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Plasma enables UV metal printing

METPACK 2023: Innovative surface technology from Plasmatreat enables the switchover to digital printing with UV-curing systems

Technical limits overcome, more environmental friendliness achieved: Plasmatreat GmbH will demonstrate at METPACK 2023 in Hall 3 Booth 3C55 in close partnership with paint and coatings manufacturer Actega, and can manufacturer Brasilata, how the use of plasma technology is revolutionizing metal printing: The special technology for treating surfaces makes it possible to replace conventional solvent-based inks and varnishes by using digital printing with UV-curing systems. This not only protects the environment, but also makes processes more efficient.

The use of UV inks or coatings has many advantages for industrial processes: The fast curing saves time and also eliminates the use of ovens for the drying process. This results in significant energy savings compared to conventional curing systems. In contrast to solvent-based systems, the VOC values of UV-curing systems are significantly lower and thus have a positive impact on the environment. In addition, the lower space requirement, as well as faster production, has a major impact on production costs. However, the quality of printing UV inks, on metal, has so far been associated with limitations caused by inconsistent metal sources, variations in surface quality and lack of substrate cleanliness. This often resulted in insufficient adhesion of the ink to the metal surface, leading to high costs due to waste and poor quality.

Openair-Plasma - cleaned surfaces as a basis for UV inks

At METPACK 2023, Plasmatreat will be demonstrating how ultra-fine cleaning with Openair-Plasma solves this issue: It absolutely reliably removes impurities, e.g. undefined oxide or ultra-thin dust layers, as well as residual traces from the production process such as release agents and lubricants, cutting oils or drawing greases. This results in a pure metal surface where the existing surface energy in the substrate is restored. The high adhesion force that has now been created enables the surface to be fully and homogeneously wetted by UV inks or coatings, which now adhere optimally to the metal surface without the use of chemical adhesion promoters (primers) on the substrate. A plasma system is already implemented in the production process at can manufacturer Brasilata, with a correspondingly developed UV coating from Actega.

PlasmaPlus - further improved long-term adhesion

An enhanced effect can also be achieved with the PlasmaPlus nanocoating: To protect the printing on the metal from changing temperatures or other environmental influences, the ultra-thin PlasmaPlus PT-Print coating is applied to the surface immediately before printing, which also eliminates the need for chemical pretreatment or further priming of the substrate. The dry process allows immediate further processing and ensures long-lasting adhesion of the printing ink directly to the metal substrate.

Comprehensible demonstration on modern plasma system for flat materials

Visitors at the booth C33 in hall 3 at METPACK can experience this process live: A plasma system that pretreats flat substrates prior to printing with UV inks or coatings will be presented. This system has eight rotating nozzles and will treat materials such as metal sheets for can production, before printing or painting. With the rotating nozzles, a large-area of the metal surface is pretreated with plasma uniformly. Precisely matching the speed, the distance between the nozzle heads and the substrate, and the intensity of the plasma nozzle to the application in question is one of Plasmamatreat's core competencies. The innovative system for this patented process can be excellently integrated into existing lines.

"Plasma is a real gamechanger in the metal can industry. We are opening the way to a significantly more environmentally friendly process for printing and coating metal packaging - with highly efficient processes," emphasizes Christian Buske, CEO at Plasmamatreat.

Plasmamatreat at METPACK 2023 from May 2-6, 2023 in Hall 3, Booth C33.

For more information, please visit: www.plasmamatreat.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. In the most cases plasma technology requires 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. Plasmamatreat'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 Plasmamatreat

Plasmamatreat 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. Subsequent processes include bonding, painting, printing or gasketing.

Openair-Plasma® technology is used in automated and continuous manufacturing processes in almost every industrial sector. Examples include the printing, 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 Plasmamatreat 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.

For more information, please visit: www.plasmamatreat.com

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Images:



Surface treatment with Openair-Plasma enables full-surface and homogeneous wettability of the surface with UV inks or coatings, which now adhere optimally to the metal surface without the use of chemical adhesion promoters (primers) on the substrate.

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Press release



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