

Plasma Technology - Limits and Opportunities in the Textile Finishing Industry

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Plasma technology as a physical-chemical process of surface modification becomes more and more important for the textile finishing industry. The reason for this is the fact that one hand the end use of textile fabrics in the field of technical applications demands functional effects to a very high extent. On the other hand the consumption of resources for industrial processes must be reduced. By the means of plasma-technology textile industry tries to cover function as well as sustainability and environmental friendly production.

The presentation will therefore inform about the latest research results of the Niederrhein University of Applied Sciences in the field of textile surface modification by a continuous di-electrical barrier discharge in combination with an aerosol spray application. The research focuses on the hydrophilic or antistatic finish of polypropylene, the pre-treatment of polyester for further coating and laminating processes as well as the hydrophobic and oleophobic finish.

The experiments are all carried out on an industrial scale corona-aerosol plant which is integrated in a full range continuous finishing line containing padding, coating, minimum spray application and drying as well as curing on a stenter frame. The quality and long term stability of the realised effects, process speed and consumption of resources will be looked at and compared with the standard finishing processes.

The presentation will oppose the limits of the plasma technology towards the tremendous opportunities to give a vision of future textile finishing technology

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