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Electroerosion - a complex phenomenon of a physical-chemical nature

A first description of this phenomenon, as well as its application in practice was made by acad. Boris Lazarenko. Based on what he and his colleagues presented, new processes for electro-physical processing of materials were developed. This paper, based on the analysis of the literature, as well as on our own experimental investigations and findings, shows that the proper erosion of metals is caused by thermal phenomena in the plasma of electric discharges and by the action of the three components (force of gravity, force of surface tension and electro-dynamic force) in a relationship. Their correlation determines the development of capillary waves, and these in turn annihilate or amplify the erosion.

Based on the graphite erosion, it is established that, in fact, it is subject to vaporization, oxidation, as well as to dissipation due to bombardment with highly energized particles (neutral atoms, ions and electrons), which causes intense cathodic dissipation of graphite. Thus, the authors propose a new vision on this phenomenon.

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