

Laboratory Testing



ATC Williams places significant emphasis on understanding the geotechnical factors influencing a project. To this end, we established a NATA accredited testing laboratory in Melbourne, which is equipped to carry out the full range of basic soils classification and testing procedures, as well as a number of specialised evaluation procedures.

We work with our clients to determine the most appropriate and effective combination of laboratory and field testing to support a particular project.

We offer a range of standard laboratory soil tests, in accordance with AS1289—Testing of Soils for Engineering Purposes, covering:

- liquid limit and plastic limit
- linear shrinkage
- particle size analysis
- moisture content
- laboratory-estimated California Bearing Ratio
- soil pH
- compaction tests: 'Standard', 'Modified' and Hilf tests
- dispersion tests: double hydrometer—USCS method, Emerson Classification, pinhole apparatus.

From our laboratory base, we also provide a field testing service covering compaction control (Nuclear Density Meter) and field permeability testing.

Standard testing procedures are, in many cases, not appropriate for testing tailings. Because we place

great emphasis on post deposition behaviour in tailings management design, we have developed specific tests to provide the data needed to optimise design.

Testing is routinely carried out to determine properties including:

- slurry rheology
- settled density (drained and undrained)
- shrinkage limit density (beach drying)
- segregation behaviour
- permeability
- consolidation by large diameter Rowe Cell.

Where appropriate, slurries are flocculated before testing to match actual site conditions.

Many of these tests require sound professional judgement for the results to be meaningful. ATC Williams has both the competence and experience to assess the testing procedures and provide an accurate interpretation of the results.

We have been testing tailings for over 20 years and have a substantial database of test results, many calibrated against subsequent field conditions. This enhances our ability to extrapolate from laboratory to site.

For more specialised chemical tests or mineralogical analysis, we will work with relevant specialist agencies and provide them with detailed objectives and specifications, to ensure our clients receive consistent, high standard results.