

Geomechanical tests

Antea Group

Understanding today.
Improving tomorrow.



■ Fields of expertise :

Antea Group Laboratory is your best partner for the choice, performance and interpretation of physical and mechanical tests applied to geotechnical and environmental assessment.

■ Our offer :

Engineers and technicians in the Laboratory can design, develop or test softwares, measurement equipment or operating protocols to fulfill the specific needs of our clients.

LABORATORY EQUIPMENT

Equipment for soil mechanics

- Standard devices for soils identification, Proctor test and CBR test.
- 16 loading frames for oedometric tests, driven in strength for vertical loading control (max 20 MPa).
- 12 standards oedometers (max stress : 5,2 MPa in 50 mm diameter) equipped with permeameters.
- 3 Casagrande direct shear box frames (10 kN).
- 6 triaxial test apparatuses (0-1.5 MPa confining pressure), 16 consolidation boards and 28 cells.
- 1 dynamic triaxial apparatus (15 kN, 10 Hz), 1 resonant column, 1 bender elements device for dynamic/cyclic soil load.
- 2 permeabilty test devices using triaxial cells.



Equipement for rock mechanics

- 1 hydraulic frame - max strength 2.000 kN.
- 2 cells for rock triaxial tests (0-70 MPa).
- P and S waves velocity measurement.
- Thermal conductivity measurement (hot disk and dual-needle).
- Direct shear test for reinforced concrete and grout bolts.
- Ring tension test (Xu method).





Resonant column



Dynamic triaxial device

Equipment for deep soils and soft rocks

- 5 triaxial test apparatuses (0-20 MPa confining pressure) - GDS and Wykeham Farrance (100 kN), MTS (200 kN).
- 4 creeping testing devices using triaxial apparatus (0-20 MPa) with back pressure.
- 2 triaxial cells equipped with heat system (up to 100°C).
- 2 monoaxial creeping test devices (100 kN) for acid attacked samples.

SOME REFERENCES

SAIPEM - Courseulles-sur-mer offshore windfarm :

Identification tests, shearing tests, erodibility, dynamic tests on monopile foundation aggregates.

Lyon-turin high-speed railway :

Modane, Saint-Martin-de-la-Porte 1&2 and La Praz - rock mechanic tests, including UCS, splitting tensile strength test, triaxial tests, creeping tests, stress relaxation tests, shear strength of discontinuities (rock joint).

Société du Grand Paris - 2, 4, 7 and 11 areas - RER line E :

Descriptions, identifications, soil mechanic tests including, oedometric tests, swelling tests, CD triaxial tests with preset loading/unloading cycles.

Bretagne-Pays de Loire and sud Europe Atlantique high-speed railways :

Identifications, mechanical tests including triaxial, compressibility, swelling, creeping, Proctor tests. Lime/cement treatment studies. Rock mechanic tests including UCS, Poisson's ratio and Young modulus.

Onshore windfarms and photovoltaic power stations (more than 20 projects / year) :

Identification, Proctor tests, lime/cement treatment studies, shear tests, thermal conductivity.

ENVIRONMENT

Evaluation, management and development of polluted sites and soils, permitting, industrial risks, audits and advice, turnkey and project management of remediation work.

INFRASTRUCTURE

Geotechnics, foundations and earthworks, works and structures, dismantling, deconstruction, asbestos removal, management and recovery of materials and waste, urban planning, natural risks.

WATER

Assessment, exploitation, management of water resources, geothermal energy, drinking water and sanitation, industrial water, hydraulic developments and ecological restoration, securing water resources.

MEASUREMENTS AND DATA MANAGEMENT

Measurements of water, air, occupational exposure, ambient air, indoor air, modeling, digital simulation and spatialization, information systems and environmental data management.

Antea Group is an international environmental engineering and consulting firm offering global solutions in the fields of water, environment, infrastructure and environmental data management. With approximately 3,300 employees in more than 90 offices worldwide, Antea Group serves a wide range of clients: industrial companies, service companies, institutions and public authorities.



We deeply thank the Région Centre-Val de Loire and Fonds Européen de Développement Régional for their financial support to the PIVOTS project.



PERMECA

Research test platform in Collaborative and Applied Environmental Mechanics.

<https://www.plateformes-pivots.eu/plateformes/permecca>



Contact details : Thibaut LANDO

Antea® Group – Geomechanical laboratory

3 avenue Claude Guillemin, 45100 Orléans, France

Phone : +33 (0)2 38 23 22 27 - Fax : +33 (0)2 38 23 22 78

thibaut.lando@anteagroup.fr

www.anteagroup.fr