Self-healing concrete to create durable and sustainable concrete structures

Fact Sheet

Project information

HEALCON

Grant agreement ID: 309451

Project website

Status

Closed project

Start date

1 January 2013

End date

31 December 2016

Funded under:

FP7-NMP

Overall budget:

€ 5 610 518,80

EU contribution

€ 3 997 429

Coordinated by:

UNIVERSITEIT GENT

Belgium

Objective

"Within the call “Self-healing materials for prolonged lifetime”, self-healing concrete is an important topic. Adequate perpetuation of the road, tunnel and bridge network, is crucial to preserving European cohesion and business operations; and around 70% of this infrastructure is made of concrete. In order to guarantee liquid tightness of concrete structures, and enhance durability of elements prone to bending cracks, smart concrete with self-healing properties will be designed. Thanks to the existing expertise of the consortium in the field of self-healing concrete at a lab scale, a thoughtful selection of promising techniques is possible. For early age cracks a non-elastic repair material can be proposed, such as calcium carbonate precipitated by bacteria, or new cement hydrates of which the formation is stimulated by the presence of hydrogels. For moving cracks under dynamic load, an elastic polymeric healing agent is suggested. Different healing agents and encapsulation techniques are tested and scaled up. Self-healing efficiency is evaluated in lab-scale tests using purposefully adapted monitoring techniques, and optimized with the help of suitable computer models. Finally the efficiency is validated in a large scale lab test and implemented in an actual concrete structure. Life-cycle cost analysis will show the impact of the self-healing technologies on economy, society and environment compared to traditional construction methods."
Field of Science
/natural sciences/chemical sciences/inorganic chemistry/inorganic compounds
/social sciences/economics and business

Programme(s)

FP7-NMP - Specific Programme "Cooperation": Nanosciences, Nanotechnologies, Materials and new Production Technologies

Topic(s)

NMP.2012.2.1-3 - Self-healing materials for prolonged lifetime

Call for proposal
FP7-NMP-2012-SMALL-6

See other projects for this call

Funding Scheme

CP-FP - Small or medium-scale focused research project

Coordinator

UNIVERSITEIT GENT
Address
Sint Pietersnieuwstraat 25
9000 Gent
Belgium
Activity type
Higher or Secondary Education Establishments
EU Contribution
€ 643 360

Website
Contact the organisation

Administrative Contact
Nathalie Vandepitte (Ms.)

Participants (12)
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>EU Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEKNOLOGIAN TUTKIMUSKESKUS VTT</td>
<td>Finland</td>
<td></td>
</tr>
<tr>
<td>Address: Tekniikantie 4 A 02044 Vtt Espoo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity type: Research Organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Contact: Anne Hätelä (Mrs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVECOM</td>
<td>Belgium</td>
<td>€ 265 440</td>
</tr>
<tr>
<td>Address: Industrieweg 122p 9032 Gent-Wondelgem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Contact: Rik Daneels (Mr.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECHNISCHE UNIVERSITEIT DELFT</td>
<td>Netherlands</td>
<td>€ 504 174</td>
</tr>
<tr>
<td>Address: Stevinweg 1 2628 Cn Delft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity type: Higher or Secondary Education Establishments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Contact: Maarten De Groot (Mr.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACCIONA CONSTRUCCION SA
Spain
Address
Avenida De Europa 18
Parque Empresarial
28108 Alcobendas
Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)
EU Contribution
€ 296 130
Contact the organisation
Administrative Contact
Miguel Angel Paris Torres (Mr.)

TECHNISCHE UNIVERSITAET MUECHEN
Germany
Address
Arcisstrasse 21
80333 Muenchen
Activity type
Higher or Secondary Education Establishments
EU Contribution
€ 448 740
Website
Contact the organisation
Administrative Contact
Katrin Hörmann (Ms.)

TTI-TECHNOLOGIE-TRANSFER-INITIATIVEGMBH AN DER UNIVERSITAT STUTTGART
Germany
Address
Nobelstrasse 15
70569 Stuttgart
Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)
EU Contribution
€ 248 768
Website
Contact the organisation
Administrative Contact
Markus Krüger (Dr.)
Teknologian tutkimuskeskus VTT Oy
Finland

Address
Vuorimiehentie 3
02150 Espoo

Activity type
Research Organisations

EU Contribution
€ 454 635

Website
Contact the organisation

Administrative Contact
Anne Hätelä (Mrs.)

COWI AS
Denmark

Address
Parallelvej 2
2800 Kongens Lyngby

Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)

EU Contribution
€ 127 202

Website
Contact the organisation

Administrative Contact
Carola Katharina Edvardsen (Dr.)

TEKNOLOGISK INSTITUT
Denmark

Address
Gregersensvej 1
2630 Taastrup

Activity type
Research Organisations

EU Contribution
€ 210 180

Website
Contact the organisation

Administrative Contact
Dorthe Mathiesen (Dr.)
<table>
<thead>
<tr>
<th>Organisation</th>
<th>EU Contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>INNCEINNMAT SL</td>
<td>€ 338 600</td>
<td>Avenida Ferrandis Salvador 5 Entlo 6 12100 Castellon De La Plana</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEVAN-MICROPOLIS S.A.</td>
<td>€ 258 360</td>
<td>Rua Eng Frederico Ulr 2650 4470 605 Maia</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FESCON OY</td>
<td>€ 201 840</td>
<td>Myllykatu 3 05830 Hyvinkää</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
</tbody>
</table>