

# Gentle plasma

The pre-treatment of very sensitive materials is a huge challenge for many converters. The experts at SOFTAL recommend indirect plasma technology in these cases

The adhesion that can be attained through corona pre-treatment depends on the chosen corona dosage – the quotient of performance and web speed at a given working width. In practice, the process or the material usually determine the web speed.

Every converter who has to deal with especially sensitive materials or can only run very low web speeds due to the nature of the process has been confronted with the problem that performance can only be reduced to about a third of the maximal performance because a uniform discharging of the electrodes has to be maintained. This fact is due to the minimal performance density of the electrodes.

Lower performances with homogenous discharging at the same time can only be realised by pulsing the corona. In order to guarantee discharging on the entire surface, however, the performance during a single pulse remains relatively high. With very slow processes, the technically possible corona dosage will then quickly become so high that the energy input may lead to surface

damage or excess 'pre-treatment'. The occurrence of streamers, which cannot be avoided in normal corona processes, can cause additional damage to very sensitive materials. This phenomenon may appear very frequently, for example, at sensitive foams and optical films.

## Suited to printed electronics

Especially for such applications, Hamburg-based SOFTAL Corona & Plasma has developed its patented LinearPlasma. The term describes an indirect plasma pre-treatment method, which is technologically based on corona and enables the processing of substrates with widths up to 2m.

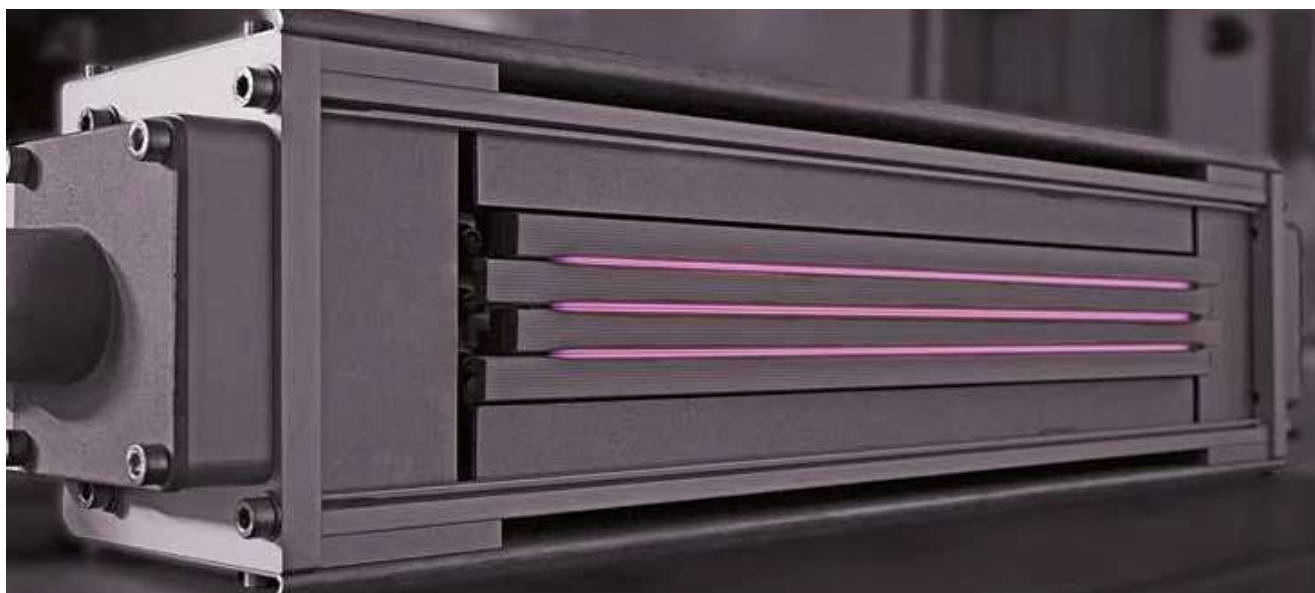
The LinearPlasma process does not bring about streamers on the product surface that are typical for corona pre-treatment. This means that LinearPlasma enables the treatment of especially sensitive surfaces, which may be damaged by streamers. Additionally, the usage of the innovative plasma process from SOFTAL enables the realisation of very low energy inputs onto the substrate.

Thanks to this indirect discharging technique, surfaces of very thick materials such as foams, plates and glasses can be treated. According to the manufacturer, discharging in bubbles or cavities does not take place. Thanks to this fact no ozone will emerge within porous materials.

A special challenge for plasma treatment is provided by printed electronics, which is increasingly embedded in state-of-the-art packaging and technical film composites.

Even if the electric circuits are inside the film and 'only' the upper protective layer is intended to be treated before printing, the electrical currents, which are caused by corona within the material, may destroy the fine conducting paths.

Especially for these purposes, the LinearPlasma process has been modified so that a potential-free pre-treatment is possible. This means that the surface of the material is not subjected to an electrical field and therefore conducting structures remain undamaged – no matter if they are applied on the surface or embedded into the material. ■



A LinearPlasma station from SOFTAL