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H A P A S
Roads and Bridges
Agrément Certificate
No 06/H120

Designated by Government
to issue
European Technical
Approvals

MILES MACADAM GROUTED MACADAM SURFACE COURSE SYSTEMS FOR HIGHWAYS

This Certificate is issued under the Highway Authorities' Product Approval Scheme (HAPAS) by the BBA in conjunction with the Highways Agency (acting on behalf of the overseeing organisations of the Department for Transport; the Scottish Executive; the Welsh Assembly Government; the Department for Regional Development, Northern Ireland), the County Surveyors' Society, the Local Government Technical Advisers' Group, and industry bodies. HAPAS Agrément Certificates are normally each subject to a review every five years.

Product



• THIS CERTIFICATE RELATES TO MILES MACADAM GROUTED MACADAM SURFACE COURSE SYSTEMS FOR HIGHWAYS, COMPRISING AN OPEN GRADED BITUMINOUS RECEIVING COURSE, INCORPORATING EITHER A POLYMER-MODIFIED CEMENTITIOUS OR ASPHALTIC LIQUID GROUT.

- The systems are used in conjunction with a bitumen emulsion tack coat to enhance the adhesion to the substrate.
- The systems are marketed and installed by the Certificate holder.

These Front Sheets must be read in conjunction with the accompanying Detail Sheets which provide information specific to the particular system.

HAPAS Requirements — Detail Sheet 1

1 Requirements

1.1 The Highways Technical Advisory Committee (HiTAC) has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in the assessment of Miles Macadam Grouted Macadam Surface Course Systems for Highways. In the opinion of the BBA, Miles Macadam Grouted Macadam Surface Course Systems for Highways, when manufactured and installed in accordance with the provisions of this Certificate can be designed to provide an alternative to conventional bituminous or concrete surface courses for use on highways.

1.2 Additional requirements of the overseeing organisations for surface course products on highways are given in the Manual of Contract Documents for Highway Works (MCHW), Volumes 1 and 2, Series 900 and 1000.

Regulations

2 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See section: 4 Manufacture, quality control, delivery and site handling (4.3, 4.6 and 4.7) of these Front Sheets.

Technical Specification

3 Description

3.1 Miles Macadam Grouted Macadam Surface Course Systems for Highways comprise a series of mixtures principally consisting of a bituminous open-graded receiving course and either a polymer-modified cementitious or asphaltic grout. The systems can be used as part of new or maintenance constructions using existing standard design methods, eg HD 26/01, DMRB 7.2.3 *Pavement Design*.

3.2 The systems can be used in conjunction with a bitumen emulsion tack coat to BS 434-1 : 1984 in accordance with the recommendations given in BS 4987-2 : 2003.

3.3 The open-graded receiving course comprises paving grade bitumen to BS EN 12591 : 2000 and graded coarse and fine aggregates selected in accordance with BS 4987-1 : 2005, Clause 4 Constituent materials.

3.4 The choice of aggregates, types and sizes used will depend on site specific details, including location, and contractual requirements for polished stone value (PSV), texture depth and/or other properties. Reference should be made to the appropriate Detail Sheet for additional information on the system used.

3.5 The liquid grout is either polymer-modified cementitious or asphaltic grout. The cementitious grout comprises Portland cement, redispersible polymer powder, fine mineral aggregate and water; the asphaltic grout comprises paving grade bitumen, fine mineral aggregate, calcium carbonate and water.

4 Manufacture, quality control, delivery and site handling

Receiving course

4.1 The receiving course is manufactured to the Certificate holder's mix specification in conventional asphalt plants selected by the Certificate holder. Quality control is by visual inspection and compositional analysis in accordance with a BBA Agreed Quality Plan and Method Statement.

4.2 The receiving course is delivered to site in accordance with BS 4987-2 : 2003

4.3 The receiving course is not classified under the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3). Standard material safety data sheets for hot asphalts apply.

Liquid grout

4.4 The liquid grouts are manufactured, controlled and delivered by the Certificate holder in accordance with a BBA Agreed Quality Plan and Method Statement, which includes requirements for:

- incoming raw material inspection and testing
- method of production and process control
- in-process inspection and testing
- final inspection and testing
- delivery considerations and on-site storage.

4.5 The cementitious grout is delivered to site on a mobile grout production/laying unit which has a bulk storage tank and a dry storage area. The ingredients are delivered either in pre-mixed 750 kg bulk bags or correctly proportioned individual components.

4.6 The asphaltic grout is delivered to site ready mixed in bulk tankers. Handling and storage must be in accordance with the Certificate holder's safety data sheets.

4.7 The components for the cementitious grout are not classified as dangerous for supply. In addition to the recommendations in the Certificate holder's safety data sheets, normal procedures for storage and handling of cement and fillers should be observed.

Installation

5 General

Receiving course

5.1 The receiving course is installed by the Certificate holder in accordance with the Certificate holder's installation procedures and BS 4987-2 : 2003 which includes recommendations for:

- preparatory works at the laying site
- laying
- compaction
- limiting weather conditions.

5.2 The receiving course may be opened to traffic prior to the application of the liquid grout; however any areas accidentally damaged or contaminated by trafficking must be repaired before the application of the liquid grout.

Liquid grout

5.3 The liquid grout is applied by the Certificate holder in accordance with the Certificate holder's installation procedures which includes recommendations for:

- spread rates of the grout
- limiting weather conditions
- compaction
- support coat requirements.

5.4 The liquid grout is applied to the surface of the receiving course directly from the storage and transport unit and spread with brooms and squeegees. Grout movement through the receiving course is by natural percolation but can be aided by additional vibration using a vibrating plate or vibrating roller (Bomag 75/135).

5.5 The polymer-modified cementitious grout can only be applied when the receiving course has been compacted and cooled below 40°C. The asphaltic grout can be applied immediately after compaction of the receiving course.

5.6 Grout spread rate is calculated by measuring the square-metre coverage versus the tonnage of grout used. The spread rates are dependent on the type of Miles Macadam Grouted Macadam system. Additional information can be found in the accompanying Detail Sheets of this Certificate.

5.7 The liquid grouts should not be applied to the receiving course if free standing water, ice or snow is present, or during periods of heavy rain, or if

exposure to frost is likely to occur during initial curing.

6 Maintenance and repair

In the event of damage during the installation or during service, the system can be repaired by removing the damaged area and re-instating the system in accordance with the installation process detailed in section 5 of these Front Sheets.

Bibliography

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

BS 4987-1 : 2005 *Coated macadam (asphalt concrete) for roads and other paved areas — Specification for constituent materials and for mixtures*

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

BS EN 12591 : 2000 *Bitumen and bituminous binders — Specifications for paving grade bitumens*

Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highway Works*, August 1998 (as amended)

Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works*, August 1998 (as amended)

HD 26/01 *Design Manual for Roads and Bridges : Volume 7, Pavement Design and Maintenance : Section 2, Pavement Design and Construction : Part 3, Pavement Design*

Conditions of Certification

7 Conditions

7.1 This Certificate:

- (a) relates only to the product that is named, described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

7.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

7.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;
- (b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine;

(c) are reviewed by the BBA as and when it considers appropriate; and

(d) remain in accordance with the requirements of the Highway Authorities' Product Approval Scheme.

7.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

7.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, Miles Macadam Grouted Macadam Surface Course Systems for Highways are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 06/H120 is accordingly awarded to Miles Macadam Ltd.

On behalf of the British Board of Agrément

Date of issue: 13th January 2006

A handwritten signature in black ink, appearing to read 'G. A. Cooper'.

Chief Executive