

UNIVERSIDADE DE ÉVORA - LITHOS

Entity / laboratory framework: LITHOS - Laboratory for Innovation and Technological Hub for Ornamental Stone is the University of Evora's front office for Ornamental Stones. It aims to incorporate technology into a traditional economic sector, improving its competitiveness in the global market. To achieve this goal, all LITHOS Research Units (ie LEM and HERCULES) provide specific services, form highly specialized human resources (ie Masters and Doctors) and streamline RDI activities in cooperation with companies, stimulating the search and use of new solutions and materials.

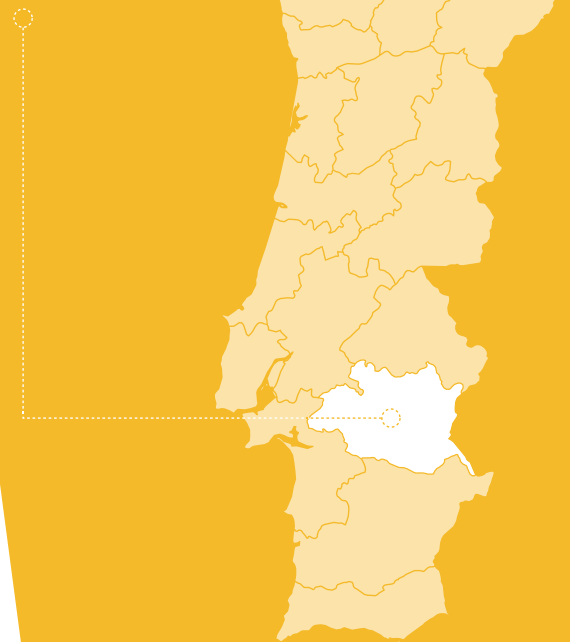
The Mechanical Testing Laboratory (LEM), an instrumental technological unit of mechanical characterization of ornamental stones, responds to the companies' needs regarding certification and quality control. It consistently supports companies' industrial R&D activities.

The HERCULES Laboratory is a research infrastructure dedicated to the material study and the development of new analysis techniques in the field of characterization of (geo-) materials and the development of analytical methodologies to study their alterability, bio-colonization and biodegradation. HERCULES Laboratory is responsible for the chemical and mineralogical characterization of OS, through description and control of rock alteration processes and through the creation of new products and solutions for the Industry.

List of available services for the natural stone industry

- Tests
- Geological Cartography
- Pathology Analysis
- Chemical and mineralogical analysis
- Research and Development Projects

Évora
jmirao@uevora.pt
Tel: +351 962 987 673





List of available tests on natural stone

European Tests	Reference Standard
Water Absorption Coefficient by Capillarity (only when Open Porosity is > 1%)	EN 1925
Thermal Conductivity	EN 14617-1, EN 12524 ou EN ISSO 13787
Petrographic Examination	EN 12407
Water Absorption at Atmospheric Pressure	EN 13755
Real Density and Apparent Density, and of Total and Open Porosity	EN 1936
Resistance to Salt Crystallization	EN 12370, 2001
Flexural Strength Under Constant Moment	EN 13161, 2008
Abrasion resistance – Amsler and Abrasion – Bohme	EN 14157 – 2007
Resistance to ageing by SO ₂ action in the presence of humidity	EN 13919, 2007
Resistance to ageing by salt mist	EN 14147, 2007
Sound Speed Propagation	EN 14579
Geometric characteristics on units	EN 13373, 2006
Linear thermal expansion coefficient	EN 14581, 2007
Dynamic elastic modulus of elasticity (by measuring the fundamental resonance frequency)	EN 14146
Hygrothermal properties	EN 12524
Fire classification of construction products and building elements	EN 13501-1
Frost Resistance + Flexural Strength Under Concentrated Load (56 cycles)	EN 12371 + EN 12372
Frost Resistance + Flexural Strength Under Concentrated Load (56 cycles)	EN 12371 + EN 1926
Uniaxial Compressive Strength	EN 1926

José António Paulo Mirão
 jmirao@uevora.pt
 Tel: +351 962 987 673



List of available tests on natural stone

European Tests	Reference Standard
Resistance to Salt Crystallization	EN 12370
Flexural Strength Under Concentrated Load	EN 12372
Resistance to Ageing by Thermal Shock	EN 14066
Slip Resistance by Means of The Pendulum Tester	EN 14231
Impact Resistance - Rupture Energy	EN 14158
Breaking Load At Dowel Hole	EN 13364
Chemical Resistance	EN 14617-10
Electrical Resistivity	EN 14617-13
Carbonate Content	EN 12326-2, section 14
Non-carbonate Carbon Content	EN 12326-2, section 13

José António Paulo Mirão
 jmirao@uevora.pt
 Tel: +351 962 987 673