

## TECHNICAL NOTE

***Response of solid-state ion-selective electrodes to quaternary ammonium ions\****

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Received 20 March 1986

Recently it was reported in this journal [1] that bromide and thiocyanate ion-selective electrodes (ISEs) do not respond in Nernstian fashion to bromide and thiocyanate ions in the presence of quaternary ammonium ions. We wish to draw attention to previous work [2] in which we found that the above-mentioned ISEs, as well as many others (including commercial chloride, iodide, cyanide, silver-sulphide, cadmium, cupric, and lead electrodes), can be used as sensors in the potentiometric titration of a variety of anions with quaternary ammonium halides. In addition, these ISEs can also be used as sensors in the reverse titration of quaternary ammonium ions versus anions such as dodecylsulphate. While the largest endpoint breaks were obtained with the iodide-cyanide ISEs, the thiocyanate and bromide electrodes yielded smaller, although sharp, endpoint breaks.

It is also noteworthy that the same solid-state ISEs, as well as some liquid-membrane elec-

trodes, respond in the potentiometric titration of Tl(I) with sodium tetraphenylborate [3].

The mechanism of these responses may be that stated by Khan and Reuben [1]. The users of ISEs should be aware that 'ion-selective' electrodes may not be as selective as expected and may, indeed, respond to unexpected ions.

**Acknowledgements**

This work was performed under the auspices of the US Department of Energy by the Lawrence Livermore National Laboratory under contract number W-7405-ENG-48.

**References**

- [1] S. A. Khan and B. G. Reuben, *J. Appl. Electrochem.* **15** (1985) 969.
- [2] W. Selig, *Microchem. J.* **25** (1980) 200.
- [3] *Idem*, *Talanta* **27** (1980) 914.

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