Press release

Plastics and Rubber Machinery

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“Plasma technology makes plastics more valuable”

Interview on the way to K 2025 with Lukas Buske, Managing Director of Plasmatreat

Mr. Buske, to what extent does plasma technology contribute towards recognising plastic as a recyclable material?

Plastic is a versatile material and indispensable in many industries. However, many plastics are naturally water-repellent, i.e. hydrophobic, meaning that paints, varnishes or adhesives adhere poorly. Recycled plastics in particular, which often consist of material mixtures, are difficult to process. By pre-treating surfaces with Openair-Plasma, for example, it is also possible to achieve a stable and long-term adhesion of polyurethane coatings on polypropylene, i.e. PP. Recycled plastics also gain in quality through this pre-treatment method, and can partially replace more expensive high-performance plastics, enabling new material combinations. In this way, plasma technology makes plastics more valuable, increasing their recyclability, reducing CO_2 emissions, and making an important contribution to the circular economy and resource conservation.

How does it help to reduce the CO_2 footprint?

Plasma technology offers an environmentally friendly alternative to conventional pre-treatment methods. In contrast to processes such as the application of solvent-based primers, flame treatment, etching or sandblasting, our Openair-Plasma technology does not require any chemical additives, expensive gases or water-intensive processes. In most cases, only compressed air and electricity are required for plasma generation. This not only eliminates environmentally harmful emissions, but also the consumption of resources such as water or solvents. In addition, the treatment is carried out as a dry, precise and automated inline process, reducing handling times as well as storage and transport costs. This saves additional energy and reduces CO_2 emissions along the entire production chain.

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What new markets can you open up?

In general, new markets are opening up for us wherever materials are reliably bonded, printed, coated or sealed. Our R&D department works closely with sales and market managers to identify new applications at an early stage and develop innovative solutions. Promising markets include leisure and wearables. Plasma improves adhesion to modern materials, for example in smartwatches, fitness wristbands or sports and outdoor equipment. There is also great potential in battery technology: plasma treatment can be used to optimise the surfaces of battery cells, which increases the performance and service life of energy storage devices. In the field of electronics and front-end production, plasma can improve the adhesion of display bonding, protective coatings or sensitive micro-components, among other things.

Which products and innovations are required?

This is an exciting question, as we have recently launched several innovative processes and products on the market. In the area of process technology, we introduced HydroPlasma at the beginning of the year. This special technology removes both organic and inorganic contaminants – fully automatically and inline. One example is the removal of fingerprints, which is a major challenge in high-tech industries such as display and optics production. In addition, very exciting new activation effects can be recognised. We are also setting new standards in fibre-reinforced plastics, 3D printing and material hybrids. Plasma treatment optimises the adhesion between different materials: for example when joining plastics with metals. This renders more stable and durable hybrid components – a decisive advantage for lightweight construction applications and structural bonding, for example.

Why do many users continue to rely on solvent-based coatings despite the advantages of the plasma process?

Many customers may have heard of plasma but are unfamiliar with the technology and its benefits. In other cases, there is a certain amount of scepticism about switching to alternative processes. At the same time however, there is a growing interest in more sustainable options, especially from companies attempting to reduce their CO_2 footprint and replace chemical pre-treatments with plasma. To raise awareness of plasma technology, we are focusing on knowledge transfer and cooperation. Our Plasmatreat Academy offers webinars and training courses to provide users with practical information. We also work closely with research institutes, universities and colleges. In this way, we are already incorporating the technology into the training of specialists and promoting its use in future industrial applications. We are convinced that, from a cost-of-ownership perspective, we have clear advantages.

How do you see the future of plastics?

Plastics remain indispensable in many industries. Their lightness, stability and versatility make them essential, but sustainability and recycling are becoming increasingly important. I therefore envisage the future of plastics as being developed further in specific areas: more recycling, intelligent material combinations, optimised surface functionalisation or even material substitution will be crucial. One interesting example comes from electromobility: here we are observing a trend towards replacing aluminium trays with fibre-reinforced

plastic trays. We will also be able to see concepts for this at the coming K trade fair. Our goal at Plasmatreat is to use innovative technologies to enable more sustainable and efficient plastics processing; thereby preserving plastics as a valuable raw material, while at the same time reducing the industry's ecological footprint.

Video statement by Lukas Buske: https://youtu.be/E4_NzXUd0sA

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Industry interviews on the way to the K:
It is impossible to imagine a world without plastic. And plastics are indispensable for mastering our future challenges. The plastics industry develops solutions so that a growing world population can live safely and prosperously. This important role as an enabler is expressed in the motto of K 2025: The Power of Plastics! Green - Smart - Responsible. Green, because plastics help to combat climate change and conserve resources. Smart, because digitalisation helps to increase efficiency. Responsible, because the focus is on people. To get in the mood for the industry meeting in October 2025, the VDMA is giving representatives of the plastics machinery industry and of all other stakeholders in the sector a chance to have their say in a series of interviews.

VDMA Plastics and Rubber Machinery
More than 200 companies are members of the trade association, covering over 90 per cent of industry’s production in Germany. Ten per cent of our member companies come from Austria, Switzerland and France. The German member companies account for a turnover of 7 billion euros in core machine construction and 10 billion euros including peripheral technology. In terms of value, one in four plastics machines manufactured worldwide comes from Germany; the export rate is 70 per cent. Chairman of the trade association is Ulrich Reifenhäuser, Managing Partner of Reifenhäuser GmbH & Co KG.