

R&D PROJECT



Title of the project

New high-performance and long-lasting ballast for sustainable railway infrastructures

Acronym

NEOBALLAST

Content of the project

Large cyclic loading due to train passage, weathering and also periodical tamping activities result in progressive deterioration of ballast aggregates, which leads to a descent of track quality. Tamping can be repeated until the ballast layer is contaminated with fines and aggregates are rounded, and thenceforth, maintenance is no longer effective to recondition track quality and ballast cleaning, or track renewal is required. Since ballast cleaning is an intrusive and costly operation, IMs often decide to renew the whole track superstructure even though the rest of materials (rails, sleepers, etc.) have not reached the end of their service lives. Therefore, ballast is usually regarded as the critical element in overall track service life.

In this context, a R+D Project was developed in 2012 with the aim of developing a high-performance ballast which was able to enlarge the life cycle of the ballast, reducing its vibration level and environmental impact. The project finished with a small-scale validation under real conditions.

General objectives

The objective of this project is to progress with the reached results by means of the demonstration of it's working in a pilot-test under real conditions (two test sections will be installed, a first one in the Spanish and a second one in the Belgian railway network), the standardisation of the product and the launching on the market. In this sense, four main steps are envisioned to attain a successful and effective market uptake.

- Prototype development and large-scale production
- Demonstration, monitoring and evaluation
- Dissemination and communication
- Exploitation and commercialization

Results and conclusions

The main results obtained in the project are the following:

- Prototype capable of producing at 4 T/h
- Preliminary prototype design to scale production to 40 T/h
- Field test of 100 m of Neoballast between Caldes de Malavella and Maçanet-Massanes on ADIF road open to traffic
- Vibration reduction around 10dB Reduction of environmental impact (LCA) by 30% with respect to conventional ballast
- Reduction of LCC by 20% with respect to conventional ballast
- Creation of the company Neoballast S.L. to manufacture the new machine and market Neoballast.

It is concluded that the results of the project have been outstanding.



BUSSINESS AREAS
Infrastructure area
COMSA, S.A.

DURATION
2016-2019

BUDGET
2.275.125 €

KEYWORDS
Ballast, Railway maintenance,
Tamping, Track renewal,
Infrastructure management

COORDINATOR
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EXTERNAL FUNDING

