

## Warm mixes: The success of trial areas laid by Eurovia confirms the potential of this environmentally-friendly process

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Determined to take a pro-active approach to developing products that protect the environment, Eurovia initiated research in 2000 aimed at reducing the temperatures at which asphalt mixes (made from aggregate and bitumen) are produced and laid.

The research resulted in the development of an additive, Aspha-Min<sup>®</sup>, a synthetic zeolite containing approximately 20% crystalline water which is gradually released during the coating process. The use of this additive makes it possible to reduce asphalt mix coating - and laying - temperature by over 30°C, while maintaining its workability and density. This process can be used for all types of mixes and does not alter their mechanical properties following in situ application. In addition, no major changes in mix plants are needed. Apart from the energy savings that are achieved (the processes reduces energy costs by approximately 20%), the lower coating temperature results in lower gas (CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>2</sub> and VOC) emissions during mix production and laying. It therefore helps to protect the environment.

Following the first experimental trials at the end of 2002, Eurovia developed the process as part of a Motorway Innovation Charter signed in 2003 with Sétra, the Direction des Routes highway department, Cofiroute and ASFA (Association des Sociétés Françaises d'Autoroutes). Under this Charter, some 9,000 tonnes of warm mix were laid in two trial areas on the A81 motorway in September 2003 and May 2004 respectively.

To date, Eurovia has successfully completed some ten warm mix projects using a total of 53,000 tonnes. These projects, carried out in France, Germany and the United States, have demonstrated that the warm mix process can be used in all pavement courses (wearing, binder and base), mix formulations (very thin asphaltic overlay, thin asphaltic overlay, semi-coarse asphaltic concrete and road base asphalt), bitumen types (pure and polymer-modified) and grades, production methods (batch and continuous mix plants with and without recycling), laying conditions (outdoor temperature, humidity, etc.) and road types (motorways, departmental and national highways, urban streets, etc.).

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## Warm mixes with Aspha-Min®: a process with multiple benefits

The warm mix technique has a wide variety of advantages. Under certain conditions warm mix can be a good alternative to conventional mix.

Off-season, when ambient temperatures are too low to lay conventional mix, warm mix retains its workability and can be applied.

Similarly, when ambient humidity is high and in bad weather, warm mix generates less water vapour (fog) than conventional mix during laying, thanks to its lower coating temperature.

The use of warm mix provides crews with better working conditions as a result of the reduced generation of odours and fumes and the lower temperatures at the worksite. These qualities make warm mix particularly well suited for use in confined spaces such as tunnels.

Finally, warm mix is an appropriate technique for use in projects requiring rapid re-trafficking.

*Eurovia will present the warm mix with Aspha-Min® technique at the  
Salon des Maires et des Collectivités Locales exhibition held in Paris,  
16 to 18 November 2004, Hall 3, Stand C15  
and at Pollutec in Lyon, 30 November to 3 December 2004,  
Hall 7 Stand No. 7204*

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