

**Potentiometric behavior of lanthanum polyalkoxylate complexes in PVC membrane electrodes: effect of plasticizers and applications.** Jaber, A. M. Y.. Chem. Dep., King Fahd Univ. Pet. Miner., Dhahran, Saudi Arabia. *Analytica Chimica Acta* (1989), 223(2), 449-59. CODEN: ACACAM ISSN: 0003-2670. Journal written in English. CAN 112:110926 AN 1990:110926 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

### **Abstract**

Tetraphenylborate salts of lanthanum complexes of nonylphenoxypolyethyleneoxyethanol (Antarox CO-880) and polypropylene glycol-425 (PPG-425) were prepd. and examd. for their applicability as sensing species for lanthanum ions by incorporating them in a poly(vinyl chloride) membrane system in the presence of 2-nitrophenyl Ph ether (NPPE), dioctyl Ph phosphonate or a mixt. of both as plasticizers. Almost all of the systems studied showed an excellent response for lanthanum ions in pure solns. with a near Nernstian response of 18-20 mV per decade between  $10^{-5}$  and  $10^{-1}$  M lanthanum and a static response time of <1 min. Among the systems studied, lanthanum (Antarox CO-880) TPB/100% NPPE (TPB = tetraphenylborate) was the best in terms of tolerance to interfering ions.  $K^+$ ,  $Ba^{2+}$ ,  $Pb^{2+}$  and  $Al^{3+}$  were serious interferents, but most other interferents investigated were tolerable at  $[La^{3+}] > 10^{-4}$  M. Plasticizers were decisive in detg. the sensor selectivity towards the different metal ions. A lanthanum (Antarox CO-880) TPB/100% NPPE PVC membrane electrode was utilized for the potentiometric titrn. of fluoride, in sodium fluoride, against lanthanum nitrate solns. It proved to be successful for fluoride concns. of  $\geq 10^{-3}$  M.