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Research and Innovation Action

GRANT AGREEMENT NUMBER — 760824

## **RESHEALIENCE**

***Rethinking coastal defence and  
Green-energy Service infrastructures  
through enHancEd-durAbiLity  
high-performance cement-based materials***



***D9.3 – Project Brochures***

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## *Publishable summary and Introduction*

This Deliverable shows the initial design of brochure to communicate and disseminate the ReSHEALience project. Printed as a Six-Page Leaflet (Standard/roll fold) with a paper size A5 (148x210 mm) for each page, it includes the most relevant public information about the project, as:

<b>Side 1 (external)</b>	Page 1	Logo, title of the project and number of H2020 project
	Page 2	Logo of each partner, including third parties. Title of each of the Work Packages
	Page 3	Duration, budget, general objectives, and strategic priorities faced
<b>Side 2 (internal)</b>	Pages 4, 5 and 6	Key Performance Indicators of the project (upper part)  Project milestones in a project timeline (medium part)  Description of each of the six pilots of the project (bottom part)

The brochures will be uploaded at least in months 28 and 38, and all the final versions are able to download in the official Project Website [www.uhdc.eu](http://www.uhdc.eu). The consortium members are printing brochures to communicate and disseminate in the Project Meetings, fairs, conferences, and events. Each of the partners is printing the necessary quantities to be given to the stakeholders they are contact with (clients, students, authorities, other partners...).

The recommended paper grade for printing is 300 g/m<sup>2</sup> and in matte.

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## 1. Scope of the document

This Deliverable shows the initial design of brochure to communicate and disseminate the ReSHEALience project. Printed as a Six-Page Leaflet (Standard/roll fold) with a paper size A5 (148x210 mm) for each page, it includes the most relevant public information about the project, as:

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## 2. General view of the brochure sides

Side 1, General view:

ReSHEALIENCE is a project with a duration of 48 months, starting in January 2018, and a budget of 5,557,595.50 €.

**> GENERAL OBJECTIVES**

- 1 **Increase significantly the durability of concrete** to decrease maintenance and reduce consumption of resources.  
This innovative and sustainable material is defined as Ultra High Durability Concrete (UHDC).
- 2 **Quantify and predict the durability of UHDC structures** in different service conditions when subjected to Extremely Aggressive Exposures (EAE).
- 3 **Validate the capacity of the UHDC** and the new developments, through 6 pilots (TRL5-TRL7) covering two strategic sectors (SS) where the material is expected to add high value and generate large impacts.

The project is oriented to support two EU strategic priorities (SP):

**BLUE GROWTH**

The development of the high blue economy potential is promoted with pilot 3 (Offshore energy, embracing wind, wave and tidal), pilot 4 (aquaculture infrastructures) and pilot 6 (coastal protection).

**GREEN GROWTH**

Move towards an energy efficient economy is faced through applications for geothermal and biomass power plants (Pilots 1, 2), and efficient use of resources retrofitting of existing structures (pilot 5).

**> 14 PARTNERS**

**COORDINATOR**

POLITECNICO MILANO IMA, BANAGHER PRECAST CONCRETE, Ben-Gurion University of the Negev, CSIC

Cyes, enel, LeUniversita for Health, NAFEN

PENETRON, RDC, APIgroup, HILSTRESS

**THIRD PARTIES**

TECHNISCHE UNIVERSITÄT DRESDEN, UNIVERSITAT POLITÈCNICA DE VALÈNCIA, DIFOR

**> WORK PACKAGES**

1 Ethics (Leader: PMIM)	2 Project management (Leader: PMIM)	3 Rethinking structures in XS/XA (Leader: CMW)
4 Concept and development of UHDC (Leader: UPV)	5 Quantification of UHDC improved long-term durability performance (Leader: CSIC)	6 Modelling long-term durability of UHDC materials and structures (Leader: TLU)
7 Business opportunities of the developed UHDC materials and structural solutions (Leader: STRESS)	8 Validation and proof of concepts in real-site durability conditions (Leader: EGP) (pilots)	9 Dissemination and exploitation of results (Leader: RDC)

**RESHEALIENCE**  
Ultra High Durability Concrete  
<https://uhdc.eu>

**RESHEALIENCE**  
Ultra High Durability Concrete

Rethinking coastal defence and green Energy Service infrastructures through enHancEd durAbiLiTy high-performance fiber reinforced cement based materials

760824\_H2020-NMBP-2016-2017, RIA

This project has received funding from the European Union's Horizon H2020 research and innovation programme under grant agreement N° 760824

Side 2, General view:

**> 5 KEY PERFORMANCE INDICATORS**  
FOR EACH SPECIFIC OBJECTIVE AND ITS TARGET VALUE

<b>KPI 1a</b> TRANSPORT PROPERTIES <b>100%</b> Improvement in on-castable date	<b>KPI 1b</b> CHEMICAL ATTACK RESISTANCE <b>30%</b> Improvement in cracked state	<b>KPI 2a</b> SERVICE LIFE <b>30%</b> Increase of service life	<b>KPI 2b</b> MAINTENANCE COST <b>50%</b> Reduction of costs	<b>KPI 3</b> ACCURACY <b>75%</b> of accuracy for any modelling	<b>KPI 4</b> BUSINESS PLANS <b>8</b> One per industrial partner	<b>KPI 5</b> COMMUNICATION OBJECTIVE <b>300</b> subscribers per year to the newsletter
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**> MAIN MILESTONES**

Kick-off meeting

M7.1. Definition to perform LCA, LCC and SLCA

M4.1. UHDC Formulations

M5.1. Selection of monitoring systems for UHDC

M3.1. Holistic Approach UHDC and structure

M8.1. Pilots Built

M6.1. LCA/DAD developed

M7.2. Availability of LCA, LCC, SLCA

M8.2. 1st monitoring assessment

M7.3. Results from Strategy/Business Model

M6.2. LCA/DAD verification based on WP7

M2.1. Management and implementation

M9.1. First 2-day event

M2.2. Intermediate reporting

M9.3. Target number of MOOC subscribers reached


M2.3. Final Reporting

**> 6 PILOTS**

<p> Larderello (Italy) Geothermal power plant tower basin (EGP)</p> <p><b>ACID ATTACK</b></p> <p>Cooling tower fluid collection basins are critical due to the fluid aggressiveness and environmental risks</p> <p>Reduced size basin (7x20m) close to an operating basin and fed with a side stream</p>	<p> Monterotondo (Italy) Drilling platform Mud collection basin (EGP)</p> <p><b>ACID ATTACK</b></p> <p>In drilling sites a residue basin is used during the mud recycling. Basins are chemically and mechanically stressed due to frequent dewatering</p> <p>A suitable drilling site will be identified where a new basin will be built with developed UHDC</p>	<p> Valencia coast Offshore wind floater (CMW+ED)</p> <p><b>CL INDUCED ATTACK MEDITERRANEAN SEA</b></p> <p>UHDC reduced size floater for off-shore wind towers in the Mediterranean coast to reach TRL6</p> <p>Reduced size floater for offshore wind turbines. The pilot will be done with a scale 1:5</p>	<p> Valencia coast Aquaculture mussel raft (RDC+IDIFOR)</p> <p><b>CL INDUCED ATTACK MEDITERRANEAN SEA</b></p> <p>UHDC mussel farming raft patented. Durable substitute of traditional wooden rafts</p> <p>Full-scale farming raft with a length of 27 m in Valencia Port. UHDC precast pre-stressed beams</p>	<p> Malta Public abattoir Damaged water tower (UM)</p> <p><b>CL INDUCED ATTACK</b></p> <p>Concrete water tower from 1st half of the XX century with severe degradation</p> <p>UHDC textile reinforcement and highly flowable UHDC will be used. Monitoring and control</p>	<p> Irish west coast (site to be determined) (BaPreC)</p> <p><b>NORTHERN SEA CL AND FREEZE INDUCED ATTACK</b></p> <p>Precast breakerwater elements along the British lakes coast. Current design foresees HPC and high covers</p> <p>6 x 3 x 1.2 m breakerwater elements with reduction of thickness and lower costs</p>
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### 3. Brochure pages

Page 1




**RESHEALIENCE**  
*Ultra High Durability Concrete*

**Rethinking coastal defence  
and green Energy Service infrastructures  
through enHancEd durAbiLity high-performance  
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PRECAST CONCRETE

**Ber-Gurion University**  
of the Negev

**CSIC**

**Cyes**  
MARITIME WORKS

**enel**  
Green Power

**L-Università**  
ta' Malta

**NAFEN**

**PENETRON**

**RDC**

**API Europe**

**stress**



**TECHNISCHE**  
UNIVERSITÄT  
DRESDEN



**UNIVERSITAT**  
POLITÈCNICA  
DE VALÈNCIA

### THIRD PARTIES



**D'APOLONIA**



**ENEROCEAN**



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improvement in un-cracked state

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M2.1. Management and implementation

M7.1. Definition to perform LCA, LCC and SLCA

M9.1. First 2 - day event

> **6 PILOTS**

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Geothermal power plant tower basin (EGP)

ACID ATTACK

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Drilling platform Mud collection basin (EGP)

ACID ATTACK

*In drilling sites a residue basin is used during the mud recycling. Basins are chemically and mechanically stressed due to frequent cleaning*

A suitable drilling site will be identified where a new basin will be built with developed the UHDC

D9.3, Project Brochures

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