

PHYSICAL PROPERTIES OF A SECONDARY  
DISCHARGE IN LOW-PRESSURE  
PLASMA—LIQUID SYSTEMS

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S u m m a r y

We investigate physical properties of a secondary discharge in two-phase plasma—liquid systems. The discharge is maintained by means of an additional source of a plasma flow based on a low-pressure discharge in liquid vapors. It is shown that the volt-ampere characteristics of the secondary discharge in such systems have a form typical of secondary gas discharges: in the case where the potential of liquid with respect to plasma is positive, the current of the secondary discharge is two orders higher than that in the case where the potential is negative. The conditions for the development of a thermal instability in the plasma column essentially depend on the distance from the liquid surface. The population temperatures for the electronic levels of atoms and the vibrational levels of molecules are practically equal. Physico-chemical processes running in the liquid are significantly influenced by gases dissolved in it under the plasma treatment.