INNOVATIVE USED TYRES RECYCLING AND RUBBER SINTERING PROCESS FOR ECO-FRIENDLY URBAN EQUIPMENT FABRICATION

ECO-RUBBER

The 27 countries of the EU had to dispose of 3.4 million tonnes of tyres in 2007 alone, according to the Tyre and Rubber Manufacturer’s Association. Only 38% of those were recycled while 32% were used as fuel – substituting one problem for another in the form of emissions. The main goal is to implement an eco-friendly and profitable process to use recycled tyres as a raw material for obtaining high quality urban furniture products. It is planned to industrialize and implant a new sintering process using crumb recycled rubber as a raw material. Being necessary to optimize the complete line: grinding (WP2), mixing (WP4) and sintering processes (WP5). During WP3 the urban product will be defined and designed. To eliminate the emotional barriers to the use of urban furniture made of recycled rubber, an eco-label will be implanted, showing the benefits of the use of this kind of recycled material (WP6). According to the characteristics of elasticity of used tyres, employing them to fabricate urban furniture will mean an improvement in the urban comfort and safety. As a result, a new market for the crumb recycled rubber will emerge to use it as a raw material for high-valued products.

Benefits

An adapted industrial recycling process to supply innovative recycled rubber urban furniture products manufactured by an innovative sintering process.

Results

- An adapted and improved grinding process: to obtain the targeted particle morphology and zero contaminants, to improve the morphologies synergy blends to obtain recycled rubber with enhanced properties.
- An optimized sintering formulation which allows maximising the percentage of crumb recycled rubber together with some mechanical properties of the final product.
- An optimized sintering process including dosing chamber and pre-heated phases. Design and selection of missing and dosing equipment has been performed. Furthermore, optimized sintering process has been implemented at BERLA facilities.
- An Ecolabel stamp for the developed products in order to eliminate user attitude barriers to the use of urban furniture made of recycled rubber. A specific stamp to be placed into the bollards and increase the visibility of its sustainability has been designed. In addition, a brochure explaining its benefits has been produced based on an LCA study. Finally, a proposal for an EU-ecolabel group has been sent.
- An aid to the introduction of simulation programs into the design process of recycled products.
that enables to predict and assess the final product performance. The methodology for simulating recycled rubber products has been defined and validated with real impact tests.

**Partners and coordinator**

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<td>ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS - AIMPLAS</td>
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<td>INSTITUTO DE BIOMECANICA DE VALENCIA</td>
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<td>RECIPNEU, Empresa Nacional de Reciclagem de Pneus, LDA</td>
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**Budget**

Overall budget: 1.022.304,00 € (EU contribution: 52,00 %)

**Key documents**

- Project Fact File [5]
  PDF 35.95 KB

**In brief**

Sector: Recycling

Duration: 02/07/2009 to 01/01/2012

Contract number: ECO/08/239112

Website: http://www.eco-rubber.eu/

**Tags:**

- recycling
- rubber
- tyres
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