



(54) **METHOD FOR ELIMINATING GAS BLOCKING IN ELECTROKINETIC PUMPING SYSTEMS**

FOREIGN PATENT DOCUMENTS

WO 99/16162 4/1999 (WO) .

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(57) **ABSTRACT**

A method for eliminating gas bubble blockage of current flow during operation of an electrokinetic pump. By making use of the ability to modify the surface charge on the porous dielectric medium used in electrokinetic pumps, it becomes possible to place electrodes away from the pressurized region of the electrokinetic pump. While gas is still generated at the electrodes they are situated such that the generated gas can escape into a larger buffer reservoir and not into the high pressure region of the pump where the gas bubbles can interrupt current flow. Various combinations of porous dielectric materials and ionic conductors can be used to create pumps that have desirable electrical, material handling, and flow attributes.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/336,535**

(22) Filed: **Jun. 18, 1999**

(51) **Int. Cl.**⁷ **B01D 57/02**

(52) **U.S. Cl.** **204/450; 204/601**

(58) **Field of Search** 204/450, 600, 204/647, 648, 601

(56) **References Cited**

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6 Claims, 4 Drawing Sheets

