Recycling and multi-recycling of asphalt mixes

How many times can a mix be recycled? What are the differences and similarities between hot and warm recycling? These are the two questions the National Project MURE sets out to answer.

This is a collaborative research and development project that brings together all the stakeholders involved in road construction. The programme will run for four years starting in March 2014.

The overall budget is €4.7M, €2.3M of which will be provided by the ANR (National Research Agency) in the framework of the IMPROVMURE project which will get underway in March 2014.

IMPROVMURE (Innovation for Materials and Processes for Improving the Multi-Recycling of Mixes) has the principal goal of characterizing the remobilization of the binder from recycled materials with added binder and evaluating its impact on the durability of mixes.

Goals

To answer the technical, material, health-related, environmental, standardization and regulatory issues raised by:

- The combination of recycling and the lowering of mix manufacture temperatures (warm mixes);
- The advent of multi-recycling. We are beginning to recycle layers of mix that already contain recycled materials.

Anticipated outcomes

- Continued development of warm mixes without stopping recycling
- Attainment of the objectives of the Voluntary Commitment Agreement1
- Increase the confidence of all stakeholders with regard to the ability of multi-recycled mixes to perform their functions
- Improved public image for the profession

Method

Diagram of a demonstrator that simulates three maintenance cycles:
1. Laying of mixes that contain 40 or 70% of Recycled Asphalt Pavement RAP
2. Milling and production of RAP1 by accelerated ageing
3. Milling and Production of RAP2
4. Milling and Production of RAP3

⇒ 300 m, 3 test strips, 3 pavement life cycles

Inception of the project

The idea for the project was born in the Rhône-Alpes region within the INDURA cluster (Rhône-Alpes Sustainable Infrastructure). It is now officially recognized as a National Project (NP)2 and is assuming national proportions under the management of IREX (Institute for Applied Research and Trials in Civil Engineering) and with the support of the MEDDE (the Ministry of the Environment, Sustainable Development and Energy).

To ensure the interests of all the stakeholders are considered, all the players who are willing to become involved are invited to join the project www.pmure.fr.

“Cats and bituminous mixes have many lives. In the case of the mixes this has been proven!”

1The Voluntary Commitment Agreement made by stakeholders in the design, construction and maintenance of roads and urban public space (25 March 2009)
2A National Project involves a specific procedure for conducting collaborative R&D in the sphere of construction, supported by the Ministry of the Environment, Sustainable Development and Energy in the framework of the RGC&U (Civil and Urban Engineering Network)