

ELECTROCHEMICAL TEST STRIP WITH AN INTEGRATED MICRONEEDLE AND ASSOCIATED METHODS

ABSTRACT OF THE DISCLOSURE

Methods and devices for electrochemically detecting a change in the viscosity of a fluid are provided. In the subject methods, a fluid sample (e.g., a whole blood sample) is introduced into an electrochemical test strip's electrochemical cell using a micro-needle integrated into one of oppositely spaced apart working and reference electrodes. An electric potential is applied to the electrochemical cell to first achieve a steady state cell current. A decrease in the steady state cell current is then detected and related to a change in viscosity of the sample. In many embodiments, the sample is blood and the change in viscosity is related to the onset of coagulation in the blood sample, and often the PT of the blood sample. An electrochemical test strip includes an electrochemical cell and an integrated micro-needle. The electrochemical cell includes oppositely spaced apart working and reference electrodes and a reagent mixture (e.g., a redox couple and a coagulation catalyzing agent). The micro-needle is integrated into one of the working and reference electrodes of the electrochemical cell.

Figure 1