

 Open access • Journal Article • DOI:10.1080/15583050903046322

Characterization of Historical Mortars from Alentejo's Religious Buildings

— [Source link](#) 

António Santos Silva, P. Adriano, Ana Cristian Magalhães, João Pires ...+4 more authors

Institutions: Laboratório Nacional de Engenharia Civil, University of Lisbon, Instituto Politécnico Nacional, University of Évora

Published on: 03 Feb 2010 - International Journal of Architectural Heritage (Taylor & Francis Group)

Related papers:

- [Investigation of the technology of historic mortars](#)
- [Microscopy of historic mortars—a review](#)
- [Investigation of historical mortars from Belém do Pará, Northern Brazil](#)
- [A multi-analysis characterization of medieval and vernacular coating mortars in rural Valencia \(Spain\): An experimental study for a Heritage Action Plan](#)
- [A multidisciplinary approach to the mortars characterization from the Town Walls of Gubbio \(Perugia, Italy\)](#)

Share this paper:    

View more about this paper here: <https://typeset.io/papers/characterization-of-historical-mortars-from-alentejo-s-1i97o61iru>

Characterization of historical mortars from Alentejo's religious buildings

António Santos Silva¹, Patrícia Adriano¹, Ana Magalhães², João Pires³, Ana Carvalho³, Antonio João Cruz⁴, José Mirão⁵, António Candeias⁶

¹ *Laboratório Nacional de Engenharia Civil, Materials Department, Av. Brasil 101, 1700-066 Lisboa, Portugal, ssilva@lnec.pt, padriano@lnec.pt*

² *Laboratório Nacional de Engenharia Civil, Buildings Department, Av. Brasil 101, 1700-066 Lisboa, Portugal, acristian@lnec.pt*

³ *Faculdade de Ciências da Universidade de Lisboa, Department of Chemistry and Biochemistry, Campo Grande, 1749-016 Lisboa, Portugal, jpsilva@fc.ul.pt, apcarvalho@fc.ul.pt*

⁴ *Instituto Politécnico de Tomar, Departamento de Arte Conservação e Restauro, Quinta do Contador - Estrada da Serra, 2300-313 Tomar, Portugal, ajcruz@fc.ul.pt*

⁵ *Universidade de Évora, Department of Geosciences and Geophysics Center of Évora, R. Romão Ramalho 59, 7000-671 Évora, Portugal, jmirao@uevora.pt*

⁶ *Universidade de Évora, Department of Chemistry and Chemistry Center of Évora, R. Romão Ramalho 59, 7000-671 Évora, Portugal, candeias@uevora.pt*

ABSTRACT:

Alentejo religious buildings reflect undoubtedly the history and character of this southern Portugal region. These buildings conservation requires a deep knowledge of their masonry's and renders' lime mortars, to evaluate correctly their state of conservation, to avoid progression of pathological situations and to plan efficient interventions, with repair and substitution materials with similar characteristics. In this article we present a synthesis of the main results obtained in the mortars characterization of religious buildings from Alentejo, which include Évora and Elvas Cathedrals, Mértola Mosque and the church of Amieira do Tejo. For each monument, several samples were collected from different sites and a set of tests was carried out, including chemical, mineralogical and microstructural, as well as physical and mechanical tests. The tested mortars correspond to different phases of construction and interventions on the buildings, comprising mainly origin periods from the 12th to the 18th century; hence exhibited significant differences in composition and in application techniques. The obtained results of composition have given important information about the provenance of the materials used, including binder and sand types, and also about decay products and their correlation with the mortar's conservation state, which gave important clues on the repair strategy to adopt.

KEY-WORDS: *Alentejo, characterization, conservation, historic mortars, materials.*