

A NEW POTENTIOMETRIC SENSOR FOR POLYETHOXYLATED NONIONIC SURFACTANTS

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In the present work, a new sensing material based on tetraphenylborate salt of barium polyethoxylate (Genapol T800, tallow fatty alcohol polyglycol ether with 80 ethoxy groups) has been synthesized, and its response behaviour toward various nonionic surfactants has been investigated. The new sensing material was incorporated in PVC membrane using bis(2-ethylhexyl) phthalate as plasticizer. The Philips IS-561 electrode body was used as the carrier.

The influence of different plasticisers and the effects of different proportions of the membrane components (ionophore, plasticisers, PVC) was investigated. The electrode exhibited non-Nernstian response toward different nonionic surfactants, and was used as endpoint indicator for their potentiometric titrations (pure and technical grade). The non-Nernstian electrode behaviour can be attributed to complexed stoichiometry of ion-exchange reactions in the membrane phase. The influence of several cations investigated on the electrode response was expressed as selectivity factor and determined using matched potential method. The solution of sodium tetraphenylborate was used as titrant. The results were compared with those obtained using standard ion-exchange extraction method.

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