THE ELECTRICAL CONDUCTIVITY OF AMPHOTERIC OXIDES IN CON-CENTRATED SOLUTIONS OF ALKALIS

A DETAILED study of the behaviour of ampho-teric oxides towards solutions of alkali hydro-xides has been undertaken. During the course of this work the electrical conductivity of solutions of aluminium hydroxide when dis-solved in hydroxides of sodium and potassium (between $10\,N$ and $0 \cdot 5\,N$) is measured. The results obtained can be represented by the expression $\log \dfrac{\Lambda_1 - \Lambda_2}{\Lambda_1} = m\,\sqrt{N} + c$, where m and c are constants, $N =$ normality of the alkali, $\Lambda_1 =$ equivalent conductivity of the alkali, $\Lambda_2 =$ equivalent conductivity of the alkali + aluminium hydroxide. The values of $\sqrt{N}$ for the ratio $\log \dfrac{\Lambda_1 - \Lambda_2}{\Lambda_1} = 0$ were obtain-ed graphically. At these values, the conditions are such that Λ_2 must become equal to zero. Attempts are made to verify this conclusion

experimentally and when aluminium foil is dissolved in 11N sodium hydroxide, a solution is obtained which has a very high resistance and the equivalent conductivity is about 0·1 mho.

The applicability of the above expression is tested in the case of solutions of zinc hydroxide and the alkali systems by one of us (S. M. M.) with another student (M.B. Kabadi) and it is found to hold good.

Full details of these investigations will be published shortly.

S. M. MEHTA.
V. T. SHETH.

The Royal Institute of Science,
Bombay,
March 14, 1946.