

"Unipolar" Arcs in High-Current Density Electrolysis  
of Water

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Electrolysis of aqueous solutions of electrolytes at high current densities may give rise to the formation of "unipolar" electric arcs at the cathode surface. The properties of arcs thus formed were investigated by spectroscopic and electric diagnostic methods at different current densities, electrolyte composition and electrode materials. The mechanism of discharge formation and the onset of instability are discussed. The effects of unipolar arcs on the speed of machining of metal surfaces and particularly on the increase of hydrogen yield are considered.

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