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Decontamination of thermolabile medical goods in an industrial-grade setup: A parameter study EGMONT SEMMLER, BENJAMIN DENIS, SIMON STEVES, NIKITA BIBINOV, PETER AWAKOWICZ, Institute for Plasmatechnology, Ruhr-University Bochum, WENZEL NOVAK, Groninger & Co. GmbH — The decontamination of thermolabile pharmaceutical products is of growing interest in research and application. Available methods like toxics (ethylene oxide) or electron beam sterilization have either issues in handling and security or produce toxic remnants, which need to be taken care of in additional process steps. Plasma sterilization poses an alternative treatment with several advantages, especially for thermolabile medical goods. Therefore an industrial-grade process was developed in close cooperation with groninger & co. gmbh. Its application is the outer decontamination of syringe containing tubs before they are filled in an aseptic room. In order to maximize process performance, different parameter variations such as duty cycle, pulsing frequency, pressure and gas composition have been investigated with respect to plasma behavior and microbiological relevance. Therefore spatially resolved Langmuir probe measurements in combination with calibrated optical emission spectroscopy have been performed. Results clearly show an optimization regime both for chamber design as well as for process parameters.

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