

Comment

Next generation mixtures ready to roll



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We anticipate in June, publication of the TRL report 'The Application of Enrobé à Module Élevé in Flexible Pavements'. This will be a major step in the introduction of French EME class 2 asphalt mixtures to the UK. An appendix to the report will contain a draft specification for EME mixtures in base and binder courses and we hope to publish a final version in the Specification for Highway Works in 2006. The next step is the use of EME 2 in pilot contracts to continue familiarisation with French binder production, design methodology and application techniques.

The attractions of EME 2 mixtures are excellent durability, high resistance to deformation and moderately high stiffness. They are durable because of the type of binder; relatively high binder contents - typically 5.5% - and low air void contents; and are designed to provide high resistance to fatigue. The maximum aggregate sizes

used in France are 20, 14 and 10mm and the greatest use has been made of 14mm mixtures, although there is now a trend to smaller aggregate sizes.

Mixture design is quite complex. There are minimum binder content requirements and a minimum binder richness modulus of 3.4, which is an estimation of binder film thickness. Minimum binder contents are typically 5.2, 5.4 and 5.6% for 20, 14 & 10mm mixtures, with the richness modulus more often above rather than at the minimum of 3.4.

In France there are also differences in production tolerances. During production the binder content must never be less than 0.3% below the design target binder content, rather than the -0.6% to +0.6% we are used to, thus giving us a tolerance of -0.3% to +0.6% in the UK.

Also following French practice, EME 2 must always be laid on a strong sub-base - one with a minimum foundation stiffness

modulus of 120MPa. On French motorways, grave-bitume or cement-bound sub-bases are generally used. Layer thicknesses of EME 2 are typically 60 - 80 mm, 70 - 130 mm and 90 - 150 mm for 10, 14 and 20mm aggregate mixtures respectively and all layers must be fully bonded using tack coats with a residual binder of 250 to 300g/sq metre. There is a five-year guarantee required against delamination. Only 24t PTR rollers (ie ballasted up to 3 tonnes per wheel) are used to compact, finishing with wide steel non-vibrating rollers. Steel rollers must not be used in vibrating mode as this can induce micro-cracking in the surface.

EME 2 is not new or experimental. On the contrary, it is fully developed with an enviable track record of 25Mt or more laid in France over the last 20 years. It is easy to lay, highly durable, deformation resistant and is likely to become the preferred option for strengthening road pavements here as it is on the French motorways. **Taut mieux !**