

DISCUSSIONS

Comparison of liquid limit values determined according to Casagrande and Vasilev

ŠKOPEK, J. and TER-STEPANIAN, G. (1975). *Géotechnique* **25**, No. 1, 135–136.

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Škopek and Ter-Stepanian are to be complimented for their Note on the liquid limit as determined by the two methods in use at present—the method proposed by Casagrande and the Swedish cone method proposed by Vasilev. The two methods give considerably differing results, particularly in case of clays of high plasticity. The present practice may thus lead to errors in interpreting the results of investigations reported by various authors. Moreover, the index of plasticity which depends on the liquid limit is in many cases used as the basis of classifying the clay soils.

The Casagrande method is better known and more widely used. The Vasilev procedure has, however, a strong point in giving results which correspond to a definite shearing resistance. As the results obtained by the two methods show a fairly close correlation, either could be used with a subsequent reduction of results to an agreed standard.

If we are to speak the same language, the liquid limit problem merits consideration and a definite decision at the next international conference of the International Society for Soil Mechanics and Foundation Engineering.

The influence of the membrane restraint on the measured strength of a soil sample along a single shear plane in the triaxial test

PACHAKIS, M. D. (1976). *Géotechnique* **26**, No. 1, 226–230.

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Pachakis has made a useful contribution to the solution of a problem that has been disturbing me for some time. One point which still puzzles me is explained here, using basically Pachakis' notation.

Since the reaction P_r between the two halves of the sample has an important influence on the axial load P_a due to the rubber membrane, I feel that in superimposing the restraint of the rubber membrane on the other forces acting on a soil specimen, one has to consider the correct orientation of P_r .

Acting on the slip plane in a soil specimen, there will generally be a cohesive force C and a reaction R that is inclined to the normal to the slip plane at the angle of friction ϕ , in terms of total stresses, obtaining at that instant. Both these forces will act in such a direction as to oppose the relative movement between the two halves of the specimen. C is independent of the external forces acting on the soil specimen, and the inclination of R is independent of the nature of these forces. The reaction P_r due to the rubber membrane has therefore to be included in R and is also inclined at ϕ to the normal to the slip plane.

