

DEVELOPMENT OF AN ANTI-SHRINKAGE ADDITIVE FOR LIME MORTARS IN PATRIMONIO

CALL FOR R+D PROJECTS OF THE CDTI (CENTER FOR THE DEVELOPMENT OF INDUSTRIAL TECHNOLOGY)



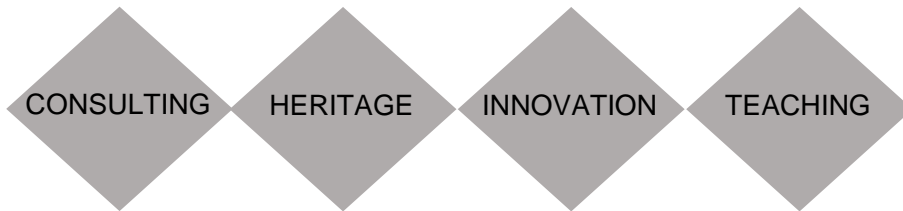
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ABOUT TESSELA (COORDINATOR)

- Technology-based company SMEs
- Founded in 2015
- Padul, Granada, Spain.
- Born as a SPIN-OFF (University of Granada)



MAIN ACTIVITY



SEDES

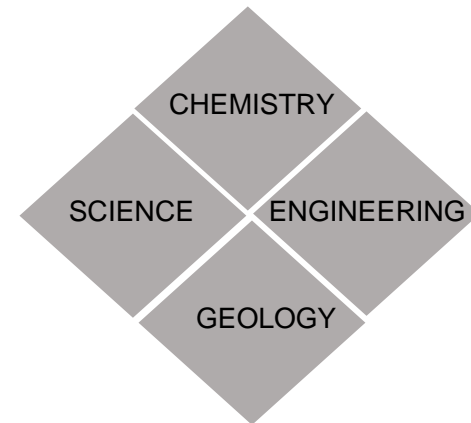


CLÚSTER DE
CONSTRUCCIÓN
SOSTENIBLE DE
ANDALUCÍA
- PADUL -



UNIVERSIDAD DE
GRANADA.
FACULTAD DE
CIENCIAS
-GRANADA-

MEMBER EXPERIENCE



CONTEXT AND PROBLEM

Features & Properties	Lime mortar	Portland Cement Mortar
Raw Material Calcination Temp.	850-110	>1400
Setting	Slow	Fast
Retraction	High	Medium
Permeability	High	Low/None
Porosity	Medium - high	Very low
Compressive Strength (Mpa)	2-6 (low)	5-15 (high)
Rigidity	low	High
Sales solubles	no	Alkalis, ettringite, thaumasite
Reversibility	si	no
Thermal conductivity	<1	>1

OBJECTIVE

Validate the efficacy of the additives selected to counteract or reduce the shrinkage of lime mortars without compromising their chemical-mineralogical, textural and physical-mechanical compatibility with traditional construction materials.

Study of the physical properties of the mortars developed

Dimensional Variation Tests

Performance testing

Water Testing

Water absorption by capillarity

- Water-free absorption-desorption
- Water vapour permeability

Durability testing

- Freeze-thaw cycles
- Salt crystallization cycles

The specific objective: to examine and compare the behavior of the different mortars formulated against the standard sample to see the advantages and disadvantages in water properties and durability provided by the additives used.



FINAL CONCLUSIONS: DECREASE IN RETRACTION TO 28 DAYS. CONVENTIONAL MORTAR VS. MORTARS DEVELOPED AT REVOLUM



**CONVENTIONAL
HERITAGE MORTAR**

**MORTAR 1 REVOLUM
HERITAGE**

**MORTAR 2 REVOLUM
HERITAGE**