

## JOBLING PURSER HIGH-FRICTION SURFACING SYSTEM

### ROCBINDA/COLORVIAL

This Certificate is issued under the Highway Authorities' Product Approval Scheme (HAPAS) by the British Board of Agrément (BBA) in conjunction with the Highways Agency (HA) (acting on behalf of the overseeing organisations of the Department for Transport; the Scottish Executive; the Welsh Assembly Government and the Department for Regional Development, Northern Ireland), the Association of Directors of Environment, Economy, Planning and Transport (ADEPT), the Local Government Technical Advisers' Group and industry bodies. HAPAS Agrément Certificates are normally each subject to a review every five years.

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Rocbinda/Colorvial, a high-friction surfacing system for use on bituminous or concrete highways.

#### AGRÉMENT 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 five-yearly review.



#### KEY FACTORS ASSESSED

**Performance** — the system complies with the requirements for a Type 1 system in accordance with the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways* (see Table 2).

**Durability** — the system, when used in an appropriate location as defined in the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways*, should have a service life of between 5 and 10 years (see section 7).

The BBA has awarded this Agrément Certificate to the company named above for the system described herein. The 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

Simon Wroe  
Head of Approvals — Materials

Greg Cooper  
Chief Executive

Date of First issue: 12 October 2010

Originally certificated on 24 June 1999

Certificate amended on 2 November 2010 to include a revision to Table 2 and alteration in Bibliography

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.

# HAPAS Requirements

## Requirements

The Highways Technical Advisory Committee (HiTAC) and HAPAS Specialist Group 1 (High-Friction Surfacing) have agreed with the BBA the aspects of performance to be used by them in assessing the compliance of high-friction surfacing systems with the Guidelines Document. In the opinion of the BBA, Rocbinda/Colorvial when applied to suitable bituminous or concrete surfaces, in accordance with the provisions of this Certificate, will meet the relevant requirements and is deemed to be of Type 1.

Additional requirements of the overseeing organisations are given in the Manual of Contract Documents for Highway Works (MCHW)<sup>(1)</sup>, Volumes 1 and 2, Series 900 Clause 924 (08/08) *High Friction Surfaces*.

(1) The MCHW is operated by the Overseeing Organisations: The Highways Agency (HA), Transport Scotland, The Welsh Assembly Government and The Department for Regional Development (Northern Ireland).

## Regulations

### Construction (Design and Management) Regulations 2007

### Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.1 and 3.2) and 9 *Precautions during installation* of this Certificate.

## General

The system is marketed outside the UK as Colorvial by Color Vial S.L., GranVia 630, 4a planta, 08007 Barcelona, Spain, Tel: +34 93 270 2880, Fax: +34 93 412 7124, e-mail: info@colorvial.com and website: www.colorvial.com

## Technical Specification

### 1 Description

- 1.1 Rocbinda/Colorvial comprises a two-component polyurethane binder and a graded nominal 1 mm to 3 mm calcined bauxite aggregate.
- 1.2 Rocbinda/Colorvial concrete primer is available for use on concrete surfaces prior to the application of the system.
- 1.3 The system is available in standard, summer and winter grades. The winter grade may be used where ambient temperatures are between 5°C and 15°C.
- 1.4 A catalyst is available for adding to the Rocbinda/Colorvial base on-site to convert standard grade material to winter grade. The catalyst is supplied in plastic containers with the correct amount pre-weighed for 2 kg, 8 kg or 16 kg packs or undiluted. When undiluted catalyst is used it is measured on-site using a 0.5 ml graduated syringe in accordance with the Certificate holder's Agreed Method Statement.

### 2 Manufacture and quality

The binder is manufactured by a batch-blending process. A series of quality control checks is conducted on each batch. The packaged material is identified by unique batch numbers which are recorded on a Certificate of Conformity prior to delivery on site.

### 3 Delivery and site handling

- 3.1 The material is delivered to site in 16 kg or 8 kg packs. The activator is supplied in a metal container and the base in a plastic container.
- 3.2 The components are classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4) and all packaging bears appropriate hazard warning labels. Flashpoints and hazard classifications are given in Table 1.

Table 1 Flashpoint and hazard classification

Component	Flashpoint (°C)	Classification
Base	>200	Not hazardous
Activator	>200	Harmful by inhalation
Primer	25	Flammable <sup>(1)</sup> , Harmful by inhalation

(1) This component should be stored in accordance with the *Highly Flammable Liquids and Liquefied Petroleum Gases regulations* (1972).

3.3 When stored in accordance with the Certificate holder's instructions the unopened components have a shelf-life of at least 12 months.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Rocbinda/Colorvial.

### Design Considerations

#### 4 General

4.1 Rocbinda/Colorvial is satisfactory for use as a high-friction surfacing on highways with bituminous or concrete surfaces of surface texture depths of between 0.5 mm and 3 mm, measured using the sand patch test as defined in BS 598-105 : 2000.

4.2 The system is classified as Type 1, in accordance with the requirements defined in Table 1 of the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways* and detailed in section 7 of this Certificate.

4.3 Installation of the system should be carried out only when the road surface temperature is between 5°C and 35°C.

4.4 Concrete surfaces must be scabbled and primed with Rocbinda/Colorvial concrete primer prior to the application of the system.

4.5 The in-service colour retention has not been assessed and is outside the scope of this Certificate.

#### 5 Practicability of installation

The system must be installed by a BBA Approved Installer<sup>(1)</sup>. Operatives must be trained and approved by the Certificate holder.

(1) See also the *Guidelines Document for the Assessment and Surveillance Scheme for Installers of High-Friction Surfaces for Highways*.

#### 6 Maintenance

The system is not subject to any routine maintenance requirements but any damage must be repaired (see section 1.3).

#### 7 Durability

7.1 The results of the performance tests and the performance of the system in use, indicate that Rocbinda/Colorvial when used in an appropriate location as defined in the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways*, should have a service life of between 5 and 10 years (see Table 2).

Table 2 Area<sup>(1)</sup> of application by type classification

Site category (as defined in HD 28/04)	Site definition	Maximum traffic levels (number of commercial vehicles per lane per day – Type 1)
Q	Approaches to and across major junctions and approaches to roundabouts	3500
G1	Gradient from 5% to 10%, longer than 50 m	
S1	Bend radius <500 m – dual carriageway	
R	Roundabout	
G2	Gradient >10%, longer than 50 m	2500
S2	Bend radius <500 m – single carriageway	
K	Approaches to pedestrian crossing and other high-risk situations	2500

(1) Suitable areas for use of systems classified in accordance with Table 1 of the *Guidelines Document* to give an expected service life of 5 to 10 years.

7.2 If the system is used in other locations or exposed to different traffic levels, then the expected life will be increased or decreased in relation to the severity of the site.

### Installation

#### 8 General

The Certificate holder is responsible for training and monitoring the BBA Approved Installers to ensure the system is installed in accordance with the BBA agreed Method Statement and this Certificate.

#### 9 Precautions during installation

Health and Safety Data Sheets and the *Control of Substances Hazardous to Health Regulations 2002* (COSHH) risk assessments for the works should be deposited with the purchaser and be maintained on site by the approved installer.

## 10 Preparation

10.1 Any imperfections in the road surface not acceptable to the installer should be reinstated with a material approved by the purchaser in consultation with the installer.

10.2 The installer must ensure that the road surface is clean, dry, and free from ice, frost, loose aggregate, oil, grease, road salt and other loose matter likely to impair adhesion of the system to the road surfacing.

10.3 The ambient and road surface temperatures should be recorded. Installation should not be carried out if the road surface temperature is outside the range of 5°C to 35°C.

10.4 If ambient temperature is between 5°C and 15°C, then the winter grade system could be used.

## 11 Application

11.1 The activator is added to the base component and mixed for at least two minutes or until homogeneous, using a high-torque drill fitted with a helical mixing blade.

11.2 The mixed binder is spread onto the prepared surface with a paint roller and/or squeegee at a minimum coverage rate, which will vary according to the texture and porosity of the surface but shall not be less than 1.35 kg·m<sup>-2</sup>.

11.3 After the binder is applied an excess of calcined bauxite aggregate is broadcast over the binder and may be spread out evenly using a broom or squeegee.

11.4 After the binder is sufficiently cured, the excess aggregate is removed by vacuum sweeper or other suitable means.

11.5 Rolling of the aggregate is not permitted.

## 12 After-care

The installer should conduct a visual check on the installation for uniform surface texture, surface blemishes and any discernible faults. Any remedial work should be conducted as necessary.

## 13 Repair

Should the system be damaged or become debonded from the substrate, it may be repaired by cutting the damaged area back to firmly bonded material, squaring off the area to be reinstated, cleaning the prepared area, masking the perimeter and reinstating to the original specification. A 50 mm overlap onto the existing material should be allowed.

## 14 Tests

Samples of Rocbinda/Colorvial were prepared by the Certificate holder for testing. The tests carried out by, or on behalf of, the BBA are summarised in Tables 3 and 4. The results of the tests complied with the requirements for a Type 1 system.

Table 3 Laboratory performance tests and requirements

Test	Parameter	Type 1 requirement	Method in TRL Report 176 <sup>(1)</sup>
Scuffing at 45°C			Appendix G
initial	Texture depth (mm)	≥1.4	
after 500 wheel-passes	Texture depth (mm)	≥1.2	
	Erosion index	≤3	
after heat ageing for 112 days at 70±3°C and 500 wheel-passes	Texture depth (mm)	≥1.2	
	Erosion index	≤5	
Wear			Appendix H
initial	Texture depth (mm)	≥1.4	
	SRV	≥65	
after 100 000 wheel-passes	Texture depth (mm)	≥1.1	
	Erosion index	≤3	
	SRV	≥70	
Tensile adhesion			Appendix J
at (-10±2)°C	Stress at failure (N·mm <sup>-2</sup> )	≥1.0	
at (20±2)°C	Stress at failure (N·mm <sup>-2</sup> )	≥0.5	

(1) Including any agreed amendments detailed in Appendix D of the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways*.

Table 4 Additional tests

Test	Parameter measured	Result	Method in TRL Report 176 <sup>(1)</sup>
Resistance to freeze/thaw	Texture depth/erosion index	Satisfactory	Appendix L
Resistance to diesel	Texture depth/erosion index	Satisfactory	Appendix M
Thermal movement	Thermal expansion coefficient	Satisfactory	Appendix N
Concrete substrate test	Texture depth/erosion index	Satisfactory	Appendix P
	Tensile adhesion at 20±2°C		

(1) Including any agreed amendments detailed in Appendix D of the *Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways*.

## 15 Investigations

15.1 An installation trial was carried out to assess the practicability of the installation and quality control/assurance procedures.

15.2 A user/specifier survey relating to existing sites, at least two years old, was carried out to assess the system's performance and durability.

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

## Bibliography

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*

HD 28/04 *Design Manual for Roads and Bridges : Volume 7, Pavement Design and Maintenance : Section 3, Pavement Maintenance Assessment : Part 1, Skid Resistance*

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

*Guidelines Document for the Assessment and Certification of High-Friction Surfaces for Highways*, November 1998

Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highway Works, Series 900 Road Pavements — bituminous bound materials*

Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works, Series NG 900 Road Pavements — bituminous bound materials*

## 16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

16.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.
- remain in accordance with the requirements of Highway Authorities' Product Approval Scheme.

16.4 In granting this Certificate, the BBA is not responsible for:

- 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 the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.