endurcrete

New **En**vironmental friendly and **Dur**able con**Crete**, integrating industrial by-products and hybrid systems, for civil, industrial and offshore applications

EnDurCrete project presentation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 760639.

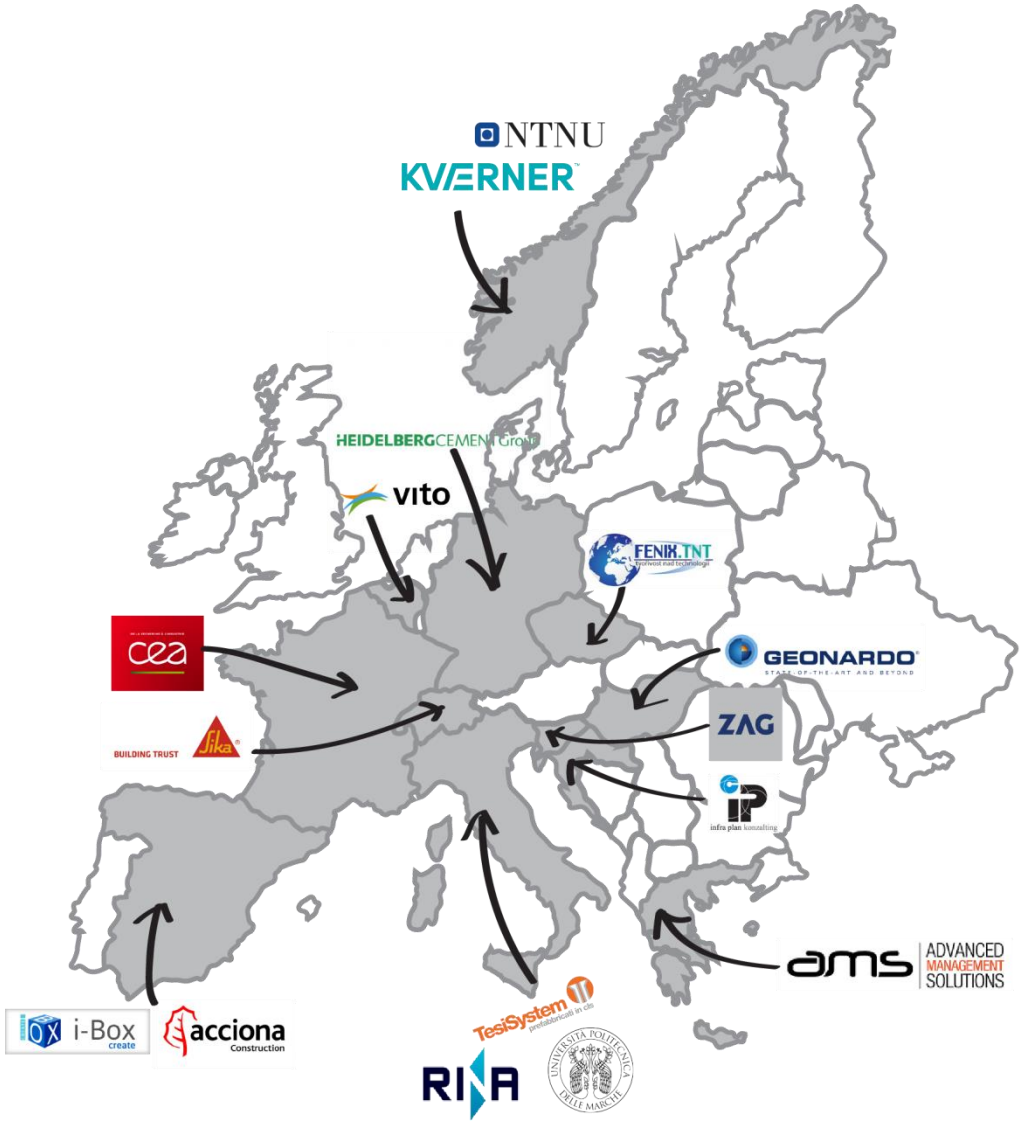
EnDurCrete Project

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

The main goal of EnDurCrete Project is to develop **a new cost-effective sustainable reinforced concrete** for long lasting and added value applications.

Partners

16 partners
from
12 countries



Project objective

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:

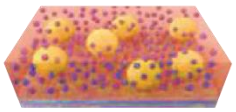
- → Nano-enabled smart corrosion inhibitors
- → Self-sensing carbon-based nanofillers
- → Multifunctional coatings with self-healing properties
- → Sensorised non-metallic reinforcement systems
- → Novel cement (CEM II/C and CEM VI)

Overall concept at a glance

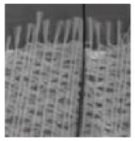
EnDurCrete concept is based on the following novel technologies and tools:

- Novel CEM II/C and CEM VI cements
- Novel low cost smart fillers
- Advanced non-destructive continuous and testing tools and procedures
- New multifunctional coatings
- Concrete non-metallic multifunctional reinforcing systems
- Coupled experimental and computational approach for theoretical and experimental understanding of factors affecting durability

Sustainable durable cement



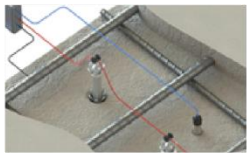
Self-healing and self-monitoring fillers and coatings



Sensorized non-metallic reinforcing system

Durability modelling, testing, monitoring and standardization

Demonstration of pre-cast and ready-mix concrete prototypes in hash environments



Overall Approach

- Test functionality of **new concrete technologies** under severe operating conditions (4 demo-sites)
- Develop **experimental and numerical tools** to understand factors affecting the durability and to capture the multiscale evolution of damage
- Develop **models for service life prediction**

Expected Impact

- Strengthening **competitiveness of the European industry**, including in the field of “green” technologies
- Positive **LCA balance**
- At least **30% improved durability**
- At least **30% lower cost**

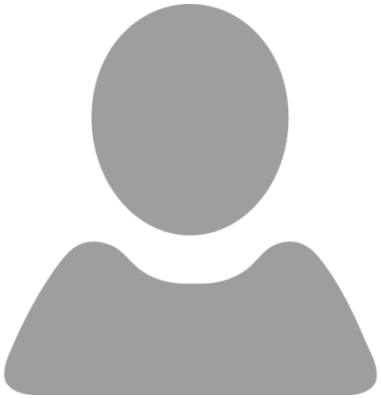
Demosite

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. Innovation aspects such standardization, life cycle assessments, health and safety and training activities will be addressed.

1. **Port of Gijón "El Musel" in Spain**
2. **Mining tunnel facility in Leon, Spain**
3. **Ship Yard in Norway**
4. **Krk Bridge in Croatia**

Contact Info

For further project information please contact:



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