

Glassy carbon paste electrodes

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Abstract

A new carbon composite electrode material, based on mixing glassy carbon (GC) microparticles with an organic pasting liquid is described. The resulting glassy carbon paste electrode (GCPE) combines the electrochemical properties of GC with the various advantages of composite electrodes. Glassy carbon pastes (GCPs) offer high electrochemical reactivity, a wide accessible potential window, a low background current, and are inexpensive, easy to prepare, modify, and renew. The new material has a lower double-layer capacitance and a higher heterogeneous rate constant (for ferricyanide) compared to conventional carbon pastes (CPs). Scanning electron microscopy (SEM) images indicate significant differences in the structure of GCPE and carbon paste electrode (CPE). Factors influencing the electrode kinetics of GCPE surfaces are discussed. The electrochemical properties and advantages of GCPE should be of broad utility in electroanalysis. © 2001 Elsevier Science B.V. All rights reserved.

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