Determination of the Cation Exchange Capacity of Clays and Soils Using an Ammonia Electrode

E. Busenberg and C. V. Clemency

Department of Geological Sciences, State University of New York at Buffalo, Buffalo, New York 14207

Abstract: The ammonia electrode serves as the basis of a simple, accurate method for determination of cation exchange capacity of small (*ca.* 50 mg) samples of clays. The technique is also capable of accurate measurement of CEC values on the order of 0 · 01 m-equiv/100 g if larger (*ca.* 500 mg) samples are used. The procedure, which requires saturation of the exchange sites with ammonium as in the usual methods, utilizes the electrode in the determination of ammonia released by treatment of the ammonium clay by strong base. For a Wyoming bentonite, the technique gave a CEC of 86 m-equiv/100 g with an S.D. (four determinations) of 0 · 83 m-equiv/100 g. Duplicate runs on the same sample by the conventional Kjeldahl method gave results of 86 · 0 and 85 · 5 m-equiv/100 g.

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