

Barrier Corona Discharge Plasma under different humidity and temperature

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With non-thermal atmospheric plasma sources various medical applications have been investigated with growing interest. One reason is that such plasma sources can combine many advantages, e.g. low cost, simple design and easy handling. The other reason is that they have bactericidal and fungicidal properties. In our group we have developed a large area scalable plasma dispenser based on the Barrier Corona Discharge (BCD) technology with high bactericidal efficiency. It can be used for disinfection in private and public areas (e.g. in hospitals). For the device it is very important to have compatibility in various humidities and temperatures.

We examined the bactericidal property of our device with gram negative *Escherichia coli* and gram positive *Enterococcus mundtii* under different ambient conditions using an environmental chamber. The plasma was produced by a BCD electrode which consists of insulator plate sandwiched by a metal plate and a wire mesh. The plasma was driven by AC voltage of 15 kV_{pp} at 1 kHz between the metal plate and wire mesh. The bacteria inoculated on agar plates were treated for 15~30 seconds at a distance of 6 mm between the agar surface and the plasma electrode. The result showed that there was no statistical difference in bactericidal property for different humidities of 20~80 % and temperatures of 15~35 deg. Details will be presented at the conference.