Features of the sterilization by UV irradiation of low-pressure discharge plasma

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Résumé

The report is devoted to peculiarities of sterilization of items by UV radiation of the discharge plasma both in case of the items immersed into the discharge plasma (direct treatment), and in case of flowing afterglow plasma (remote treatment).

Report content

1. Microbiological methodology:
   - Types of survival curves. Vitalistics and mechanistics conceptions.
   - Difference of the plasma sterilization from classic (moist and dry heat) ones, influence of surface density of spores/microorganisms on the plasma sterilization process.
2. UV sterilization of the items immersed into the plasma:
   - The most efficient UV radiation, influence of the gas content on spectrum of UV radiation of the plasma.
   - Influence of UV radiation spectrum shape on the sterilization efficiency. Weighing curves.
3. Sterilization by UV radiation of flowing afterglow of the plasma:
   - N_2-O_2 plasma;
   - Ar, O_2 plasmas, influence of the gas impurities on UV sterilization efficiency.
4. Synergy effect of heat and UV photons.

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