

Abstract Submitted
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UV Discharge Lamp on Alcohol Vapor SVETLANA AVTAEVA, Kyrgyz-Russian Slavic University, ANDRIJ HENERAL, Institute of Electron Physics — The non coherent sources of UV radiation based on safe and nontoxic gaseous mixtures have good aspects for different applications. The paper reports about experimental investigations of the high voltage capacitive discharge in alcohol vapor. The time-integrated emission spectra have been studied in the wavelength interval from 200 to 400 nm at alcohol vapor pressure of 1 Torr. In the spectra the most intensive bands were vibrational bands of the $CO(b \rightarrow a)$ transition with heads at 283.3 (0-0), 297.7 (0-1), 313.4 (0-2), 330.5 (0-3) and 349.3 nm (0-4). The (0-2) band of CO molecules superimposes with (0-0) and (1-1) vibrational bands of the $CH(C \rightarrow X)$ transition with Q -heads at 314.49 and 315.66 nm on the long wavelength side and with bands of OH radicals with intensity maximums at 308.1 and 309.2 nm ($A \rightarrow X$ transition) on the short wavelength side. No other radiating species were detected. The emitting surface area of the lamp is 220 cm², average output power of the UV radiation is 70 mW and the estimated efficiency is 0.2%. This source of UV radiation can be applied in photochemistry, in medicine, for disinfection of medical tools, in ecology and for purification and disinfection of water from different pathogenic microorganisms.

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