EnDurCrete: New Environmental friendly and Durable conCrete, integrating industrial by-products and hybrid systems, for civil, industrial and offshore applications

The EnDurCrete project is a newly launched research project supported by the European Commission under the Horizon 2020 programme for Research and Innovation (Call H2020-NMBP-2017-two-stage, Project No. 760639) which started in January 2018 with a duration of 42 months. The project consortium is led by HeidelbergCement and it consists of sixteen partners from twelve European countries (Germany, Italy, France, Spain, Norway, Switzerland, Slovenia, Belgium, Czech Republic, Hungary, Greece and Croatia). Six out of 16 partners are SME's. Each partner has specific and high-value knowledge in all the scientific and technological branches that are necessary to meet the project goals.

Project objective

The main goal of the EnDurCrete Project is to develop a new cost-effective sustainable reinforced concrete for long lasting and added value applications. The concept is based on the integration of novel low-clinker cement including high-value industrial by-products, new nano and micro technologies and hybrid systems ensuring enhanced durability of sustainable concrete structures with high mechanical properties, self-healing and self-monitoring capacities. The key EnDurCrete technologies are: nano-enabled smart corrosion inhibitors, self-sensing carbon-based nanofillers, multifunctional coatings with self-healing properties and sensorised non-metallic reinforcement systems.
Innovative design concepts will be developed for smart installation, disassembly and re-use of the new green pre-cast and cast in place elements aiming at enabling easy recycling and re-using approaches.

Demonstrations

The functionality of the developed concrete structures will be proved under severe operating conditions supported by experimental and numerical tools to better understand factors affecting durability and capture the multiscale evolution of damage as well as to enable service life prediction. Demonstrators will be tested in working sites of tunnels, ports and offshore structures, in order to prove the enhanced durability and decreased cost of the new concrete systems in such critical applications. Four demonstrations will be located in Spain, Norway, and Croatia.

EnDurCrete consortium met during the Kick-off meeting on 16th January 2018 in Brussels, Belgium. The project partners introduced themselves and discussed the planned activities for the next six-month period within the work packages. It was a great opportunity for partners to meet each other face-to-face and to establish successful cooperation.

Project partners

EnDurCrete is coordinated by HeidelbergCement and will be run in cooperation with 15 European partners: ADVANCED MANAGEMENT SOLUTIONS, KVAERNER, ZAG, UNIVERSITA TECHNICA DELLE MARCHE, VITO, INFRA PLAN KONZALTING, RINA, SIKA, NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, NUOVA TESI SYSTEM, IBOX, GEONARDO, FENIX TNT, ACCIONA, and CEA.

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Press and media enquiries can be directed to:
Coordinator: Dr. Arnaud Muller, arnaud.muller@htc-gmbh.com, +49 6221 4811 3676
Dissemination & Exploitation manager: petra.colantonio@fenixtnt.cz, +420 732 822 538