
Fabric of Consolidated Kaolinite

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Abstract: Fabric refers to the spacial arrangement of clay particles in a sample relative to a reference plane. X-ray diffraction data yield an ' amount of orientation' (AO) that varies from zero for ideal random to 100 for ideally oriented fabric. The AO has been related to the average angle of inclination of clay particles to the reference plane.

Fabric data from 50 samples involving 2000 determinations are presented on the effects of: the method of sample preparation prior to one-dimensional consolidation; the magnitude of consolidation stress from 0· 1 to over 1000 kg/cm²; changes in direction of consolidation stress; isotropic consolidation; and disturbance during removal of samples from oedometer cells. The single most important variable was the method of sample preparation, as illustrated by the following data on samples consolidated one-dimensionally to 1· 5 kg/cm²: clay initially moist, $AO = 27$ per cent; air-dry clay, $AO = 44$ per cent; clay slurries, $AO = 76-95$ per cent. The change in fabric with increasing consolidation stress was most pronounced with samples at very low stresses, the changes in fabric were small for consolidation stress increments usually encountered in engineering practice.

Fabric data provide a very sensitive measure of sample disturbance. Extrusion causes significant disturbance at the center of a 24cm dia, sample cylinder.

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