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HAPAS Certificate
23/H6856
Product Sheet 1 Issue 1

ROADTECHS PATCH REPAIR PRODUCTS FOR HIGHWAYS

ROADPATCH MMA POTHOLE REPAIR SYSTEM

This Product Sheet(1) is issued by the British Board of Agrément (BBA). The Highways Authorities Product Approval Scheme (HAPAS) is supported by National Highways (NH) (acting on behalf of the Overseeing Organisations of the Department for Transport; Transport Scotland; the Welsh Government and the Department for Infrastructure, Northern Ireland), the Association of Directors of Environment, Economy, Planning and Transport (ADEPT), the Local Government Technical Advisers Group and industry bodies.
(1) Hereinafter referred to as 'Certificate'.

This Certificate relates to the Roadpatch MMA Pothole Repair System, a cold applied methyl methacrylate (MMA) resin patch repair system incorporating graded granite for use in potholes, reinstatements and other similar defects occurring in bituminous surfaces on non-trafficked and trafficked highways, in accordance with the *Manual of Contract Documents for Highways Works* (MCHW), Volume 1, Series 900, Clause 946.

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed as complying with the requirements of the BBA HAPAS Certification Scheme according to the assessments set out in this Certificate.

On behalf of the British Board of Agrément

Date of issue: 24 May 2023

Hardy Giesler
Chief Executive Officer

This BBA HAPAS Certificate is issued under the BBA's accreditation to ISO/IEC 17065 (UKAS accredited Certification Body Number 0113).
Clauses marked † are additional information outside the scope of accreditation.
Readers MUST check the validity and latest issue number of this BBA HAPAS Certificate by referring to the BBA website or contacting the BBA directly.
The Certificate should be read in full as it may be misleading to read clauses in isolation.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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1 Product Description

The Certificate holder specifies the system under assessment, the Roadpatch MMA Pothole Repair System, as a methyl methacrylate (MMA) based patch repair system in accordance with the *Manual of Contract Documents for Highways Works* (MCHW), Volume 1, Series 900, Clause 946.

1.1 The system comprises:

- 0/1, 0/2 or 0/5, and 0/6 mm graded granite aggregate to BS EN 13043 : 2002
- MMA binder
- dibenzoyl peroxide (BPO) catalyst.

1.2 The product has the surface characteristics given in Table 1.

Table 1 Surface characteristics

Characteristic (unit)	Value
Initial texture depth	>0.9 mm
Initial skid resistance value (SRV)	> 60
Polished stone value (PSV) of aggregate	>60

1.3 Use of the system

1.3.1 The Roadpatch MMA Pothole Repair System is satisfactory for use in minor routine or reactive repairs of potholes and other similar defects found in bituminous surfaces. Potholes are defined for the purpose of this Certificate as irregular-shaped defects with a total area less than 1 m^2 and a depth greater than 15 mm. They are not continuous or whole-width defects.

1.3.2 The system must only be installed where the adjacent area has surface properties which are equivalent to those of the Roadpatch MMA Pothole Repair System.

1.3.3 The system will satisfactorily fill a pothole or similar defect. It will not delay or stop the deterioration of the adjacent surface.

1.3.4 The properties listed in section 3 should be compared to those of the existing adjacent surface to ensure the system is compatible. Aggregate selection may depend on site-specific requirements for polished stone value (PSV) and aggregate abrasion value (AAV), and these parameters must be identified to ensure the correct aggregate is used.

1.3.5 If the properties of the existing adjacent surface are unknown, the *Department for Transport – Specification for the Reinstatement of Openings in Highways* (SROH), Fourth Edition, Section S2 provides additional guidance on categorising Local Authority Sites. For the motorway and all-purpose trunk road network, additional guidance can be found within the relevant parts of the MCHW, Volume 1 and the *Design Manual for Roads and Bridges* (DMRB), CD 236 *Surface Course Materials for Construction.*

2 Requirements

Requirements for the system are outlined in the BBA HAPAS Certification Scheme and Technical Specifications Documents, and have been established from the following specification documents:

- the MCHW(1), Volume 1, Series 100, 900 and clause 946
- the MCHW, Volume 2, Series NG 100 and NG 900
- the DMRB
  - CM 231 *Pavement Surface Repairs,* March 2020
  - PD 6691 : 2022 *Guidance on the use of BS EN 13108, Bituminous mixtures*
  - *Potholes and Repair Techniques for Local Highways*, ADEPT, March 2019.

(1) The MCHW is operated by National Highways (NH) (acting on behalf of the Overseeing Organisations of the Department for Transport; Transport Scotland; the Welsh Government and the Department for Infrastructure, Northern Ireland).

3 Summary of Product Assessment

The system was assessed on the basis of the following characteristics in accordance with HAPAS requirements.

3.1 Aggregate characteristics

Table 2 Aggregate characteristics

Roadpatch MMA Pothole Repair System	Assessment method	Requirement	Outcome
Aggregates	Polished stone value (PSV) to BS EN 1097-8 : 2009	> 60	Pass
Aggregates	Aggregate abrasion value (AAV) to BS EN 1097-8 : 2009	Characterisation	Characterisation
Aggregates	Particle size distribution (PSD) to BS EN 933-1 : 2012	Characterisation	Characterisation

The assessment showed that the system complies with HAPAS requirements for these characteristics.

3.2 Binder characteristics

Table 3 Binder characteristics

Roadpatch MMA Pothole Repair System	Assessment method	Requirement	Outcome
MMA Binder	Density to BS EN 13880-1 : 2003	Characterisation	Characterisation
MMA Binder	Flow Resistance to BS EN 13880-5 : 2004	Characterisation	Characterisation
MMA Binder	Ash Content to BS EN 12697-47 : 2010	Characterisation	Characterisation

The assessment showed that the system complies with HAPAS requirements for these characteristics.

3.3 System characteristics

Table 4 System characteristics

Product assessed	Assessment method	Requirement	Outcome
Roadpatch MMA Pothole Repair System	Resistance to deformation Wheel tracking at 60°C to BS EN 12697-22 : 2020	MCHW Cl 946 PD6691: 2022 D2 WTS_{AIR} Class1 & Class 2	Complies
Roadpatch MMA Pothole Repair System	Indirect tensile stiffness Modulus (ITSM) at 20°C to BS EN 12697-26 : 2004	MCHW SHW Cl 946 ≥ 1 GPa after 28 days	Pass
Roadpatch MMA Pothole Repair System	Initial and retained texture depth to BS EN 13036-1 : 2010	Initial Texture ≥0.9 mm Retained Texture ≥0.75 mm	Pass
Roadpatch MMA Pothole Repair System	Initial and retained skid resistance value (SRV) to BS EN 13036-4 : 2011	Initial SRV: ≥60 Retained SRV: ≥50	Pass

The assessment showed that the system complies with HAPAS requirements for these characteristics.

3.4 Durability

3.4.1 For planned routine maintenance work where best practice installation is followed and where the substrate and adjacent material are generally sound, the system will provide an effective repair.

3.4.2 For reactive (immediate/emergency/unplanned) repairs with minimum preparation and installation, the expected durability will be reduced.

3.4.3 The system may be susceptible to minor deformation, scuffing and marking, and de-bonding if used when a combination of the following apply:

- in areas of excessive turning, braking or static loads (eg, within the wheel track)
- when the complete depth of the repair is greater than 40 mm or greater than the surface course layer thickness
- on sites classified higher than Type 2 as defined in SROH.

3.4.4 The system is suitable for Types 2, 3 and 4 traffic levels (up to 10 million standard axles for Type 2 roads).

†3.5 The system may not be applicable for SRN traffic levels greater than 10 msa, . For SRN application above 10 msa, use of the system for SRN application will require validation, but this is outside the scope of this Certificate.

4 Summary of Process Assessment

Manufacturing process and quality control	Complies with HAPAS requirements
Delivery and site handling	Complies with HAPAS requirements
Installation	Complies with HAPAS requirements

4.1 Manufacture

4.1.1 The BBA has undertaken the following tasks for the assessment of product manufacture, and has established that the manufacture complies with BBA HAPAS Certification Scheme requirements:

- the BBA has recorded and evaluated the manufacturer's documentation of the methods adopted for quality control procedures and product testing against HAPAS requirements.
- the BBA has assessed the quality control operated over batches of incoming materials and formulations against HAPAS Requirements.
- the BBA has evaluated the process for management of non-conforming work.
- the BBA has audited the production process and verified that it is in accordance with the documented process.
- the BBA has checked that equipment has been properly tested and calibrated.

4.1.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

†4.1.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FS 608377).

4.2 Delivery and site handling

†4.2.1 The Certificate holder stated that the system is usually supplied in a pre-packed 25.3 kg kit, consisting of a pre-mixed and pre-weighed blend of MMA filler and aggregate (Part A), the BPO catalyst which is supplied in pre-weighed sachets (Part B), and a proprietary blend of aggregates (Part C), but it may also be supplied in other sizes on request.

†4.2.2 The packaging is labelled with the product name, health and safety and information and batch coding traceable to the date of production.

4.2.3 To achieve the performance described in this Certificate, the system must be stored under cover in cool, well-ventilated, dry conditions protected from freezing and high temperatures.

†4.2.4 When stored correctly, the Certificate holder states that the product will have a storage life of at least 12 months. For information on bulk supply storage the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

4.3 Design

4.3.1 To achieve the performance described in this Certificate, the design requirements given in section 2 must be followed.

4.3.2 Traffic management must be in accordance with the latest issue of the *Department for Transport Traffic Signs Manual*, Chapter 8, or as agreed between the overseeing organisation and the installer.

4.4 Installation

4.4.1 The Certificate holder's instructions for installation of the system were confirmed as meeting the BBA HAPAS Certification Scheme requirements. An installation trial was carried out to assess the practicability of installation.

4.4.2 To achieve the performance described in this Certificate, the system must be installed in accordance with the Certificate holder's method statement, the MCHW, Volume 1, Clause 946, the DMRB CM 231 *Pavement surface repairs* and CD 236 *Surface Course Materials for Construction*.

4.4.3 To achieve the performance described in this Certificate, the area to receive the repair must be prepared in accordance with the MCHW, Volume1, Clause 946 and the Certificate holder's instructions.

4.4.4 The system must only be installed when road temperature is between 5 and 35°C.

4.4.5 All surfaces must be swept clean and free from ice, loose material, oil, grease, standing water or other contaminants that may affect the bond to the existing surface.

4.4.6 A minimum of 30 minutes must be allowed for the system to cure before any excess broadcast aggregate is swept away.

4.4.7 On completion, the installer must visually inspect the finished surface for uniformity and any discernible faults, and take remedial action if necessary.

†4.4.8 The Certificate holder's instructions advise the following:

- the area to be repaired must be clearly defined and marked out and cut back in accordance with the MCHW, Volume1, Clause 946 prior to commencement of work on-site. The prepared area will accommodate trimming back the existing surfacing to suitably sound edges prior to installation
- Part B should be added to Part A and mixed for 1 to 2 minutes or until homogeneous, using a high torque drill fitted with a helical mixing blade
- Part C is then added and mixed for a further 1 to 2 minutes or until homogeneous, and all aggregate is coated
- the mixed resin is then poured into the dry prepared area to be repaired, and smoothed with a trowel or similar tool; the surface can be scattered with a high PSV aggregate if required. Once the system has cured, any loose aggregate must be swept up
- any masking tape must be removed as the work progresses, as soon as the resin begins to gel.

4.4.5 To achieve the performance described in this Certificate, the system must be installed by operatives who have completed training provided by the Certificate holder.

4.5 Maintenance

4.5.1 The Certificate holder advises the installed system is not subject to any routine maintenance requirements, but instructs that any damaged areas must be removed and replaced.

5 Fulfilment of Requirements

5.1 The conclusion of this BBA assessment is that the Roadpatch MMA Pothole Repair System, when used in accordance with the provisions of this Certificate, complies with the BBA HAPAS Certification Scheme requirements.

5.2 In order for the system to continue to meet the Scheme requirements, it must be installed, used and maintained as per the Certificate holder's instructions and as detailed in this Certificate.

6 Validity of Certificate

Continuing validity of this Certificate is dependent on the following factors:

- continuing compliance with product or process requirements, as described in the HAPAS Scheme document, and the specification documents referred to therein
- ongoing BBA surveillance of factory production control, to verify that the specifications and quality control being operated by the manufacturer are being maintained
- acceptable results from long term exposure monitoring
- acceptable data to confirm durability
- formal triennial Review of the Certificate, and Reissue for required technical or non-technical updates
- compliance with ongoing Certificate obligations by the Certificate holder and manufacturer(s).

† 7 Additional Regulations

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

COSHH Regulations

The Certificate holder has taken responsibility to control the components of the system in accordance with the Control of Substances Hazardous to Health Regulations: 2022 (COSHH).

CLP Regulations

The Certificate holder has taken the responsibility of classifying and labelling the system components under the *GB CLP Regulation* and the *CLP Regulation (EC) No 1272/2008 - Classification, Labelling and Packaging of Substances and Mixtures.* Users must refer to the relevant Safety Data Sheet(s).

8 Bibliography

BS EN 933-1 : 2012 *Tests for geometrical properties of aggregates — Determination of particle size distribution — Sieving method*

BS EN 1097-8 : 2009 *Tests for mechanical and physical properties of aggregates — Determination of the Polished Stone Value*

BS EN 12697-22 : 2020 *Bituminous mixtures — Test methods — Wheel tracking*
BS EN 12697-26 : 2018 *Bituminous mixtures — Test methods — Stiffness*
BS EN 12697-47 : 2010 *Bituminous mixtures — Test methods for hot mix asphalt — Determination of the ash content of natural asphalts*

BS EN 13036-1 : 2010 *Road and airfield surface characteristics — Test methods — Measurement of pavement surface macrotexture depth using a volumetric patch technique*
BS EN 13036-4 : 2011 *Road and airfield surface characteristics — Test methods — Method for measurement of slip/skid resistance of a surface: The pendulum test*

BS EN 13880-1 : 2003 *Hot applied joint sealants — Test method for the determination of density at 25°C*
BS EN 13880-5 : 2004 *Hot applied joint sealants — Test method for the determination of flow resistance*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

Department for Transport Specification for the Reinstatement of Openings in Highways (SROH), Fourth Edition, May 2020

Design Manual for Roads and Bridges (DMRB), CM 231 *Pavement Surface Repairs* (03/20)

Design Manual for Roads and Bridges (DMRB) CD 236 *Surface Course Materials for Construction* (12/22)

Manual of Contract Documents for Highway Works (MCHW), Volume 1 *Specification for Highway Works*, Series 900, Clause 946 *Road pavements – bituminous bound materials (05/18)*

PD 6691 : 2022 *Guidance on the use of BS EN 13108, Bituminous mixtures*

Potholes and Repair Techniques for local highways, ADEPT, March 2019

9 Conditions of Certification

9.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

9.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

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

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

9.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

9.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

9.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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