INFLUENCE OF GEOMETRIC PARAMETERS ON THE RESULTS OF SHEAR TESTS PERFORMED WITH THE PHICOMETER DEVICE

Julien ARPAIA¹, Robert HEINTZ², Philippe REIFFSTECK³
¹ CEREMA, Direction territoriale Normandie Centre, Grand Quevilly, France
² Eurasol, Luxembourg, Luxembourg
³ IFSTTAR, Département GERS, Marne la Vallée, France
Borehole shear test

(a) Vane test, (b) borehole shear test, (c) Phicometer, (d) self-boring shearmeter, (e) Rhéotest
Borehole shear test

- Shear strength
Phicomètre
Phicomètre

Derived parameters:
Failure parameters $c_{\text{phico}}$ et $\varphi_{\text{phico}}$

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Comparison with lab tests

(a) Phicometer and shear box (Philipponnat, 1987)
(b) Borehole shear test and triaxial and shear box tests (Lutenegger et al., 1980)
Possible explanation

• Evolution of groove size during expansion
Test program

- Reference coarse soil
- Lab test
- In situ test
Lab tests

Direct shear box 500x500 mm
Model plates
Test program
In situ tests

• Embankment of reference coarse soil
Test program
Summary

- Laboratory tests and in situ on reconstituted soil, more or less uniform in lithology and compactness show some dispersion of shear characteristics.

- Dispersion seems related to the choice of the method of interpretation, in this case the choice of the linear portion of the phicometer curve that determines the slope of shear envelop (Figure 6a).

- Superimposing the set of points of shear plateau (couples \([\sigma; \tau]\)) of the 4 tests shows a low dispersion which shows a negligible influence of the opening slots on the interpretation of tests.

- There are significant differences depending on whether one considers a constant or variable shear surface.
Thank you for your attention

IFSTTAR
14-20 Bld. Newton
Cité Descartes
Champs sur Marne
77447 Marne-la-Vallée Cedex 2
France
Ph +33 (0)1 81 66 80 00
www.ifsttar.fr
communication@ifsttar.fr