



PRESS RELEASE (ENGLISH)

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ReSHEALience: Rethinking coastal defence and green-energy Service infrastructures through enHancEd-durAbiLity high-performance cement-based materials

The ReSHEALience project is a newly launched research project supported by the European Union under the Horizon 2020 programme for Research and Innovation (Call H2020-NMBP-2017-two-stage, Project No. 760824). The project started in January 2018 and will last for 48 months. The project consortium is led by Politécnico di Milano and is composed of 14 partners and three third parties from 8 different countries (Spain, Italy, Germany, Estonia, Ireland, Greece, Malta and Israel). The team includes 6 academic/research institutions and 8 industrial partners, covering the whole value chain from producers of concrete constituents to construction companies, stake-holders and end-users.

Project objective

The goal of ReSHEALience is to develop Ultra High Durability Concretes (UHDCs) and a Durability Assessment-based Design (DAD) methodology for structures made of/retrofitted with UHDCs, in order to improve durability and predict their long-term performance under Extremely Aggressive Exposures (EAE). This EC H2020 funded project moves from the consideration that the long-term behaviour of structures under EAE conditions can highly benefit from the use of high performance materials, in the framework of durability based design approaches. The project will develop a new “advanced cement based material concept”, named UHDC, by upgrading the HPFRC/UHPFRC concept through the incorporation of tailored nano-scale constituents. The project will also upgrade experimental methods to validate the UHDC durability in service conditions and develop a theoretical model to evaluate ageing and degradation of UHDC structures and predict their lifespan.

The specific technical objectives of this project are proposed in different levels: material (100% durability improvement in un-cracked state), structural (30% durability improvement in cracked state), resilience (30% increase of service life), costs (50% reduction of maintenance costs) and accuracy of the modelling (75% accuracy).

Demonstration activities

New design concepts will be proposed and validated through long-term monitoring in six full-scale pilots that pertain to the most relevant strategic sectors for the EU Sustainable Development Strategy in EAE conditions (XA and XS). The pilots will be also used for on-site visits and as the first step of the industrial partners in the curve of experience with UHDC structures. The pilots are:

For further information about ReSHEALience, please visit: uhdc.eu



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Pilot 1 (XA, TRL6): UHDC reduced size basin close to an operating basin in a geothermal power plant in Italy.

Pilot 2 (XA, TRL6): UHDC mud collection basin in a drilling platform in Italy.

Pilot 3 (XS, TRL7): UHDC precast pre-stressed floating raft for mussel farming in the coasts of Valencia (Spain)

Pilot 4 (XS, TRL6): UHDC precast breakwaters along the Northern Atlantic coast in Ireland.

Pilot 5 (XS, TRL6): UHDC reduced size floater for off-shore wind tower in the Mediterranean coast

Pilot 6 (XS, TRL7): Reparation with textile UHDC of damaged water tower close to the sea in Malta

ReSHEALience project had its Kick-off meeting on 20th January 2018 in Brussels, where the partners had the chance to meet the Project Officer and start the cooperation face to face. The team is implementing the tasks and coordinating the work with ordinary meetings in the cities of the different partners (Valencia on March 2018, Milano on June 2018 and Dresden in October 2018).

Project partners

ReSHEALience is a H2020 project with a EU contribution €5,557,595.50 and coordinated by Politecnico di Milano with the participation of other 13 European partners: CYES MARITIME WORKS, ENEL GREEN POWER, STRESS-SCARL, ANF DEVELOPMENT, RESEARCH & DEVELOPMENT CONCRETES, BANAGHER, API EUROPE, PENETRON, UNIVERSITAT POLITÈCNICA DE VALENCIA, TECHNISCHE UNIVERSITÄT DRESDEN, CSIC, BEN GURION UNIVERSITY and UNIVERSITY OF MALTA, and three linked third parties: IDIFOR, RINA and ENEROCEAN.

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