



LABORATÓRIO NACIONAL  
DE ENGENHARIA CIVIL

**EM TESTING  
and METROLOGY**

**U3M**

Laboratory for Mineralogical  
and Microstructural  
Characterization of Materials

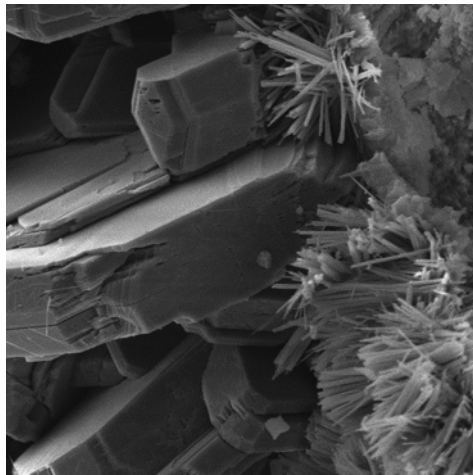
MATERIALS DEPARTMENT

Av. do Brasil 101 • 1700-066 Lisboa • PORTUGAL  
tel. (+351) 21 844 30 00      lnecc@lnecc.pt

[www.lnec.pt](http://www.lnec.pt)

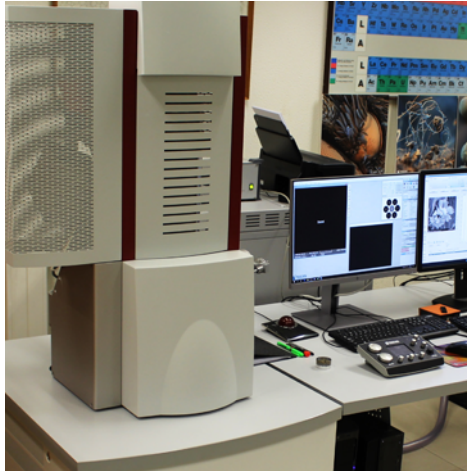
### Scope

The Laboratory for Mineralogical and Microstructural Characterization of Materials (U3M) of LNEC-EM is integrated in the Materials Department / Organic and Metallic Materials Unit of LNEC. This laboratory has the appropriate infrastructures to carry out both R&D&I and OS&TA studies intended for the characterisation and performance evaluation of materials, for the mitigation and prevention of deterioration and failure of materials, as well as for the development and qualification of new materials and products. Its contribution aims to improve and render the preservation of the built heritage a more sustainable practice.

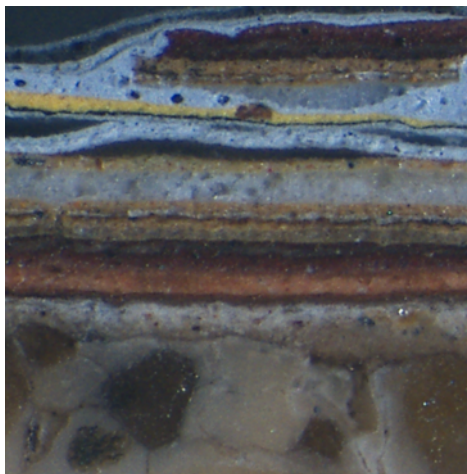


### Field of expertise

The activity of U3M is mainly focused on the chemical, mineralogical and microstructural characterisation of building materials (innovative, contemporary or of historical relevance) and on the evaluation of the causes for deterioration and failure of materials.



U3M has the appropriate technology and the qualified human resources for carrying out tests for the characterisation of different materials (concrete, mortars, coatings, plasters, tiles, mural painting, soils, stone materials, ceramic products, air and hydraulic binders, metallic alloys, among others) in the scope of extensive development and application areas related to infrastructure construction management, building materials industry, as well as construction, conservation and rehabilitation of the architectural and archaeological heritage.



### Highlights

U3M activities contribute to the resilience and sustainability of building materials and to the development of products and solutions for the rehabilitation/conservation of the building heritage. Special reference is made to two aspects: the use of high resolution scanning electron microscopy for the diagnosis of swelling reactions in the concrete, for the characterisation of old mortars or for the detection of asbestos fibres; and the support to expert advisory in different fields of the use of materials (including failure analysis and pathologies of materials).

