

Technical Data Sheet

EZ STREET® BIOBLEND® ASPHALT PATCHING MATERIAL



PRODUCT PROFILE

This bituminous patching mix is designed to be applied in the ambient temperature range of - 18° C through 38° C. The mixture will provide satisfactory coating; workability and adhesion characteristics while functioning during cold to hot or dry to wet climatic conditions.



USAGE

The mix is suitable for use in the following applications;

- Pothole Repair
- Road Crossing Reinstatement
- Utility Track Reinstatement
- Micro-Trenching
- Manhole Surround
- Edge Repair
- Overlay Bridge Decks

SHELF LIFE

Depending on handling and stockpiling practices, EZ Street® Asphalt bulk can be stored outdoors for extended periods of up to 6 (six) months, and up to one year in 22 kg bags, while retaining its performance characteristics.

LIQUID ASPHALT (BITUMEN) BLEND

The bitumen component used shall be PEN Grade 70/100 conforming to EN12591, a diluent which complies with the requirements and applicable specifications of the American Petroleum Institute (API), and a polymer additive of high quality that improves cohesion and adhesion properties and is capable of passing AASHTO-T-182 as modified herein.

PERFORMANCE

Material is guaranteed to perform adequately under normal circumstances in its intended use. This guarantee is limited to the replacement of any material determined by the EZ Street® producer to be defective and does not cover any consequential damages resulting from the use of the product.

REDUCE YOUR CARBON FOOTPRINT

With the introduction of Bioblends® by EZ Street, the intersection of technology and nature is happening today at EZ Street. With our advanced bio-fuel, not only have we successfully found meaningful applications for green fuel substitutes in-lieu of fossil fuels, we are delivering enhanced workability in every shovel full, helping you reduce your carbon footprint one pothole at a time. Made with 100% renewable resources and select recycled materials, Bioblends® by EZ Street.



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AGGREGATE

The source aggregate is Craiglash Quarry 2/6.3mm and Craiglash Quarry 0/4mm Agg., with the following gradation.



Job Mix Formula Aggregate Specifications

Sieve	EZ Street Asphalt
¾" 19.0 mm	100
½ 12.5 mm	95-100
3/8 9.5mm	95-100
#4 4.75mm	77-85
#200 0.75µm	0.1-3.1

Bituminous Specifications

Bitumen Binder PEN70/100	0.8% +/-0.2%
EZ Street® Liquid Blend	3.6% +/-0.2%
Total Asphalt Content	4.4% +/-0.4%

Test	Method	Specification
Aggregate Gradation	AASHTO T-30	See above for Specification
Bulk Specific Gravity Absorption	AASHTO T-85	> 2.60 < 2.0
Micro-Deval	AASHTO TP 58-02	18% Max.
Rotational Viscometer	AASHTO T 315	150 – 500 cP @ 60° C
Stripping Test	AASHTO T 182	> 95 %
Gradation of Extracted Agg.	AASHTO T308	See above, Aggregate Specification
Extraction	ASTM D2172	0.5 %

TECHNICAL INFORMATION

The aggregate is heated 150° C and pre-coated with 0.8 percent bitumen PEN Grade 70/100. The pre-coated material is allowed to cool overnight. The pre-coated aggregate is reintroduced into a heated dryer not more than 60° C. The pre-coated aggregate and EZ Street® bitumen blend is proportioned into the mixer and mixed for at least 30 seconds or until a uniformly coated mixture is obtained. The bitumen blend is heated to a temperature of 93° C, +/- 6° C, at the time of mixing.

HAPAS

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HAPAS Certificate

12/H 19 0

Product Sheet 2

EZ STREET PATCH REPAIR PRODUCTS FOR HIGHWAYS

EZ STREET (Red Stag Materials – Scotland)

This HAPAS Certificate Product Sheet is issued by the British Board of Agrément (BBA), supported by National Highways (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. HAPAS Certificates are normally each subject to a review every three years.

(1) Hereinafter referred to as 'Certificate'.

This Certificate relates to EZ Street, a bitumen-based, cold-applied, patch repair product for potholes and other similar defects found within bituminous surfaces on non-trafficked and trafficked highways.

CERTIFICATION INCLUDES:

- factors relating to compliance with HAPAS requirements
- factors relating to compliance with Regulations where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Surface characteristics — the product has satisfactory surface texture and skid resistance (see section 6).

Mechanical resistance and bond strength — the product has satisfactory resistance to trafficking and loading (see section 7).

Durability — the product is suitable to ensure a safe, level repair to a bituminous surface as part of routine (planned) and reactive (unplanned) maintenance works (see section 9).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 4 January 2022

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

Hardy Giesler

Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

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

British Board of Agrément

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Requirements

In the opinion of the BBA, EZ Street, when manufactured and installed in accordance with the provisions of this Certificate, will provide a satisfactory repair to the road surface.

Additional requirements of the overseeing organisations can be found in:

- *Potholes: A Repair Guide, ADEPT, March 2019*
- *Design Manual for Roads and Bridges (DMRB), CM 231 - Pavement surface repairs*

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.

See section: 3 *Delivery and site handling* (3.1 and 3.4) of this Certificate.

Technical Specification

1 Description

EZ Street is a bitumen-based, cold, hand-applied patch repair product, comprising:

- 0/6 mm open-graded granite aggregate to BS EN 13043 : 2002
- a blend of paving grade bitumen to BS EN 12591 : 2009, and a proprietary additive.

2 Manufacture

2.1 EZ Street is manufactured using a conventional asphalt production method.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out 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.

2.3 EZ Street (Red Stag Materials – Scotland) is manufactured and marketed/distributed in the UK by Red Stag Materials Highclere Business Park, Highclere Way, Inverurie, Aberdeenshire, AB51 5QW, Tel: 0345 6460354, e-mail: sales@redstagmaterials.com, website: <https://redstagmaterials.com/>.

2.4 The management system of Red Stag Materials has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FS/33728).

3 Delivery and site handling

3.1 EZ Street is supplied pre-packed in 15.87 or 22.67 kg bags. The packaging is stamped with the product name, coding traceable to the date of production, health and safety information and installation instructions. The product may also be supplied in bulk, eg 1 tonne sacks.

3.2 The product must be stored in cool, well-ventilated, dry conditions, protected from freezing and high temperatures.

3.3 When stored correctly in sealed containers the product will have a storage life of at least six months. For the bulk supply the Certificate holder must be contacted for details of storage life.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the product under the *CLP Regulations (EC) no 1272/2008 on the classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on EZ Street.

Design Considerations

4 Use

4.1 EZ Street 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 m² and a depth greater than 15 mm, that are not continuous or whole width defects.

4.2 The product must only be installed where the adjacent surface has a texture depth and aggregate PSV and AAV less than or equivalent to those of EZ Street (see section 6).

4.3 When fully compacted, the product will satisfactorily fill a pothole or similar defect. It will not delay or stop the deterioration of the adjacent surface.

5 Practicability of installation

The product must be installed by operatives who are competent and experienced in hand-application of asphalt products.

6 Surface characteristics

6.1 An assessment of the surface characteristics on existing installations, and laboratory testing of raw materials, indicate that the product has the following surface properties:

- initial texture depth of ≥ 1.2 mm
- initial skid resistance value (SRV) of ≥ 65
- polished stone value (PSV) of aggregate ≥ 55
- aggregate abrasion value (AAV) of aggregate ≤ 10 .

6.2 The properties listed in section 6.1 should be compared to those of the existing adjacent surface to ensure the product is compatible as detailed in section 4.2. Aggregate selection may depend on site-specific requirements for PSV and AAV and should be identified to ensure the correct aggregate is used.

6.3 If the properties of the existing adjacent surface are unknown, Section S2 of the *New Roads and Street Works Act 1991 : Specification for the Reinstatement of Openings in Highways* (SROH) provides additional guidance on categorising Local Authority sites. For the motorway and trunk road network, additional guidance can be found within the relevant parts of MCHW, Volume 1 and the DMRB, CM 231 - *Pavement surface repairs*.

7 Mechanical resistance and bond strength

7.1 The BBA conducted visual inspections of new and existing sites and this, along with information received from users of the product, confirmed that EZ Street has a satisfactory resistance to trafficking and satisfactory bond characteristics on sites classified as Type 3 and 4 as defined in the SROH.

7.2 In common with deferred set asphalts the product may be susceptible to minor deformation, scuffing, marking and/or de-bonding if used where a combination of the following apply:

- areas of excessive turning, braking or static loads (eg within the wheel track)
- when air and road temperatures are high (typically greater than 20°C) immediately following installation
- the complete depth of the repair is greater than 40 mm
- sites classified higher than Type 3 and 4 as defined in SROH
- installation methods other than best practice are used (see section 10).

7.3 An evaluation of the rate of cure of the product indicates that its susceptibility to scuffing and marking identified in section 7.2 will reduce following installation. The rate of cure is dependent on the volume of traffic and ambient conditions.

8 Maintenance

This product is not subject to any routine maintenance requirements, but any damage must be removed and replaced .

9 Durability

9.1 For planned routine maintenance work where best practice installation is followed (see section 10) and where the substrate and adjacent material are generally sound, the product will provide an effective repair for at least six months.

9.2 For reactive (immediate/emergency/unplanned) repairs with minimum preparation and installation (see section 10) the expected durability will be reduced.

9.3 If a routine or reactive repair is located as identified in section 7.2, the expected durability will be reduced.

Installation

10 General

10.1 To ensure that the optimum performance and durability is achieved, installation of EZ STREET must follow best practice. For the purposes of this Certificate this is considered to be in accordance with either:

- BS 434-2 : 2006, Clause 13.2, or
- *Design Manual for Roads and Bridges (DMRB), CM 231 - Pavement surface repairs.*

10.2 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.

10.3 The product can be installed, compacted and trafficked immediately when air and road temperatures are between -5 and 35°C and due consideration of the position of the repair in the road is taken, as identified in section 7.

11 Preparation of the road surface

11.1 The area to be repaired must be marked out and the edges saw-cut back to sound material. The prepared area should ideally be regular in shape.

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

12 Laying and compaction

12.1 EZ Street must be applied in lifts from 15 mm up to a maximum of 50 mm, allowing approximately 15 to 25 mm surcharge per lift to allow for compaction.

12.2 EZ Street must be fully compacted and finished level with the adjoining surface using suitable compaction equipment. Compaction must cease before migration of binder to the surface or crushing of aggregates is observed.

12.3 On completion the installer should visually inspect the finished surface for uniformity and any discernible faults, and remedy if necessary.

Technical Investigations

13 Investigations

13.1 An assessment of test data was made relating to:

- vacuum repeat load axial test to DD 226 : 1996 (50 kPa confining pressure), test temperature 45°C
- air voids to BS EN 12697-8 : 2003
- initial and retained texture depth to BS 598-105 : 2000
- initial and retained skid resistance by pendulum to TRL Report 176, Appendix E
- PSV and AAV of aggregates to BS EN 1097-8 : 2009
- aggregate and bitumen affinity to BS EN 12697-11 : 2005, Part B *Static Method*
- compactibility based on relative height and density measurements at –5 and +20°C in accordance with BS EN 12697-10 : 2001
- tensile bond strength on wet and dry concrete and asphalt substrates to TRL Report 176 Appendix J.

13.2 An installation trial was carried out to assess the practicability of the installation in accordance with the Certificate holder's instructions and best practice methods identified in section 10. The results of the trial concluded that the product can be satisfactorily installed and compacted.

13.3 A user survey, site trials and visual inspections were carried out to assess the product's performance in service. The responses and results from the inspections confirmed that the expectation of users was being achieved, and that satisfactory performance on sites was achieved.

13.4 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

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

BS 434-2 : 2006 *Bitumen road emulsions — Code of practice for the use of cationic bitumen emulsions on roads and other paved areas*

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 EN 1097-8 : 2009 *Tests for mechanical and physical properties of aggregates — Determination of the polished stone value*

BS EN 12591 : 2009 *Bitumen and bituminous binders — Specifications for paving grade bitumens*

BS EN 12697-8 : 2003 *Bituminous mixtures — Test methods for hot mix asphalt — Determination of void characteristics of bituminous specimens*

BS EN 12697-10 : 2001 *Bituminous mixtures — Test methods for hot mix asphalt — Compactibility*

BS EN 12697-11 : 2005 *Bituminous mixtures — Test methods for hot mix asphalt — Determination of the affinity between aggregate and bitumen*

BS EN 13043 : 2002 *Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas*

DD 226 : 1996 *Method for determining resistance to permanent deformation of bituminous mixtures subject to unconfined dynamic loading*

Potholes: A Repair Guide, ADEPT, March 2019

Design Manual for Roads and Bridges (DMRB) : CM 231 - Pavement surface repairs

New Roads and Street Works Act 1991 : Specification for the Reinstatement of Openings in Highways : Code of Practice Fourth Edition (England), (February 2019)

TRL Report 176 : 1997 *Laboratory tests on high-friction surfaces for highways*

14 Conditions

14.1 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.

14.2 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.

14.3 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.

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

14.5 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 CE marking.

14.6 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.