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Electrohydrodynamic phenomena in discharges over liquid and dispersed electrodes

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The paper presents data on experiments with discharges over dielectrics in the form of powder from Al_2O_3, SiO_2, soil, etc. Discharges developed under the upper electrode in the form of a needle, or a set of needles. A cuvette filled with a substance was used as the lower electrode, to which grounding was applied. The appearance of jets and their destruction into droplets reflect the development of hydrodynamic phenomena over charged liquids. In the case of a dispersed electrode (electrodes), a funnel (funnels) appears on the surface, or complex pointed structures, more complex shapes, etc. under the action of hydrodynamic flows. With the help of a thermal imager, measurements of the surface temperature of the liquid were carried out. A qualitative interpretation of the results is given.

Keywords: corona discharge, liquid and dispersed electrodes, water, alcohol, electrohydrodynamic phenomena, ion wind, columns, trickles.

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