

## Product



• THIS DETAIL SHEET RELATES TO THE MILEPAVE SURFACE COURSE SYSTEM FOR HIGHWAYS.

- The system is laid at nominal thicknesses of 30 mm for use as an alternative to conventional bituminous or concrete surface courses for new or maintenance construction on highways.
- The system is ideally suited to highways carrying low-speed traffic, eg residential and rural roads.

*This Detail Sheet must be read in conjunction with the Front Sheets, which give additional information on the HAPAS Requirements, Regulations and Conditions of Certification.*

## Technical Specification

### 1 Description

1.1 The Milepave Surface Course System for Highways comprises a 0/14 mm bituminous open-graded receiving course (100/150 pen binder) and an asphaltic liquid grout.

1.2 The system can be used in conjunction with a K1-40 bitumen emulsion tack coat to BS 434-1 : 1984 applied in accordance with the relevant recommendations of BS 4987-2 : 2003 to improve adhesion to the substrate.

1.3 For new or maintenance construction on a relatively impermeable substrate, the liquid grout is applied at a rate which ensures partial penetration of the receiving course.

## 2 General

2.1 The Milepave Surface Course System for Highways is satisfactory for use on highways carrying low-speed traffic and will provide a durable surface course particularly suited for residential or rural roads.

2.2 The system can be applied to a bituminous or concrete substrate provided the underlying layers of pavement are stable, and have sufficient load-spreading capabilities to support the imposed loading of the Milepave surface course and expected traffic and provided that adequate partial penetration of the grout has been achieved.

2.3 The system has been designed to have a resistance to deformation similar to that of a conventional asphalt surface course. The results are detailed within the *Technical Investigations* of this Detail Sheet.

2.4 The system can be brush finished to achieve initial surface textures >1.5 mm, if required.

2.5 The initial and retained skid resistance of the system was found to be satisfactory when measured over a six month period in accordance with the TRRL Road Research Laboratory Note 27 (1969) *Instructions for using a portable Skid Resistance Tester*. However, this will largely be dependent on the aggregate selection and should be taken into account when considering the skid resistance measurements within the *Technical Investigations* of this Detail Sheet.

## 3 Curing

Once the grout has been applied and partial penetration has been achieved, the road can be opened to traffic in accordance with the recommendations given in BS 4987-2 : 2003.

## 4 Durability

4.1 The system has been used in the UK since 1992 and available evidence indicates that it can provide a satisfactory alternative to conventional bituminous and concrete surface course materials on lightly trafficked highways carrying low-speed traffic.

4.2 Where substrates are structurally sound and their load-spreading capabilities are adequate to accommodate the imposed loading associated with the installation of the system and expected traffic levels, available evidence suggests that the system will provide a durable surface course with a life expectancy comparable to that of conventional asphalt surfacing.

## Technical Investigations

The following is a summary of the technical investigations carried out on the Milepave Surface Course System for Highways.

## 5 Tests

A series of laboratory and road tests was carried out on the system. The results of the tests are detailed in Tables 1 and 2.

*Table 1 Results from laboratory tests carried out on cores taken from a trial slab of Milepave installed in accordance with the Certificate holder's method statement*

Test	Method	Mean result
Wheel tracking at 60°C <sup>(1)</sup>	Appendix A.1 Guidelines document	
Rate (mm h <sup>-1</sup> )		4.9
Rut depth (mm)		7.7
Torque bond strength at 20 ± 20°C (kPa)	Appendix A.3 Guidelines document	285 <sup>(2)</sup>

(1) Mean core thickness = 39 mm.

(2) Mode of failure = Interface failure. Cores taken at 7 days and tested at 38 days after installation. Milepave was applied to a Hardcrete substrate with a K1-40 tack coat to improve adhesion.

*Table 2 Road tests — based on Milepave using 0/14 mm, Cashel gritstone aggregate on two sites at Sparrows Herne, Basildon, Essex*

Test	Method	Results <sup>(1)</sup>
Texture depth	BS 598-105	
Initial <sup>(2)</sup>		1.1–1.8
Retained <sup>(3)</sup>		1.1–1.8
Skid resistance	TRRL Road Note 27 1969	
Initial <sup>(2)</sup>		49–56
Retained <sup>(3)</sup>		56–89

(1) Range of results measured.

(2) Initial measured approximately two months after installation.

(3) Retained measured six months after initial.

## 6 Investigations

6.1 An installation trial was carried out to assess the practicability of the installation and on-site quality control procedures. A visual inspection of the site concluded that it was free from significant abnormalities.

6.2 A user specifier survey relating to the performance in use was carried out to assess the systems performance and durability.

6.3 The manufacturing process for the liquid grout was examined by inspection of the factory and the methods adopted for quality control, and the quality and composition of the materials used. The inspection confirmed that the plant operated in accordance with requirements of the Quality Plan and Quality System agreed with the BBA.

6.4 The BBA carried out additional visits to existing sites to confirm the visual performance of the system.

## Bibliography

BS 434-1 : 1984 *Bitumen road emulsions (anionic and cationic) — Specification for bitumen road emulsions*

BS 598-105 : 2000 *Sampling and examination of bituminous mixtures for roads and other paved areas — Methods of test for the determination of texture depth*

BS 4987-2 : 2003 *Coated macadam (asphalt concrete) for roads and other paved areas — Specification for transport, laying and compaction*



On behalf of the British Board of Agrément

Date of issue: 13th January 2006

Chief Executive

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