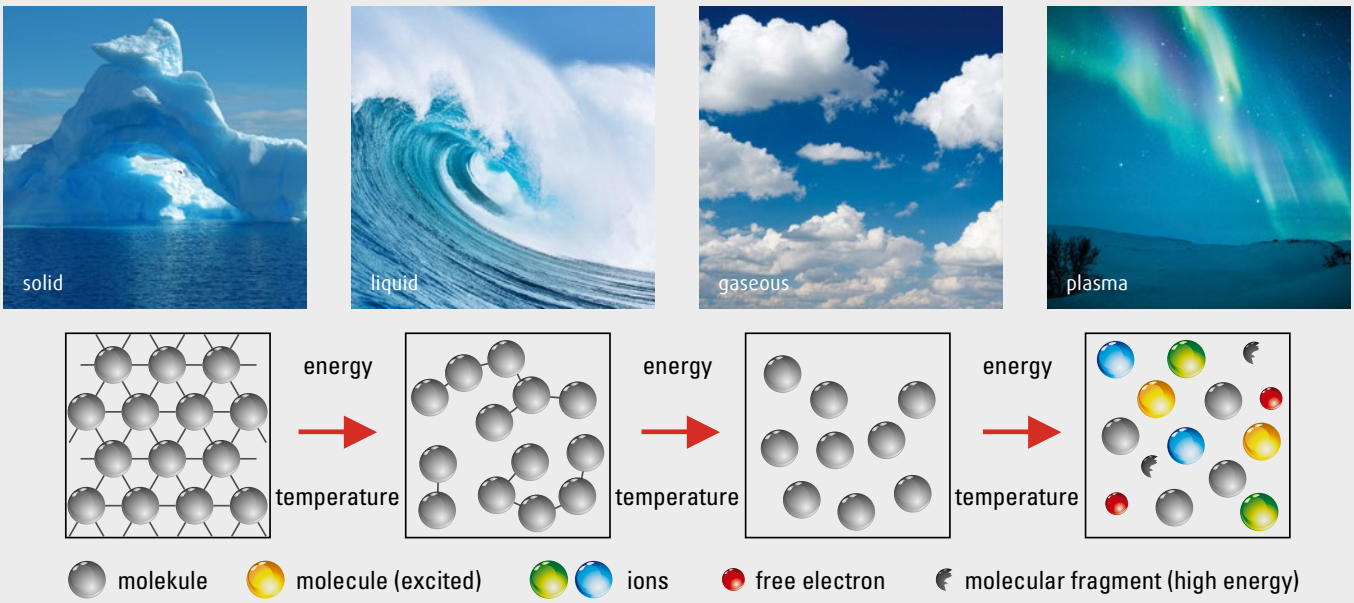


APPLICATION INFORMATION

Openair-Plasma® Systems

Plasma – the "fourth state of matter"

What is Openair-Plasma®?

Plasma is the name given to matter at a high, unstable energy level. Energy is input to matter via the solid, liquid and gaseous states. If additional energy can be pumped into gaseous matter by means of electric discharge, plasma is produced. In doing so electrons can leave their atomic shells and chemical bonds are broken. This results in the formation of free electrons, ions and fragments of molecules. This state, however, can scarcely be used at normal pressure on account of its instability. The jet system developed by Plasmatreat in 1995 made it possible to use this state on an industrial scale and hence to employ plasma inline.

Low-cost and dependable process

The process which can be monitored in accordance with DIN ISO 9000 is based on a jet principle. The systems operate at atmospheric pressure and with the aid of an electric arc ignited in the jet and the working gas, air, generate a plasma which flows onto the product to be treated.
It possesses particles that are sufficiently excited to initiate selective effects on the surface. Its intensity is so high that treatment speeds up to 100 m/min can be achieved. A particular feature is that the emergent plasma beam is electrically neutral which greatly extends and simplifies its range of applications. Typical rises in the temperature of plastic surfaces during treatment amount to < 20 °C.

Economical and environmentally friendly

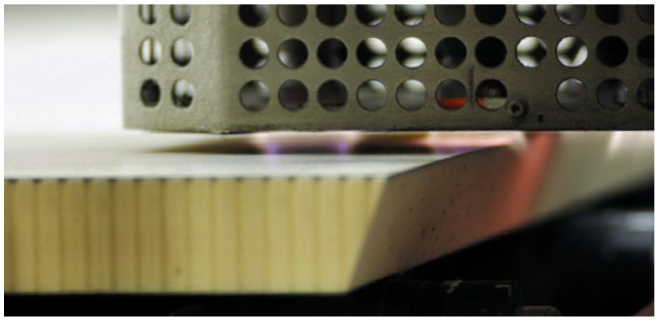
The jets are operated solely by air, if need be with a desired process gas also, and high voltage. Depending on the jet geometry the emergent plasma is effectively available over a working range up to 25 mm wide and at a treatment distance of 40 mm. Rotary plasma jets cover a treatment width of up to 100 mm. Without any use of chemicals and without substantial intervention in existing process workflows innovative and low-cost surface treatments are implemented in production and all this is done without any adverse effects on the environment.

Key technology

Due to its broad range of potential applications Openair-Plasma® technology is numbered among the key technologies in surface treatment. Use of the process greatly improves the level of quality of different products and product functionalities and in doing so a dependable process workflow is guaranteed.

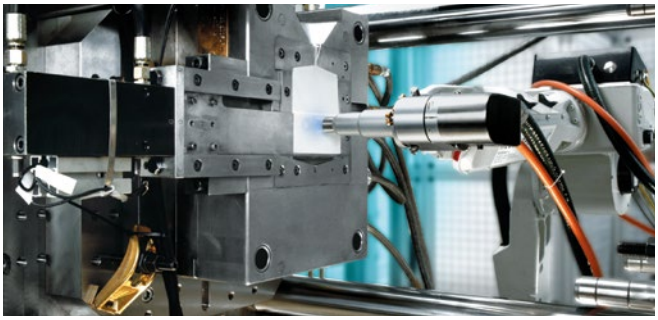
Applications made to measure:

Openair-Plasma® technology has been developed to meet the requirements of our customers. From a flexible laboratory system via robust, practically maintenance-free volume-production units through to complete systems controlled by microprocessors our systems are available to you in the most varied performance categories.

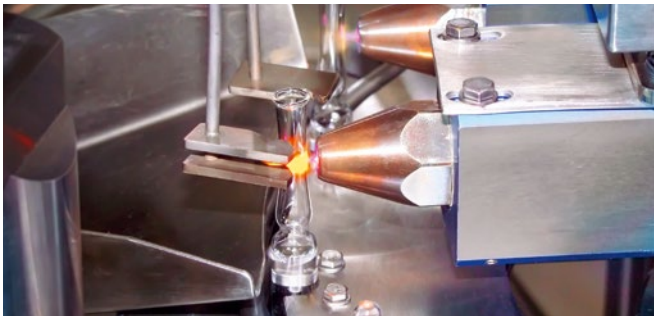


Large-area pretreatment of insulated side panels for the automotive industry

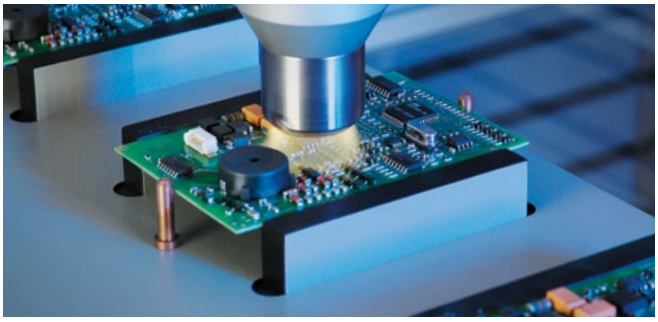
Pretreatment for the adhesive bonding of safety labels



Openair-Plasma® pretreatment in two-component injection moulding



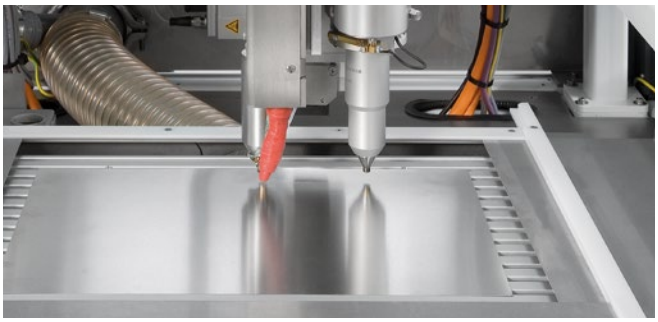
Heat sealing of glass ampoules for medical applications



Printed circuit board being treated by plasma

Gap-filling pretreatment of EPDM profiles

Installation for Openair-Plasma® coating



PlasmaPlus® in a Plasmatreatment Unit (PTU)

Pictures page 1: www.photocase.com
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