XAIS-PTS Product Assessment Certificate

Product Acceptance Scheme in accordance with Manual for Contract Documents for Highway Works CG 101 Section 12

Thermal Road Repairs
Unit A,
Lancaster Fields,
Crewe
CW1 6FF
Telephone: 01270 875995
Email: info@thermalroadrepairs.com

XAIS-PTS Ltd
Britannia House Unit 1 Rough Hey Road
Grimsargh, Preston
PR2 5AR

UK Approved Body (UKAB)
Product Area 23 Road Construction Products

Product Name: Thermal Road Repair Process
Product Family: Infra-Red Thermal Patch Repairs
Certificate Reference: PACC205-31 0001

XAIS-PTS Ltd has awarded this ***Product Assessment Certificate*** to the Company named above for the process described herein. The process has been assessed by XAIS-PTS Ltd in line with the XAIS-PTS PAS certification scheme as being fit for their intended use provided, the process is followed as set out in this Certificate.

The issue of this Certificate under Specialist Group XAIS-PTSSG MCHW CC 205 Section 31 Local Repairs to Asphalt Surfaces Infra-Red Thermal Patch Repairs which sets out Guidelines and Criteria for the assessment, has been authorised by the XAIS-PTS Technical Supervisory Panel and granted by XAIS-PTS Limited.

This XAIS-PTS Certificate is issued following the methodology in MCHW CG 101 Section 12 and as required in ISO/IEC 17065 but is outside the current scope of XAIS-PTS accreditation to ISO/IEC 17065 (UKAS accredited Certification Body No 6478).

Readers must check the validity and latest issue number of this XAIS-PTS Certificate by referring to the XAIS-PTS website or contacting XAIS-PTS directly. The Certificate should be read in full as it may be misleading to read clauses in isolation.

Photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

On behalf of XAIS-PTS Ltd
Signature

David Buckley Managing Director

Date First Issued: 13.03.26

Certificate Valid until: 12.03.29

This Product Assessment Certificate is issued by XAIS-PTS Ltd under XAIS-PTS Product Acceptance Scheme (XAIS-PTSPAS), in accordance with MCHW GC 101 Section 12, supported by XAIS-PTS Technical Supervisory Panel (XAIS-PTSTSP) which includes representation from National Highways (NH), Association of Directors of Environment, Economy Planning and Transport (ADEPT), Road Surface Treatments Association (RSTA), Mineral Products Association (MPA), HAUC (UK) SROH Working Group, HAUC (UK) SROH Innovations Working Group and Transport Scotland.

GC 101 12.18-12.21 requires that: *"The product acceptance scheme shall be managed by a technical supervisory panel with over-sight of the operation of the scheme. The technical supervisory panel shall be made up of representatives of relevant industry experts, highways clients and product users. The technical supervisory panel shall have documented governance processes and structure of the panel. The technical supervisory panel shall review the product acceptance scheme bi-annually or more frequently."*

XAIS-PTSPAS Product Assessment Certificates are each subject to review every three years, with annual interim surveillance.

SCOPE

Infra-red thermal patch repairs are carried out in accordance with MCHW CC 205, Maintenance of pavements with an asphalt surfacing, Section 31, Local repairs to asphalt surfaces - Infra-Red Thermal Patch Repairs.

1. KEY FACTORS ASSESSED

- Quality Management System (QMS) Audits
- Current British Assessment Bureau QMS accreditation to BS EN ISO 9001:2015 + NHSS 23 Certificate Number 229041 and recent audit
- Installation Method Statement (IMS)
- Site Specific Installation Method Statement (as appropriate)
- Review of supporting documents
- Design and Development of Products and Services compliance with BS EN ISO 9001:2015
- Manual of Contract Documents for Highway Works, Pavement Construction, CC 205, Maintenance of pavements with an asphalt surfacing, Section 31, Local repairs to asphalt surfaces – Infra-Red Thermal Patch Repairs.

2. TECHNICAL SPECIFICATION

- The thermal road repair process (developed in-house by Thermal Road Repairs Ltd. under Patent GB 2506097) uses a patented 'pulse heat' system, using solar and biofuels for power, to heat surface course layers up to 100mm thick to reform failed and failing asphalt surface course.
- Once the repair area has been heated up, the patch is ready to be reworked into a smooth section. Additional materials are added (on a like for like basis) to compensate for any missing material from the pothole or asphalt defect.
- Design and installation and monitoring shall be in accordance with the relevant design and installation requirements as stated in CC 205, Maintenance of pavements with an asphalt surfacing, Section 31, Local repairs to asphalt surfaces.

3. TECHNICAL DATA

Technical data comprised laboratory test results for cores extracted from trial sections and site testing of installed materials in accordance with MCHW CC 205 Section 31

3. TECHNICAL DATA cont.

Performance requirements as specified in CC 205 Section 31 Table 31.7
Performance requirements for local repairs to asphalt surfaces installed with infra-red thermal repair techniques

Requirement	Standard	Specification	Typical Values
Air voids	BS EN 12697-8 and Appendix B of BS EN 12697-20	< 8% average of a pair of cores taken from an area less than 5 m^2 in size.	2.5%
Torque bond (TBT)	BS EN 12697-48*	535 kPa in area within a local repair less than 5 m^2 in size.	1095kPa
Wet skid resistance value (SRV) Initial	BS EN 13036-4	≥ 60	76
Wet skid resistance value (SRV) After 2 years	BS EN 13036-4	≥ 60	72
Initial surface macrotexture depth	BS EN 13036-1	≥ 0.8 mm	1.3
Water sensitivity	BS EN 12697-12	$ITSR_{70}$	96.5 – 116.9
Resistance to permanent deformation	BS EN 12697-22	$WTS_{AIR1.0}$ at 60 °C	0.08 – 0.09
Stiffness	BS EN 12697-26	≥ 1000 MPa at 20 °C	3229 – 4351
Longitudinal regularity of surface course less than 25 m in length	3m straightedge and wedge in accordance with BS 8420	+ 3 / - 3 mm (CC205 Section 1.23)	+2 / -2mm
*Torque Bond Test: Contact Certificate Holder for specific details of Torque Bond Test requirements.			

4. TEST RESULTS

Test Results are available on request of the Overseeing Organisation from the Certificate Holder, comprising the verification and ongoing validation processes.

5. DESIGN PROCESS BS EN ISO 9001: 2015 SECTION 8.3

Comprehensive work was carried out for the continuous development of the Thermal Road Repairs Ltd process. The objective was to develop a lower carbon alternative to existing pothole repair techniques using a patented 'pulse heat' system, using solar and biofuels for power, to heat surface course layers up to 100mm thick to reform failed and failing asphalt surface course in accordance with CC 205, Maintenance of pavements with an asphalt surfacing, Section 31, Local repairs to asphalt surfaces.

The Thermal Road Repair process is delivered in accordance with the controls defined in the Company's Operating Procedures.

6. REQUIREMENTS

Process only to be undertaken by the Certificate Holder in line with its internal procedures and processes covered under Quality Management System (QMS) meeting the requirements of BS EN ISO 9001:2015 + NHSS23 covered under certificate No 229041.

Process only to be undertaken using UKCA / CE marked products meeting the EN specifications authorised by the Certificate Holder.

7. INSTALLATION

The installation of the Thermal Road Repair shall be carried out in accordance with the Certificate Holder's instructions and in accordance with the relevant Method Statement

- Specification Review
- Site Preparation and Safety
- Heating and Repair
- Repair Process
- Cooling and Clean-Up

Binder and bituminous mixes used in the Thermal Road Repairs are stored in accordance with the manufacturer's instructions. Bituminous materials are stored within the thermostatically controlled hot boxes which form an integral part of the repair apparatus.

The Thermal Road Repair process shall only be carried out by competent installers experienced with this type of process, and in accordance with the Certificate Holder's instructions.

An audit of the IMS was carried out to assess the installation method as part of the initial assessment process. This will be reviewed at ongoing surveillance and reassessment visits.

8. MAINTENANCE / REPAIR

The Thermal Road Repair process is undertaken on existing bituminous road surfaces by heating surface course layers up to 100mm thick to reform failed and failing asphalt surface course. Surfaces already treated using this process may be subsequently repaired using the same technique. Alternative repair techniques such as those given in MCHW CC 205 Section 31 may be employed as appropriate.

9. BIBLIOGRAPHY (correct at time of initial certificate issue):

BS EN ISO 9001, Quality management systems – Requirements.
BS EN ISO/IEC 17065, Conformity assessment. Requirements for bodies certifying products, processes and services
BS EN ISO/IEC 17067, Conformity assessment. Fundamentals of product certification and guidelines for product certification schemes.

National Highways Manual of Contract Documents for Highway Works, General Principles & Scheme Governance, Construction, GC 101 General requirements for the Specification for Highway Works.
National Highways Manual of Contract Documents for Highway Works, Pavement Construction, CC 205, Maintenance of pavements with an asphalt surfacing, Section 1, General requirements for maintenance of pavements with an asphalt surfacing
National Highways Manual of Contract Documents for Highway Works, Pavement Construction, CC 205, Maintenance of pavements with an asphalt surfacing, Section 31 Local repairs to asphalt surfaces – Infra-red Thermal Patch Repairs

BS EN 12697-8, Bituminous mixtures. Test methods - Determination of void characteristics of bituminous specimens
BS EN 12697-12, Bituminous mixtures. Test methods - Determination of the water sensitivity of bituminous specimens
BS EN 12697-20, Bituminous mixtures. Test methods - Indentation using cube or Marshall specimens
BS EN 12697-22 Bituminous mixtures. Test methods - Wheel tracking
BS EN 12697-26, Bituminous mixtures. Test methods. Stiffness.
BS EN 12697-48, Bituminous mixtures — Test methods - Interlayer Bonding
BS EN 13036-1, Road and airfield surface characteristics. Test methods - Measurement of pavement surface macrotexture depth using a volumetric patch technique
BS EN 13036-4, Road and airfield surface characteristics. Test methods - Method for measurement of slip/skid resistance of a surface: The pendulum test
BS 8420:2003 Methods of measuring irregularities on surfaces of roads, footways and other paved areas using straightedges and wedge

CONDITIONS OF CERTIFICATION

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
   - valid only in 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 XAIS-PTS Ltd.
   - XAIS-PTS Product Assessment forms part of the Product Acceptance Scheme as described in MCHW SHW CG 101 Section 12and shall be submitted by the Contractor/Certificate Holder to the Overseeing Organisation for Approval.
2. Publications, documents, specifications, legislation, regulations, standards, and the like referenced in this Certificate are those that were current and/or deemed relevant by XAIS-PTS Ltd at the date of issue or reissue of this Certificate.
3. This Certificate will remain valid for an unlimited period, subject to 3 year review to revalidate 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 XAIS-PTS Ltd
   - continue to be checked as and when deemed appropriate by XAIS-PTS Ltd under arrangements that it will determine.
   - are reviewed by XAIS-PTS Ltd as and when it considers appropriate.
   - remain in accordance with the requirements of XAIS-PTSPAS. Additional review shall be carried out as necessary should Specification's / Standard's change to ensure compliance.
   - remain in accordance with XAIS-PTS Terms of Business.
4. XAIS-PTS Ltd has used due skill, care, and diligence in preparing this Certificate, but no warranty is provided.
5. In issuing this Certificate, XAIS-PTS Ltd 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
   - individual 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
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 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.