**A comparison of uniform intact and reconstituted samples of silty-sand tailings**

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Keywords: critical state line, tailings, fabric, laboratory testing, intact vs reconstituted

**ABSTRACT**

The critical state line (CSL) represents an essential tool in the static liquefaction susceptibily assessment of mine tailings. Although it has been proven that the CSL can be consistently and reliably obtained through triaxial testing of moist tamped reconstituted specimens, there is ongoing debate whether the reconstituted specimens reproduce the actual CSL of the material. Some previous research has highlighted uncertainty in replicating in situ behaviour and accurate derivation of CSL due to fabric effects, particularly particle orientation and assembly. While addressing the observations of fabric, this paper presents a comparison of triaxial tests carried out on samples of silty-sand tailings trimmed from a high-quality intact block against reconstituted samples of material taken from the same block using the moist tamping (MT) preparation method. The intact block used in these tests was uniform, with only a slight variation of particle size distribution with depth. All the specimens trimmed from the intact block tended towards the inferred MT CSL. Contrary to some available literature, there is no significant variation of the critical state shearing behaviour of intact and reconstituted specimens at the same void ratio and effective stresses in both drained and undrained loading. This study verifies that MT is able to provide accurate definition of critical state conditions for in situ material that is uniform.