

## MICROWAVE GAS-DISCHARGE ULTRAVIOLET LAMP

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Microwave gas-discharge ultraviolet lamp (MW-UV-lamp) has been built up in the Plasma Physics Division of General Physics Institute of Russian Academy of Sciences (GPI).

Unusual method of microwave discharge excitation in a lamp bulb has been developed. This method based on a principle of "*truncated electrode of coaxial*" has been formulated previously (see [1]) allows excite microwave discharge in gases and gaseous mixtures over a wide range of pressures at a relatively low microwave power. Ordinary magnetrons used in modern domestic microwave ovens (wavelength near 12 cm, power about 600-1000W) have been utilized in a MW-UV-lamp that is now in operation. Principles of microwave energy input in an "open" lamp as well as a lamp introduced in water have been elaborated.

The main preferences of this construction are as following:

- Absence of electrodes that noticeably increases of UV-lamp life time;
- Simplicity and cheapness of water disinfection system based on the MW-UV-lamp application.

Preliminary microbiological researches have shown that the productivity of lamp regarding to the disinfection of microbially contaminated water (reduction of microbial content in  $\approx 10^3$  less than the initial one) is as low as:

$$\eta \cong 10^{-3} \text{ kW hour/liter}$$

For experimental investigation of spectral characteristics of MW-UV-lamp optical and chemical (actinometric) methods developed in GPI (see [2,3]) have been targeted for application. With help of these methods optimal buffer gas pressure for biologically active UV radiation has been determined.

## REFERENCES

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