

## **Spectral diagnostics of atmospheric-pressure argon plasma generated by a microwave plasma torch**

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Deactivation of harmful bacteria can be performed by applying chemical or physical factors. Many types of high-pressure discharges are used for bacterial decontamination. In our work we present the results of experimental study of formation of atmospheric-pressure argon plasma stream generated by a microwave plasma torches. Plasma in the torches is produced with the use of 2.45 GHz microwave supply with a power varying from 50 to 150W. Spectral diagnostics of different plasma torches under various regimes of work was made. It was performed with the use of method of optical emission spectroscopy for elemental analysis of the plasma torch. Calibration of the spectrometer was carried out on deuterium and halogen lamps. In the experiments we obtained a high resolution rovibrational spectrum of the OH around 308 nm, Ar and N<sub>2</sub> in the spectral range 320-850 nm. For diagnostics of intensities profile of spectral line we made a plasma torch with quartz windows, which allowed to measure them in the region of plasma generation. For argon line with the wavelength 811.5 nm, hydroxyl OH with the wavelength 308 nm and for nitrogen 420 nm we measured a profile distribution of intensity in the plasma torch in vertical section.

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