

Nanomatch

NANO-SYSTEMS FOR THE CONSERVATION OF IMMOVEABLE AND MOVEABLE POLYMATERIAL CULTURAL HERITAGE IN A CHANGING ENVIRONMENT

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SYNTHESIS OF METAL ALKOXIDES

- DEVELOPMENT OF TWO ALKOXIDE CONSOLIDANT PRECURSORS:
 - EVOLVING TO **NANO-STRUCTURED ADHESIVE COATINGS**
 - COMPATIBLE WITH THE MAIN MATERIALS USED IN HISTORIC BUILT HERITAGE
 - ENSURING ENHANCED **SUSTAINABILITY, DURABILITY AND EFFICIENCY** COMPARED TO CONVENTIONAL CONSERVATION PRODUCTS
- FOR THE CONSERVATION OF STONE AND WOOD:
 - CALCIUM ALKOXIDE** PRECURSOR OF CORRESPONDING CONSOLIDANT
- FOR THE CONSERVATION OF GLASS:
 - ALUMINIUM ALKOXIDE** PRECURSOR OF Al_2O_3 (DEVELOPED IN EU PROJECT CONSTGLASS)

PERFORMANCE ASSESSMENT IN LABORATORY

- STONE SUBSTRATES: CARRARA MARBLE, JAVONNIÈRES LIMESTONE, MAASTRICHT LIMESTONE
- STONE LIKE SUBSTRATES: LIME MORTAR WALL PAINTING, REPLICA WITH FRESCO / EGG BINDER / OIL BINDER PAINT LAYER AND THREE DIFFERENT SETS OF FIGMENTS
- WOODEN SUBSTRATES: PINE, POPLAR, LINDEN
- GLASS SUBSTRATES: MODEL

PERFORMANCE ASSESSMENT OF MODEL SAMPLES WITH AND WITHOUT ARTIFICIAL AGEING IN COMPARISON TO COMMERCIAL PRODUCTS IN TERMS OF **CONSOLIDATION AND BLOODE EFFECT**

PERFORMANCE ASSESSMENT IN FIELD

- S. GIORGIO CATHEDRAL FIRENZE (ITALY)
- STAVROPOLIS MONASTERY BUCHAREST (ROMANIA)
- PERFORMANCE ASSESSMENT OF MODEL SAMPLES IN COMPARISON TO COMMERCIAL PRODUCTS IN TERMS OF **CONSOLIDATION EFFECT**
- PERFORMANCE ASSESSMENT OF HISTORICAL SAMPLES
- COLOGNE CATHEDRAL (GERMANY)
- OVIEDO CATHEDRAL (SPAIN)

RISK ASSESSMENT & MARKET UP-SCALING

- RISK ASSESSMENT FOR HEALTH & ENVIRONMENT IN RELATION TO:
 - TOXICITY OF METAL ALKOXIDE SOLS AND SOLUTIONS
 - NANO-PARTICLES EXPOSURE
 - PRODUCTION OF?
 - MATERIAL SAFETY DATA SHEET (MSDS)
- INDUSTRIAL UP-SCALING: FROM LAB SCALE TO PILOT PLANT
- UP-SCALE PRODUCTION:
 - LAB TO 800g METALLIC CALCIUM
 - PILOT UP-SCALE: 500g-1000g (1 TO 100g METALLIC CALCIUM)
 - INDUSTRIAL UP-SCALE: 3 TONNES METALLIC CALCIUM
 - 100 LITRES BATCH SIZE OF 0.1% (1 TO 100g METALLIC CALCIUM)
- COSTS/BENEFITS ANALYSIS
- MARKET RISK ASSESSMENT
- BUSINESS PLAN

PARTNERS

COORDINATOR: DR. ADRIANA BERNARDI, NATIONAL RESEARCH COUNCIL - INSTITUTE OF ATMOSPHERIC SCIENCES AND CLIMATE (IRI-CAC)
EMAIL: A.BERNARDI@IRI-CAC.IST-CNR.IT TEL: +39 055 8506700