

ELECTRON EXPRESS-STERILIZER “HYGEIA” ON THE BASE OF ATMOSPHERIC DISCHARGE WITH RUNAWAY ELECTRONS

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The “Electrodynamic Systems & Technologies”, LLC¹ has developed first-ever pre-production model of an electron sterilizer on the base of patented ADRE (Atmospheric Discharge with Runaway Electrons) technology. The electron sterilizer “HYGEIA” has the chamber volume of 5 liters. The “PROTEUS-III” high-voltage pulse generator is used to raise the voltage amplitude on a high-voltage electrode to 80 kV in 1 nanosecond at 500W average power of plasma. The sterilization period is about 10 - 20 seconds, usually. Such productivity in about 45 - 90 times exceeds the productivity of a standard 20 liters autoclave. The “HYGEIA” allows the express-sterilization of complicated and expensive tools (including from thermo-labile and hydro-labile materials) directly during a surgical operation, and also - the essential decreasing the sterilization cost of many tools and materials in polyclinics, hairdresser's, beauty salons, in housekeeping, etc. The results of ADRE-decontamination of various bacteria on different surfaces by means of “HYGEIA” are demonstrated in the report.

High efficiency of ADRE sterilization technology is confirmed by results of biological analyses performed by Tomsk Region bacteriological laboratory of the Sanitary-epidemiological Expertise Center of the Ministry of Public Health of Russian Federation.

The advantages of ADRE-sterilizers are, first of all - completely deactivation of bacteria, viruses and other microorganisms within seconds even on complex surfaces of solid states and also in liquids or gases.

The presented electron sterilization technology has a number of other essential advantages in comparison with most modern sterilization technologies are available now on the market (like peroxide pairs plasma sterilizers, etc.).

The pilot models of electron sterilizers for solid state surface decontamination on the conveyor, as well as express-sterilizers of liquid and air developed at the present time at the "EST", LLC are demonstrated in the report also.

1. www.edynamicst.com

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