-Plasma and PlasmaPlus**.

Openair-Plasma (atmospheric pressure plasma) developed by Plasmatreat can be used to change the surface properties of plastics. The activation that occurs when the plasma jet strikes the surface optimizes wettability and significantly increases adhesion. This results in long-term stable adhesion of adhesives, paints, varnishes, liquid or solid sealants. PlasmaPlus, another process developed by Plasmatreat, also makes it possible to coat plastics with a nanocoating that improves adhesive adhesion while eliminating the need for environmentally harmful chemicals such as primers.

**More efficient processes, greater resource conservation**

With its beneficial properties, plasma technology plays a key role in implementing the three basic principles of sustainability - reduce, reuse, recycle - in the plastics industry:

* **Reduce:** By using plasma technology, plastics production can be made more resource efficient, as plasma treatment increases the compatibility of plastics. Energy-intensive, expensive materials can be replaced by cheaper and more resource-efficient alternatives, such as recycled plastics.
* **Reuse:** The life of plastic products is significantly extended through the use of plasma. Products can be used and reused for longer periods of time due to the improved adhesion and resistance achieved through plasma surface modification.
* **Recycling:** A key benefit is the improved processability of recycled plastics. Plasma pretreatment makes these plastics more usable, allowing them to be recycled and reducing waste.

Plasma technology also ensures more environmentally friendly production processes. Openair-Plasma treatment requires only compressed air and electricity to operate, is solvent-free and reduces the need for environmentally harmful chemicals. This not only conserves resources, but also reduces CO₂ emissions and improves the environmental performance of many industrial processes.

**Plasma - paving the way for greater sustainability and a circular economy**

Practical examples from Plasmatreat show how the innovative technology is contributing to a more sustainable plastics industry. For example, one customer uses Openair-Plasma to bond truck tarpaulins, saving 2,200 liters of solvent per year. In the production of headlights, a major automotive manufacturer has saved 65 million kWh of energy and 3,100 tons of CO₂ by switching to simpler and more energy-efficient plastics. A Plasmatreat project with injection molding machine manufacturer Arburg shows how plasma technology simplifies the processing of recycled plastics: Recycled polypropylene drinking cups are prepared for UV digital printing using Openair-Plasma pretreatment. Brilliant and durable printing is achieved without the use of additional chemicals.

"Plasma technology plays a key role in helping the plastics industry implement more sustainable production processes and significantly reduce its environmental impact. The efficient use of recycled plastics and the avoidance of environmentally harmful chemicals make it a key technology for the plastics industry of the future," emphasizes Joachim Schüßler, Sales Manager Germany at Plasmatreat GmbH.

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

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***Info Box Openair-Plasma®:***

**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, e.g. from hydrophobic to hydrophilic. Plasma technology requires only compressed air and electricity. Ultra-fine cleaning with Openair-Plasma® gently and reliably removes dust, release agents, additives, plasticizers and hydrocarbons from surfaces. Plasma treatment activates the surface of non-polar plastics in particular. It helps to increase the surface energy by introducing hydroxyl groups, thus improving adhesion in subsequent processes such as bonding, printing, painting and sealing. Even oxide layers on metal surfaces can be reliably removed inline during the production process using plasma technology. With Plasmatreat's PlasmaPlus® technology, the deposition of nanocoatings can also be used to create functionalized surfaces with defined properties, e.g. as an additional bonding layer.

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

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**About Plasmatreat**

Plasmatreat is a world leader in the development and manufacture of atmospheric plasma systems for the pretreatment of surfaces.

Whether plastic, metal, glass or paper, plasma technology is used to modify the properties of the surface to suit the process requirements.

Openair-Plasma® technology is used in automated and continuous production processes in almost all industries. Examples include the automotive, electronics, transportation, packaging, consumer goods and textile industries, but the technological, cost and environmental benefits of plasma technology are also being exploited in the medical technology and renewable energy sectors.

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

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

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**Images:**



Openair-Plasma treatment of a recycled plastic cup. Plasma pretreatment makes recycled plastics more usable, allowing them to be recycled and reducing waste. (Copyright: Plasmatreat GmbH)