Alkali and alkaline earth metal-ion adducts of poly(propylene glycol) as sensors for ion-selective electrodes. Jaber, A. M. Y.; Moody, G. J.; Thomas, J. D. R. Chem. Dep., Univ. Wales Inst. Sci. Technol., Cardiff, UK. Analyst (Cambridge, United Kingdom) (1977), 102(1221), 943-8. CODEN: ANALAO ISSN: 0003-2654. Journal written in English. CAN 88:202444 AN 1978:202444 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

Ion-exchangers for membrane electrodes were made by dissolving 0.04 g of the tetraphenylborate salts of the Na+ and alk. earth ion complexes with a polypropylene glycol in 0.36 g solvent mediator, e.g. Bu3PO4. The master membranes were made by adding 0.4 g ion-exchanger to 0.17 g PVC in 6 cm3 THF and slowly evapg. the solvent. Electrodes with wide response range and long lifetime were obtained for Mg, Ca, Sr, and Ba with dioctyl phenylphosphonate as solvent mediator, for Ca, Sr, and Ba with dioctyl 3-nitrophenylphosphonate, and for Ca and Ba with Bu3PO4. Ca2+-selective electrodes had a calibration range 10-5-10-1M, pH range 4.5->10, and operational lifetime of 10->30 day. Electrodes with the Na+ complex as sensor and dioctyl phenylphosphonate or 2-nitrophenyl octyl ether as solvent mediator were erratic and had a restricted calibration range but could be used to det. low levels of Ca2+. Anions such as NO3-, ClO4-, and NCS- do not interfere in electrode calibrations.