

Partners



Project Details

- PROJECT REFERENCE: 646178
- START: 01/06/2015
- DURATION IN MONTHS: 36
- TOTAL COST: 6,965,320.43 Euro
- EU CONTRIBUTION: 6,332,586,68 Euro
- CALL IDENTIFIER: H2020-NMP-2014-two-stage
- TOPIC: NMP-21-2014 - Materials-based solutions for protection or preservation of European cultural heritage



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Nano-Cathedral

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Innovation for Europe
Cultural Heritage
Protection and
Conservation

#OSLO



#PISA



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646178

Materials

Based on the specific decay phenomena of the selected lithotypes, several materials are selected and pre-tested

Consolidants

15
5 selected for further laboratory testing on selected lithotypes

Protectives

20
6 selected for further laboratory testing on selected lithotypes

➤ Reactivity of Nano-Particles (NPs)

➤ Combination of Teos with NPs

➤ Use of Nano-SiO₂ and Nano-ZrO₂ as consolidant

➤ Stabilization of Nano-Particles

➤ Photocatalytic treatments based on Nano-TiO₂

➤ Anti-fouling treatments using Nano-silver

➤ Innovative functionalized nano-structured polymer particles

Nano-Cathedral

NANO-CATHEDRAL develops new **nano-materials, technologies** and **procedures** for the conservation of deteriorated stones in **monumental buildings, cathedrals** and **high value contemporary architecture**.

Goals

➤ **Preserve the originality of the stone materials**

➤ **Provide high performance treatments**

➤ **Provide long-term conservation**

Innovation

• Innovative methods for consolidation, protection and pollutants decomposition

• A multidisciplinary approach to the development of affordable methodologies, to guarantee reliability of the whole value chain

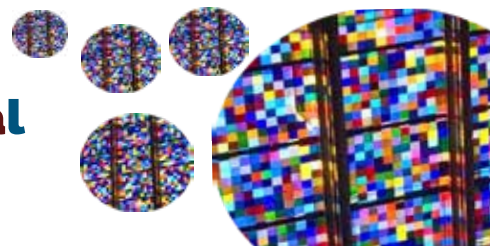
• Sustainability since conception: LCA and LCCA drive the development

Selected Lithotypes



Impact

Social Cultural Economic



Testing

Artificially decayed lithotype specimens for lab tests are prepared:

• Assessment of major decay in naturally weathered states and artificial ageing procedures

• Selection of thermic ageing cycles for each lithotype

• Ageing of 144 stone specimens for each of the 6 selected lithotypes

Full Program Testing:

A systematic testing program is performed for consolidant and protective treatments to select the best ones to be applied on-site

• Application of treatments on pilot areas of monuments

• Development of operational guidelines

