

# HAPAS

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**HAPAS Certificate**  
**24/H7209**  
Product Sheet 1 Issue 1

### MEON PATCH REPAIR PRODUCTS FOR HIGHWAYS

### PERMAFYX L273

This Product Sheet<sup>(1)</sup> 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 Permafyx L273, a cold-applied methyl methacrylate (MMA) resin patch repair system incorporating graded aggregate 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 Highway 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 by the BBA 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: 26 July 2024

A handwritten signature in black ink, appearing to read 'Hardy Giesler'.

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

1.1 The Certificate holder specifies the system under assessment, Permafyx L273, as an MMA resin patch repair system in accordance with the MCHW<sup>(1)</sup>, Volume 1, Series 900, Clause 946.

(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).

### 1.2 Use of the system

1.2.1 Permafyx L273 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<sup>2</sup> and a depth greater than 15 mm. They are not continuous or whole-width defects.

1.2.2 The system must only be installed where the adjacent area has surface properties which are equivalent to those of Permafyx L273.

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

1.2.4 The properties listed in section 3 must be compared to those of the existing adjacent surface to ensure the system is compatible. Aggregate selection may depend on the 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.

1.2.5 If the properties of the existing adjacent surfacing 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, Volume 1, Series 900, Clause 946
- the MCHW, Volume 2, Series NG 100 and NG 900
- the DMRB<sup>(2)</sup>
  - CM 231 *Pavement Surface Repairs*, March 2020
  - PD 6691 : 2022
  - *Potholes and Repair Techniques for Local Highways*, ADEPT, March 2019

(1) The DMRB is operated by the Overseeing Organisations: National Highways (NH), 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 Performance characteristics

Table 2 Characteristics

System assessed	Assessment method	Requirement	Outcome
Permafyx L273	Resistance to permanent deformation to BS EN 12697-22 : 2020 at 60°C	Classification no. 1 of Table D.2 in accordance with PD 6691 : 2022	Classification no. 2
	Stiffness after 28 days (ITSM) at 20°C to BS EN 12697-26 : 2004	≥ 1 GPa after 28 days	Pass
	Initial texture depth to BS EN 13036-1 : 2010	≥ 0.9 mm	Pass
	Initial Skid Resistance Value (SRV) to BS EN 13036-4 : 2011	≥ 60	Pass

The assessment showed that the system complies with HAPAS requirements for this characteristic.

#### 3.2 Durability

3.2.1 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.

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

3.2.3 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.

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

† 3.3 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

<b>Manufacturing process and quality control</b>	Complies with HAPAS requirements
<b>Delivery and site handling</b>	Complies with HAPAS requirements
<b>Installation</b>	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 ISO 9001 : 2015 and ISO 14001 : 2015 by DEKRA Certification GmbH (Certificates 80408283/6-1 and 170408038/5 respectively).

#### 4.2 Delivery and site handling

† 4.2.1 The Certificate holder states that the system components are delivered to site in a pre-packed kit, consisting of a pre-weighed MMA resin component (Part A), a filler component (Part B), the BPO catalyst which is supplied in pre-weighed sachets, and a proprietary blend of aggregates. The components may be supplied in various sizes on request.

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

4.2.3 To achieve the performance described in this Certificate, delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate. The system must be stored under cover in cool, well-ventilated, dry conditions, protected from direct sunlight and extremes of temperatures.

#### 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.

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, Volume 1, Clause 946 and the Certificate holder's instructions.

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

4.4.5 All surfaces must be swept clean and be 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, Volume 1, Clause 946 prior to commencement of work on-site. The prepared area will accommodate trimming back the existing surfacing to a suitably sound edge prior to installation
- the Permafix L273 resin component should be agitated prior to use, to ensure homogeneity
- the Permafix L273 catalyst should be added to the resin component whilst mixing with a high torque drill fitted with a helical mixing blade, and agitation should continue for a minimum of 10 seconds to ensure the catalyst is fully dispersed

- The catalysed resin component should be poured into a large bucket, and the filler component is added and mixed for a minimum of 30 seconds to ensure homogeneity
- The aggregate should then be added and mixed for a minimum of 60 seconds to allow all aggregate to be coated with resin. It may be necessary to scrape the edges of the bucket with a mixing stick to ensure no material remains unmixed
- The material should be applied to the defect as soon as possible following mixing. The material is to be spread evenly across the area to be repaired using a suitable tool such as a trowel, and the surface smoothed to provide a suitable finish. It is important to ensure enough pressure is applied during application to achieve sufficient adhesion
- To make the finished repair blend with the surrounding surfacing, additional chippings of a gradation and PSV may be used to match the existing surfacing.

4.4.9 To achieve the performance described in this Certificate, installation of the system must be carried out by operatives familiar with this type of system.

#### † 4.5 Maintenance

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 Permafyx L273, 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 Scheme requirements, it must be installed, used and maintained as per the Certificate holder's instructions and as detailed in the 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
- 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 system components in accordance with the Control of Substances Hazardous to Health Regulations: 2002 (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 12697-22 : 2020 *Bituminous mixtures – Test methods – Wheel tracking*

BS EN 12697-26 : 2004 *Bituminous mixtures – Test methods – Stiffness*

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 ISO 9001 : 2015 *Quality management systems – Requirements*

BS EN ISO 14001 : 2015 *Environmental 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*, Revision 0 (03/20)

*Design Manual for Roads and Bridges (DMRB)*, CD 236 *Surface Course Materials for Construction*, Revision 4.1.0 (12/22)

*Manual of Contract Documents for Highway Works (MCHW)*, Volume 1 *Specification for Highway Works*, Series 900 *Road Pavements – Bituminous Bound Materials* (07/21)

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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