LABORATÓRIO NACIONAL DE ENGENHARIA CIVIL

TESTING and METROLOGY

UGeoS

Geosynthetics Laboratory

GEOTECHNICS DEPARTMENT

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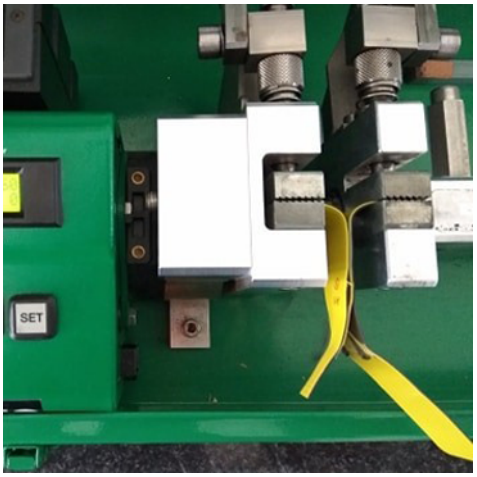
Scope

The Geosynthetics Laboratory (UGeoS) is part of the Geotechnics Department of the LNEC.

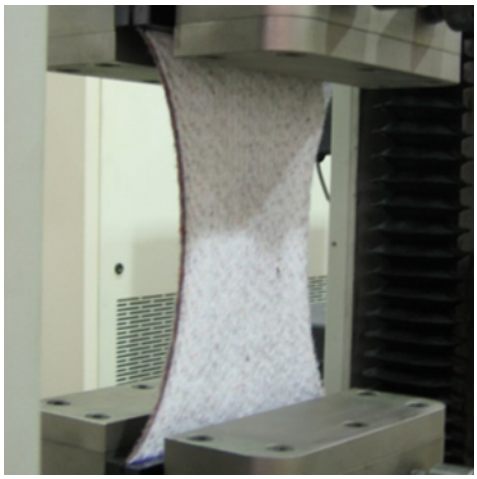
Created in the nineties of the twentieth century, UGeoS supports the construction industry, research and innovation in the field of geosynthetics.

Geosynthetics are materials used in civil engineering, in which at least one of its components is made from a synthetic or natural polymer, in the form of a sheet, a strip or a three-dimensional structure, used in contact with soil and/or other materials in geotechnical and civil engineering applications. They have replaced traditional materials, significantly increasing the safety factor, improving the performance of works and reducing construction and maintenance costs.



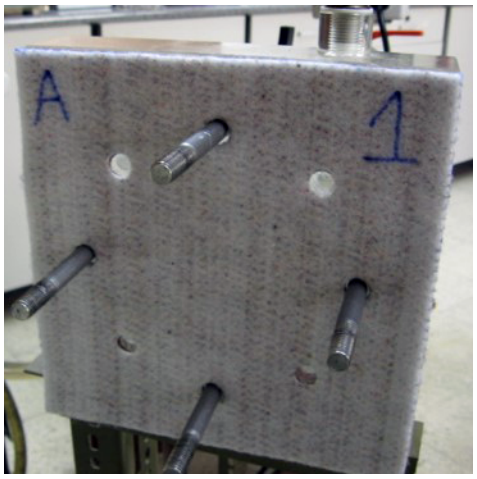
Field of expertise

UGeoS conducts laboratory tests on geotextiles, geotextile-related products and geosynthetic barriers (geomembranes and clay geosynthetic barriers). In addition, UGeoS carries out *in-situ* testing with a special focus on Quality Assurance (CQA) testing for civil and geoenvironmental engineering.



UGeoS has the capability to perform tests according to EN ISO and ASTM standards, namely

- Mass per unit area
- Thickness
- Pore size distribution
- Water flow capacity in their plane
- Water permeability characteristics normal to the plane, without load
- Wide-width tensile test
- Puncture resistance (CBR)
- Dynamic perforation (cone drop)
- Trapezoidal tear
- Compressive creep properties
- Density of geomembranes
- Seam peel and shear
- Melt flow index
- Resistance to oxidation
- Swell Index (clay geosynthetic barriers)
- Flux index test (permeability test) on clay geosynthetic barriers



Highlights

The activities carried out at UGeoS are essential to assure the quality of the construction of the works in which geosynthetics are applied. Of note is the contribution made under Quality Assurance/ Quality Control of geosynthetics in different applications over the last three decades (waste landfills, reservoirs, dams, tunnels, etc.) and the development of applied research projects.

Setor de Divulgação Científica e Técnica do LNEC / 2025