Project description

Background

The vast quantity of natural stone products used in the construction industry generates significant amounts of slurry deposits - estimated at five million tonnes per year in Europe. These deposits are often toxic as they contain chemicals from the mining processes, yet they are typically disposed of in poorly controlled or un-controlled dumps. This can lead to persistent and gradual contamination of soil, groundwater and surface water. There can also be major failures of the dumps, where large amounts of contaminants are suddenly released into the ground and/or water systems. This can have a significant environmental impact and present risks to human health.

Research at laboratory scale has found that drying the slurry can produce material with potential industrial applications, where there is a demand for micronized minerals as fillers. This includes the production of cement, concrete, ceramics and paints.

Novelda is a town of around 30 000 inhabitants in the province of Alicante, Spain. The area contains some important marble, limestone, silica, clay and gypsum mines and quarries. It is estimated that this mining area produces 250 000 tonnes of slurries annually.

Objectives
The main objective of the RECYSLURRY project is the development and demonstration of a methodology for the recycling and valorisation of slurries produced during the industrial processing of natural stone products. It aims to overcome technical challenges in recycling this slurry and demonstrate the economic viability of the new process.

The project will develop a pilot process for taking the slurries and turning them into usable material. This will include the fast and easy characterisation of the slurries and a drying process. Small and medium enterprises from four sectors of activity - cement, concrete, prefabricated building materials and ceramics - will be selected to trial the resulting material. The project expects to demonstrate at least ten different applications, such as in self-compacted concrete, cement additive, bricks, tiles and porcelain.

In this way, the project seeks to demonstrate the potential application at industrial scale. Its target is to be able to successfully treat and reuse 50% of the slurries produced annually in the Novelda area.

RECYSLURRY will develop guidelines for the management and recycling of slurries from the natural stone sector, with the ultimate objective of 100% recycling in the near future. These guidelines will set out the potential industries and markets which are demanding micronized minerals.

Expected results:
- The successful treatment of 125 000 tonnes of natural stone slurries per year;
- The use of all the recycled material in at least ten new products in four industrial sectors - cement, concrete, prefabricated building materials and ceramics;
- The elimination of uncontrolled slurry dumps in the project area and the removal of associated risks of contamination;
- Reduced demand for raw micronized materials, lowering the environmental impact of the quarries.

Results
industrial waste, waste use, building industry

Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator
ASOCIACION DE INVESTIGACION DE INDUSTRIAS DE LA CONSTRUCCION

Type of organisation
Research institution

Description
AIDICO-Sp is a private, not-for-profit technological/research institute focusing on the construction sector.

Partners
Asociación para la Investigación y Desarrollo Industrial de los Recursos Naturales, Spain
Centro Tecnológico para o Aproveitamento e Valorição as Rochas Ornamentais e Industrais, Portugal Internazionale Marmi e Macchine Carrara, Italy Ayuntamiento de Novelda, Spain

Administrative data:

Project reference
LIFE10 ENV/ES/000480

Duration
01-SEP-2011 to 30-AUG -2014

Total budget
1,401,343.00 €

EU contribution
700,671.00 €

Project location
Comunidad Valenciana(España)
Alentejo(Portugal)

Read more:

Project web site
Project's website