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Calix[4]resorcinarene ionophore in the ion-selective electrodes with plasticized poly(vinylchloride) membranes

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Abstract

Synthetic ionophore calix[4]resorcinarene was incorporated into the poly(vinyl chloride) (PVC) plasticized membrane of an ion-selective electrode (ISE). Calixarene interactions with quaternary ammonium and alkaline metals cations in the organic and water-organic media were carefully investigated by various authors. We studied the effects of choline and Na⁺ cations present in the working solution on the ionophore which was incorporated into a membrane phase. Due to the pH sensitivity of the ionophore, a study was undertaken in a wide range of pH values. The different characteristics of calix[4]resorcinarene interactions with these cations were discovered by the ISE with the PVC plasticized membrane containing this ionophore, which respond to both the choline and Na⁺ cations due to the variation of working solution pH.

Keywords

Calix[4]resorcinarene, Choline, Ion-selective electrode (ISE), Sodium ions