

Department of Sustainable Natural Resources

SOIL SURVEY STANDARD TEST METHOD

WATER REPELLENCY

ABBREVIATED NAME	REP
TEST NUMBER	P22
TEST METHOD TYPE	A
VERSION NUMBER	1

SCOPE

Sand grains in some sandy soils (sands to sandy clay loams) sometimes become water repellent by being coated with organic residues from some, but not all, plant materials. In severe cases, water sits in droplets on top of the dry soil and the soil does not wet up. The rate of disappearance of drops of water on a soil surface is used as a method of determining how severe water repellency is. This procedure is semi-quantitative.

SPECIAL APPARATUS

- Eye dropper.
- Deionised (distilled) water.
- Undisturbed dry soil surface.

PROCEDURE

1. Drop a drop of deionised water (approximately 6 mm diameter) from a height of 1.5 cm on to the surface of the soil.
2. If the drop adopts a spherical shape on the soil surface, water repellency should be indicated.
3. The length of time the drop remains on the surface is taken as the index of water repellence.

DETERMINATION OF THE WATER REPELLENCE SEVERITY CLASS

Time taken for the water drop to disappear on the soil surface:

<1 second	Not significant
1–10 seconds	Very low water repellence
10–50 seconds	Low water repellence
50–260 seconds	Moderate water repellence
>260 seconds	Moderate to severe water repellence

REFERENCES

- King, PM 1981, Comparison of the methods for measuring severity of water repellence of sandy soils and assessment of some factors that affect its measurement. *Australian Journal of Soil Research*, 19, 275-285.
- Roberts, FJ & Carbon, BA 1971, Water repellence in sandy soils of South-Western Australia, 1: Some studies related to field occurrence. CSIRO Division of Plant Industry, *Field Station Record*, 10, 13-20.