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## A Hydrogen Ion-Selective Poly(Vinyl Chloride) Membrane Electrode Based on Calix[4]arene as a Perchlorate Ion-Selective Electrode

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**Abstract:** A hydrogen ion-selective electrode was prepared using 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetracyanometoxy-calix[4]arene and the possibility of its use as a perchlorate ion-selective electrode was investigated using its characteristic of becoming perchlorate sensitive in acidic regions. The electrode of the optimum characteristic had a composition of 1% ionophore, 66% o-NPOE, and 33% PVC. This electrode exhibited a linear response over the range  $1.0 \times 10^{-1}$ - $1.0 \times 10^{-5}$  M of perchlorate with a slope of  $48.7 \pm 0.5$  mV per p[ClO<sub>4</sub>]. The effects of the pH and the membrane composition were also investigated. The lifetime of the electrode was at least 4 months and its response time was 10-15 s. The selectivity coefficients of some anions were calculated by the matched potential method.

**Key Words:** Calix[4]arene, perchlorate, PVC membrane ion-selective electrode, potentiometry

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