United States Patent [19]

Van Alstine et al.

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[54] **POLYMER-COATED SURFACES TO CONTROL SURFACE ZETA POTENTIAL**

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[58] **Field of Search** ..... 204/299 R, 300 EC; 428/407, 403, 405

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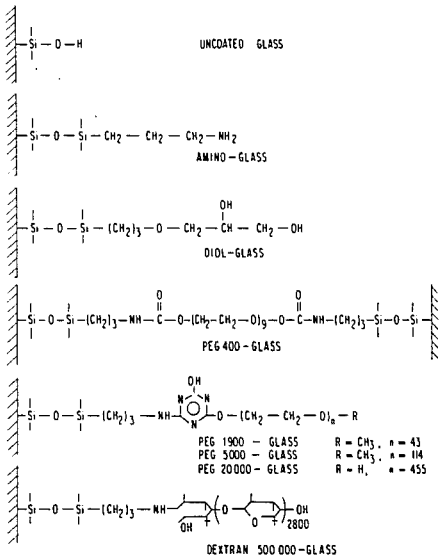
[57] **ABSTRACT**

A method for eliminating or controlling electroosmosis and other zeta potential related phenomena in electrophoresis comprising conducting electrophoresis employing electrophoretic surfaces coated with covalently bound hydrophilic, neutral polymers is described. An electrophoretic chamber for eliminating or controlling electroosmosis and other zeta potential related phenomena in electrophoresis comprising electrophoretic surfaces coated with covalently bound hydrophilic, neutral polymers, is also disclosed as well as particles exhibiting controlled electrophoretic mobility. The method and electrophoretic chamber not only eliminate electroosmosis, but allow for specific control of electroosmosis. The coated electrophoretic surface is stable relative to prior art coatings and over a broad range of pH. The point of optical focus for accurate mobility measurements is increased from a narrow stationary level to the entire chamber, facilitating accurate measurements by mechanical means. The method also reduces or eliminates assymetric fluid flows due to electroosmosis in electrophoresis chambers of square or rectangular cross-section.

26 Claims, 7 Drawing Figures