

A NEW METHOD FOR PREPARATION AND TREATMENT OF ORIENTED AGGREGATE SPECIMENS OF SOIL CLAYS FOR X-RAY DIFFRACTION ANALYSIS¹

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EXTENDED ABSTRACT

An improved method is presented for preparation and treatment of oriented specimens of soil clays for x-ray diffraction. Clays are suspended in water and deposited by centrifugation as thin, highly oriented films on flat, porous ceramic plates. Specimens so prepared are then given diagnostic treatments such as solvation, cation exchange, and heating to various temperatures, diffraction patterns being recorded after each treatment. Photographs and specifications are presented for (1) the porous plates, (2) a device for holding a porous plate and the clay suspension during deposition of the clay by centrifugation, and (3) a device for applying suction to clay film-porous plate specimens to effect washing and cation exchange of the clay.

The method provides the following advantages: improved orientation of clay particles, rapid preparation of specimens; freedom from loosening or curling of clay films during drying and heat treatments; rapid and easy application of solvation, washing, and cation-exchange treatments to clay films; application of successive treatments to a single specimen without appreciable alteration of the original particle orientation, so that diffraction patterns clearly show the effects of individual treatments.

¹ Full paper published in *Soil Science*, v. 81, no. 2, 1956.