R&D PROJECT

COMSA CORPORACIÓN

Title of the project

Multifunctional materials designed for the reinforcement and monitoring of transport infrastructures

Acronym

MAPMIT

Content of the project

The current economic context is leading to rethinking of the usual scenarios for investment in new infrastructures, consolidating new options for the repair and rehabilitation of existing heritage. This option contributes decisively to improving the sustainability of our society, reducing the consumption of raw materials and th emission of pollutants.
The repair and rehabilitation of transport infrastructure is of vital importance, not only because of the needs that will arise in a few years' time as many of the infrastructures built during the economic boom years catch up, but also because of the social demand for the proper use of the infrastructures that have been built.
MAPMIT project aims to develop a method for the repair, rehabilitation and/or reinforcement of transport infrastructures (tunnels, slopes and bridges) by spraying a monolayer of polyfunctional cementitious material (mortar and concrete). This method also considers the development of new techniques to monitor the short and medium-term evolution of the material's properties.

General objectives

The project acts on 5 fundamental pillars:

- Improvement of mechanical properties of materials used both for short and long term.
- Development of new families of alkali-free accelerators to improve the strength and adhesion of shotcrete.
- Development of calculation models that consider the specifications of the projected material.
- Improvement of quality control techniques and development of non-destructive techniques based on multi-sensory monitoring.
- Providing multi-criteria evaluation tools to assess the performance of the materials used and to quantify in a global way the sustainability of reinforcement, repair and rehabilitation upgrades.

Results and conclusions

MAPMIT project has concluded with results that can be considered satisfactory. The main results have been the following:

- A new US electronic monitoring system has been developed: a modular, low-noise multi-channel system.
- An instrumented trough suitable for concrete spraying environments has also been designed with a calibration method for velocity measurement.
- In order to obtain correct velocity monitoring in aggressive environments, signal processing functions optimised for performance have been used.

COMPANIES
Industrias Químicas del Ebro
COMSA
Universitat Politècnica de Catalunya
CSIC (Consejo Superior de Investigaciones Científicas)

BUSSINESS AREAS
Infrastructure area
COMSA, S.A.

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2015-2018

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1.657.379,96€

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EXTERNAL FUNDING

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