

## Leeson Polyurethanes Ltd

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## Agrément Certificate

19/5665

Product Sheet 1

### LEESON RESIN BONDED DECORATIVE SURFACING

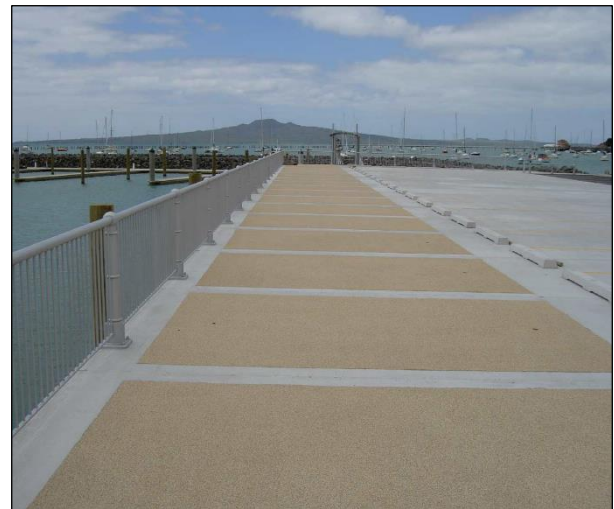
#### LEESONGRIP

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to LeesonGrip, a non-UV resistant (non-UVR) resin bonded surfacing system for use as a decorative surfacing on domestic driveways, patios, pedestrian areas, lightly trafficked car-parks, low speed access roads and other similarly trafficked areas.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information 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

**Strength and stability** — the system has satisfactory resistance to vehicle and pedestrian traffic (see section 6).

**Surface characteristics** — the system has satisfactory slip, skid and wear resistance (see section 7).

**Durability** — when used on concrete or asphalt substrates with sufficient properties to support expected loading of the surface during installation and in-service, the system will provide a durable surface with a service life of up to 5 years (see section 9).



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 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

Paul Valentine  
Technical Excellence Director

Claire Curtis-Thomas  
Chief Executive

Date of First issue: 24 June 2019

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](http://www.bbacerts.co.uk)  
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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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## Regulations

In the opinion of the BBA, LeesonGrip, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



### The Building Regulations 2010 (England and Wales) (as amended)

<b>Requirement:</b>	<b>M1</b>	<b>Access to and use of buildings other than dwellings (Volume 2)</b>
<b>Requirement:</b>	<b>M2</b>	<b>Access to extensions to buildings other than dwellings</b>
<b>Requirement:</b>	<b>M4(1)(2)(3)</b>	<b>Access to and use of buildings Volume 1: Dwellings</b>
<b>Comment:</b>		The system is suitable for use as a surfacing in car parks and on approach routes, providing external access to dwellings and buildings other than dwellings. See section 4.1 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship (applicable to Wales only)</b>
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship (applicable to England only)</b>
<b>Comment:</b>		The system is acceptable. See section 9 and the <i>Installation</i> part of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
<b>Comment:</b>		The system can contribute to a construction satisfying this Regulation. See sections 8 and 9 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
<b>Standard:</b>	<b>2.12</b>	<b>Fire and rescue service access</b>
<b>Comment:</b>		The system will contribute to satisfying the relevant requirements of this Standard, with reference to clauses 2.12.0 <sup>(1)(2)</sup> , 2.12.2 <sup>(1)(2)</sup> and 2.12.3 <sup>(1)(2)</sup> . See section 4.1 of this Certificate.
<b>Standard:</b>	<b>4.1</b>	<b>Access to Buildings</b>
<b>Comment:</b>		Use of the system will contribute towards compliance with this Standard, with reference to clause 4.1.4 <sup>(1)(2)</sup> . See section 4.1 of this Certificate.
<b>Standard:</b>	<b>7.1(a)</b>	<b>Statement of sustainability</b>
<b>Comment:</b>		The system can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
<b>Comment:</b>		All comments given for the system under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



### The Building Regulations (Northern Ireland) 2012 (as amended)

<b>Regulation:</b>	<b>23(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)(b)(i)</b>	The system is acceptable. See section 9 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>37</b>	<b>Facilities and access for the Fire and Rescue Service</b>
<b>Regulation:</b>	<b>91</b>	<b>Access and use</b>
<b>Regulation:</b>	<b>92</b>	<b>Access to extensions</b>
<b>Comment:</b>		The system will contribute to satisfying the relevant requirements for vehicular and non-vehicular access routes and hardstanding areas in these Regulations. See section 4.1 of this Certificate.

# 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* of this Certificate.

## Additional Information

### NHBC Standards 2019

In the opinion of the BBA, LeesonGrip, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 10.2 *Drives, paths and landscaping*.

## Technical Specification

### 1 Description

1.1 LeesonGrip is a resin bonded surface course system comprising a two-component, cold-applied polyurethane binder, and 1 to 3 mm sized aggregates.

1.2 An ancillary item used with the system, but outside the scope of this Certificate, is a catalyst which may be mixed with the binder to reduce curing times, if necessary.

### 2 Manufacture

2.1 The binder components are manufactured using a batch-blending process.

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.

### 3 Delivery and site handling

3.1 The resin components are delivered to site in either 18.9 or 31.65 kg pre-weighed composite tubs or Intermediate Bulk Containers (IBCs).

3.2 The Certificate holder has taken the responsibility of classifying and labelling the binder components under the *CLP Regulation (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 LeesonGrip.

### 4 Use



4.1 LeesonGrip is satisfactory for use as a decorative surfacing system for domestic driveways, patios, pedestrian areas, lightly trafficked car-parks, low speed access roads and other similar trafficked areas.

4.2 LeesonGrip is designed incorporating a 1 to 3 mm aggregate. The choice of aggregate type will depend on site-specific details, including location and contractual requirements for polished stone value (PSV), texture depth, colour, and any other properties. The Certificate holder can advise for a particular application.

4.3 The system can be applied to a bituminous or concrete substrate provided the underlying layers of the pavement are stable and have sufficient load-spreading capabilities to support the imposed loading of the surfacing during installation and the expected service life.

4.4 The system can be used as part of new or maintenance pavement construction.

### 5 Practicability of installation

The system is to be installed only by contractors approved by the Certificate holder, using conventional equipment for the mixing and application of the system.

### 6 Strength and stability

#### Tensile bond strength

6.1 A visual inspection of existing sites confirmed no significant defects that could be related to de-bonding. In addition, laboratory testing to TRL Report 176, Appendix J, confirmed satisfactory tensile bond strength to both asphalt and concrete when installed in accordance with the provisions of this Certificate.

#### Erosion index

6.2 A visual inspection of sites confirmed no significant defects that could be related to wear such as fretting of aggregates from the surface. In addition, laboratory testing in accordance with the BBA HAPAS *Guidelines for Assessment and Certification of High Friction Surfacing* for scuffing at 45°C, control, after diesel immersion and freeze/thaw, resulted in an erosion index of less than 3.0.

### 7 Surface characteristics

#### Skid and slip resistance

7.1 The initial skid resistance (prior to trafficking) measured in accordance with TRL Report 176, Appendix E (pendulum test using sliders applicable vehicular only), indicates that initial measurements of greater than 65 can be achieved.

7.2 Retained skid resistance is affected by the aggregate type and expected trafficking. An appropriate aggregate must therefore be incorporated in areas where risk of slipping by foot, or skidding by vehicles, is high (see section 4.2).

#### Surface texture

7.3 The initial texture depth measured in accordance with BS 598-105 : 2000 indicates that texture depth of  $\geq 1.4$  mm can be achieved. The system is considered suitable for use in applications where these texture depths are required.

7.4 Retained texture depth is affected by the aggregate type, trafficking and stress levels. An appropriate aggregate size must therefore be incorporated in areas where retained texture depths are required.

## 8 Maintenance



The system is not subject to any routine maintenance requirements but any damage must be repaired (see section 14).

## 9 Durability



9.1 When used in applications as described in this Certificate, the system will provide a durable surface with a service life up to 5 years.

9.2 The service life of the system will be affected if used in areas of excessive turning and braking, where this is the case the service life could be reduced.

## Installation

### 11 General

11.1 Ambient and pavement surface temperatures, along with relative humidity, should be recorded at the start and, if the weather is variable, during the installation process. Installation should not proceed if:

- the relative humidity is greater than 80%
- the road surface and/or temperature is/are outside the range 5 to 35°C
- road surface temperature is less than 2°C above the dew point of the measured air temperature and relative humidity.

11.2 The Certificate holder is responsible for training and monitoring their approved contractors to ensure that the system is installed in accordance with the BBA Agreed Method Statement and this Certificate.

11.3 The Certificate holder must be consulted on the structural design and suitability of the pavement structure. The base and binder course layers must take into account the anticipated traffic loading, ground conditions and the key factors assessed and identified in this Certificate.

### 12 Preparation

12.1 All imperfections in the substrate not acceptable to the Installer must be reinstated with a material approved by the Purchaser in consultation with the Installer.

12.2 The substrate must be clean, dry and free from ice, frost, loose aggregate, oil, grease, road salt and other loose matter which may impair the adhesion of the system.

### 13 Application

13.1 The binder components and catalyst are supplied in pre-weighed packs. Parts B is decanted into Part A and thoroughly mixed using a slow-speed, high-torque drill fitted with a helical mixing blade for a minimum of 45 seconds, until a homogeneous mix is achieved.

13.2 If a catalyst is required, eg due to weather conditions, it must be decanted into Part A prior to adding Part B. The Certificate holder details appropriate quantities relative to temperature in their installation procedures.

13.3 The mixed resin is then poured onto the surface within 10 minutes of mixing, and spread using a serrated squeegee to give an even coverage of 1.5 to 2.5 kg·m<sup>-2</sup> depending on the substrate properties (such as surface texture and porosity).

13.4 Within five minutes of application of the resin, aggregate is broadcast over its surface and the system is allowed to cure.

13.5 After the binder has fully cured (typically two hours) the excess aggregate is removed by vacuum sweeper or other suitable means. The site can be re-opened to traffic after a minimum of four hours depending on the ambient temperature.

## 14 Aftercare

The system must be allowed to cure. During the curing period no disturbance or trafficking is permitted.

## 15 Repair

Any damaged area must be cut back to firmly bound material and replaced with material mixed and installed in accordance with this Certificate.

## Technical Investigations

## 16 Tests

Tests were conducted on samples of LeesonGrip, including the resin, and the results were assessed to determine:

- scuffing resistance
  - after 500 wheel passes
  - after heat ageing for 112 days at  $70\pm 3^{\circ}\text{C}$  and 500 wheel-passes
  - after diesel immersion for 48 hours and 500 wheel-passes
  - after freeze/ thaw (4 cycles of 16 to 17 hours at  $-20\pm 2^{\circ}\text{C}$ /7 to 8 hours at  $25\pm 5^{\circ}\text{C}$ ) and 500 wheel-passes
- wear
  - After 100 000 wheel passes
- skid resistance
- texture depth
- tensile adhesion on concrete and asphalt substrates
  - stress at  $-10\pm 2^{\circ}\text{C}$  ( $\text{N}\cdot\text{mm}^{-2}$ )
  - stress at  $20\pm 2^{\circ}\text{C}$  ( $\text{N}\cdot\text{mm}^{-2}$ )
- thermal movement
- tensile characteristics
  - control
  - heat aged at  $70^{\circ}\text{C}$  for 28 days
  - water soak at  $23^{\circ}\text{C}$  for 7 days (including chlorinated water).

## 17 Investigations

17.1 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.

17.2 An installation trial was carried out to assess the practicability of the installation and on-site quality control procedures. A visual inspection of the site concluded that it was free from significant abnormalities.

17.3 A user/specifier survey relating to existing sites up to and including three years in service was carried out to confirm the system's performance in use. The visual condition survey carried out by the BBA inspection marked all sites as good to excellent condition with no significant defects.

## Bibliography

BS 598-105 : 2000 *Sampling and examination of bituminous mixtures for roads and other paved areas — Method of test for the determination of texture depth*

BBA HAPAS *Guidelines for Assessment and Certification of High Friction Surfacing*

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

### 18 Conditions

#### 18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.