

Plasmatreat expands its R&D department

AT Plasmatreat's new microbiology lab at its head office in Steinhagen, Germany, researchers Cathrin Heißenberg, MSc biotechnology, and Daniel Haße, MSc biochemistry, are investigating options for using atmospheric pressure plasma to disinfect bacteria, spores, fungi and yeasts, focussing their attention on packaging materials for food and pharmaceutical products, and medical devices and instruments.

Harmful germs can be transferred to packaging via people, raw materials or air, to contaminate products. In industrial production facilities, even the tiniest amounts of contamination can cause significant problems, even leading to product spoilage. Plastic packaging, such as yoghurt pots, screw caps or drink bottles must therefore be disinfected before contact with the product to guarantee product quality, even for prolonged periods.

As the thermoplastics generally used to make this type of packaging are heat sensitive, it's often not possible to sterilise their surface using hot saturated steam or dry heat. Instead, chemical disinfectants (hydrogen peroxide or peracetic acid) are used. The storage and use of these aggressive and corrosive disinfectants is frequently problematic and residual

disinfectant in the product poses a potential risk to consumers.

With the aid of atmospheric pressure plasma, packaging materials can be sterilised quickly without using chemicals. 'In our microbiological plasma laboratory we work predominantly with dielectric barrier discharge (DBD), a process that primarily produces reactive oxygen species,' Cathrin explains. 'These species irreversibly damage cell membranes and other subcomponents within the microorganisms, for example by oxidising lipids,' she adds. One advantage of the DBD plasma process is its low temperature increase during processing so that even thermolabile materials can be treated at temperatures below 40°C.

In addition to its new research area of microbiology, research and development at Plasmatreat also encompasses physical principles, electronics development and process engineering. The department works closely with national and international research institutes and universities on joint research projects.

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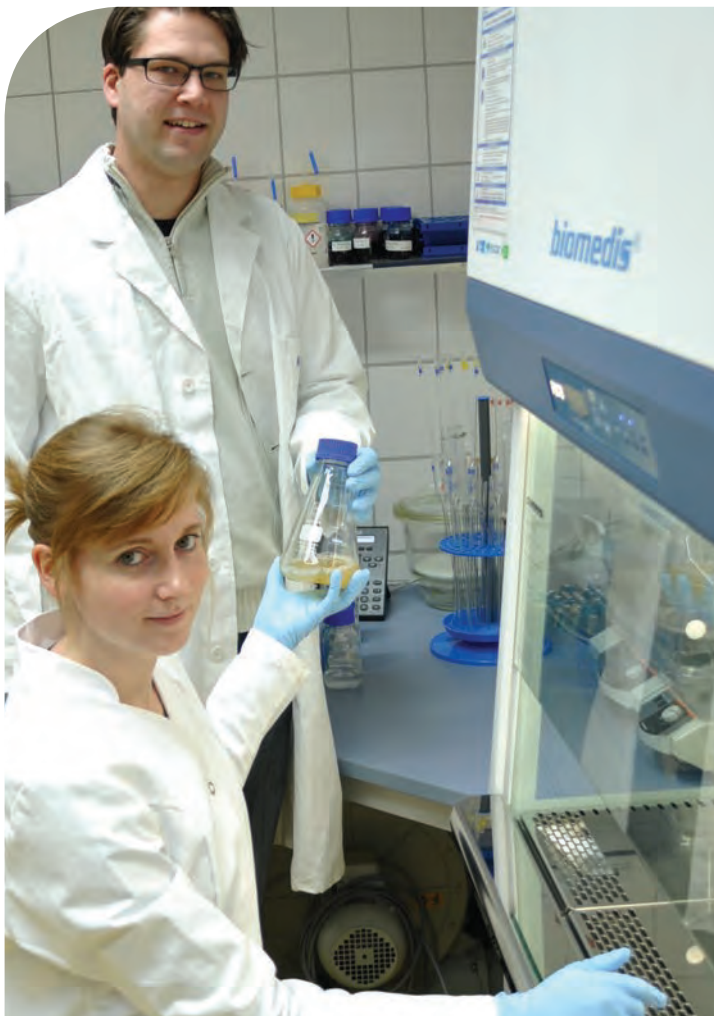
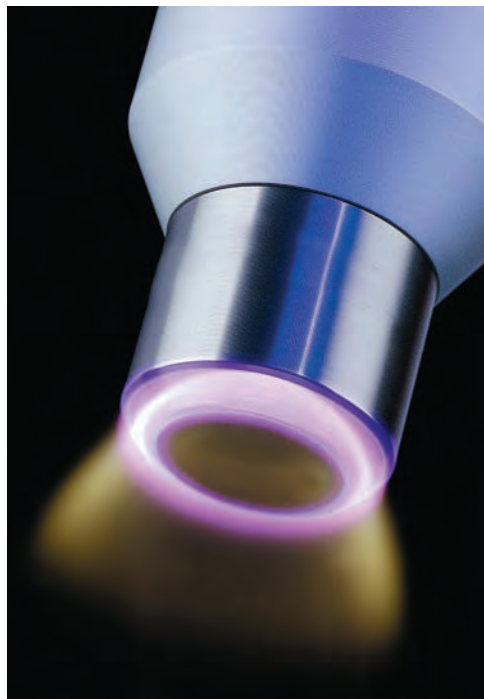


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↓ Plasmatreat researchers investigate the use of atmospheric plasma for disinfecting plastic packaging materials.

▲ With the aid of atmospheric pressure plasma, materials can be disinfected quickly without using chemicals.

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