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GUIDELINE DOCUMENT FOR THE ASSESSMENT AND CERTIFICATION OF MODIFIED BITUMENS FOR SURFACE DRESSINGS, MICRO-SURFACINGS AND BOND COATS FOR HIGHWAYS

October 2013

Note: This document may be revised from time to time to take account of improvements and amendments to test and assessment methods and material innovations. Readers are advised to contact the British Board of Agrément directly for current position.

HAPAS GUIDELINES

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ACE (The Association of Consulting Engineers)
BBA (British Board of Agrément)
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HA (Highways Agency) - also representing other overseeing organisations
IAT (Institute of Asphalt Technology)
IP (Institute of Petroleum)
MPA (Mineral Products Association)
RBA (Refined Bitumen Association)
REAL (Road Emulsion Association Ltd)
TRL (Transport Research Laboratory)

LIST OF CONTENTS

1 SCOPE

1.1 This guideline provides an assessment procedure which may lead to the issue of a BBA HAPAS Agrément Certificate for a product. The issued Certificate will confirm a system's compliance with the requirements as defined by Specialist Group 4, and agreed by HiTAC.

1.2 For the purpose of this scheme, modified bitumen is defined as a proprietary composition containing bitumen(s) and polymer(s) or other modifier(s), manufactured either on or off-site. The bitumen will be either in the form of an emulsion or a cutback.

1.3 Products approved under the scheme are deemed suitable for use in surface dressings, micro-surfacings or as polymer modified bond coats for highways. The actual use will be stated in the Certificate.

1.4 The test methods and protocols referenced in this document are for certification purposes and are inappropriate for use on a contractual basis as part of a specification.

2 INTRODUCTION

2.1 The Assessment and Certification procedure is undertaken as follows:

Stage 1 - Submission for product approval
Stage 2 - Factory production control
Stage 3 - Laboratory testing
Stage 4 - Monitored road trials (if required)
Stage 5 - Certification

2.2 Generally each stage shall be successfully completed and, where appropriate, a report issued prior to the commencement of the next stage.

2.3 Where the Applicant offers existing test data in support of the application for assessment, it may if suitable, be used for assessment purposes. The suitability of existing data will be assessed by the BBA.

2.4 If an Applicant offers a number of modified binder options belonging to a single product (e.g. summer and winter grade), these may be included on one Certificate. The Applicant and the BBA will define what constitutes a single or multiple products.

2.5 A monitored road trial is required when it cannot be demonstrated that the system has performed satisfactorily for a minimum period of 2 years on at least three appropriate sites.

2.6 The BBA reserves the right to amend or supplement the tests required to establish performance claims identified as part of the assessment at any time. The Applicant is responsible for the cost of all testing.

2.7 A Certificate will only be awarded upon satisfactory completion of Stages 1 to 4.

3 ASSESSMENT

3.1 Stage 1: Submission for Product Approval

3.1.1 An applicant’s submission must include the following:

a) A unique reference (or name) and product specification. Where the application relates to a range of products, individual products will be identified and a specification provided for each.

b) The product type – e.g. modified bitumen, emulsion or cutback.

c) The intended application(s) for the product(s).

d) Evidence that the modified bitumen has performed satisfactorily for a minimum period of two

years on at least three appropriate sites [(1)].

e) Satisfactory test results after PAV 85 conditioning.

f) Evidence of the suitability of the product(s)[(2)] for the intended purpose(s) based on the system tests[(3)] specified in Table 1.

g) The results of the type approval tests[(4)(5)].

h) A Quality Assurance system comprising:
- A Quality Plan (see section 3.2.1)
- A Factory Production Control scheme (see section 3.2.2).

Notes:

1 Performance data from outside the UK may be used if the climatic conditions are demonstrated to be comparable or more onerous. See section 3.4 if no data is available.

2 Where the claimed purpose is for bond coat applications the test method listed in Table 1 is preferred. Other tests which an applicant may wish to use for this or other purposes may be used with the prior agreement of the BBA.

3 Results from system tests are solely for the purpose of assisting the BBA to judge whether the product(s) is/are suitable for the stated purpose(s). Such results will not be declared in a Certificate.

4 The applicable type approval tests detailed in Table 2 and Table 3 are required for all members of a family with the exception that the tests required after PAV 85 will generally only be carried out on the member of the family containing the maximum amount of modifier(s).

5 CE Mark product information confirming compliance to an appropriate standard may be submitted as supporting evidence and may negate the need for additional testing. The suitability will be determined by the BBA.

3.1.2 Should there be the need to modify the product during the assessment as defined by the Applicant (eg as a result of failure of the product to meet the requirements), the content of the assessment and additional work required will be reconsidered by the BBA.

3.1.3 The Applicant will provide a Health and Safety Data Sheet for the product and any further advice to ensure its safe use and information to ensure that the product is handled and stored correctly.

3.2 Stage 2: Quality Assurance

3.2.1 The BBA shall assess the applicant's production processes, material controls, records etc to ensure that a consistent product is offered for sale. This shall include audit visits to one or more of the manufacturing locations to confirm the Quality Plan and Quality System for the system. The assessment of factory production control shall form the basis for subsequent surveillance visits.

3.2.2 Where a quality system is ISO 9000 series accredited, this shall be acceptable to the BBA. Other quality assurance schemes recognised by the highway authorities may also be acceptable to the BBA.

3.3 Stage 3: Laboratory Testing

3.3.1 The Applicant must submit test data as described in Table 2 or 3 for assessment during Stage 1 in accordance with the requirements of Section 4.

3.3.2 All samples submitted for type approval testing must be prepared by the Applicant or his representative. Preparation of these samples may be witnessed by the BBA. The Applicant must provide evidence that the product submitted for approval testing is within the declared

supply specification.

3.4 Stage 4: Monitored Road Trials (if applicable)

3.4.1 The monitored road trial will be required if either:

- the tests on the modified bitumen after the PAV 85 ageing procedure are considered to be unsatisfactory by the BBA (see Appendix A), or
- it cannot be demonstrated that the product has performed satisfactorily over a minimum period of two years on at least three appropriate sites.

The monitored road trial will be used to assess the durability of the modified bitumen over at least a two year period. In a disputed case, the need for a road trial will be decided by the BBA.

3.4.2 At the end of the two year trial period a Visual Assessment of the road trial will be carried out in accordance with the General Procedures for the Assessment of Trial Sites by Inspection Panel and the method defined in Appendix C. In a disputed case, the need for a further road trial will be decided by the BBA.

3.5 Stage 5: Certification

3.5.1 Any Certificate issued will be in the BBA HAPAS Roads and Bridges series and verify the product's compliance with the requirements given in this document. The Certificate will also define, the product's specification, the intended application(s), and a summary of the results of tests required in Table 2 or 3.

3.5.2 The Assessment and any Certificate issued is subject to the Terms and Conditions of the relevant BBA Contract and include:

- Any Certificate issued will remain valid for an unlimited period provided that:
  - The product and its manufacture are maintained at or above the levels which have been assessed and found satisfactory by the BBA
  - The manufacturer continues to have the quality system checked by the BBA or their approved agent to comply with the conditions for approval
  - The validity is confirmed by a review carried out every five years by the BBA
  - The requirements of the Guidelines Document remain unchanged
- In the event of the Certificate Holder going into liquidation, the Certificate will be suspended and may be withdrawn
- Reinstatement of a suspended or expired Certificate is subject of a review by the BBA. Certificates which have been suspended or expired for longer than 2 years are longer be valid for reinstatement.

3.5.3 During the validity of any Certificate, the Certificate holder will be responsible for the quality assurance/control of the production at the manufacturing location(s) declared to the BBA.

3.5.4 Following the issue of any Certificate, the Certificate holder may submit further products belonging to the same family for Assessment and inclusion in the Certificate. Approval of these new products is conditional upon compliance with sections 2.4 and 3.1.1 and subject to the terms and conditions of the additional BBA Contract.

4 ACCEPTANCE OF DATA

4.1 The BBA will accept test data provided such data have been generated in a laboratory operating a quality system acceptable to the BBA.

4.2 Other data supplied in support of the assessment (eg background information, test data relating to generic materials), where the above conditions are not met, will only be accepted after having been individually assessed and approved as being suitable by the BBA.

4.3 The BBA will accept type approval test data generated according to Section 3.3 from laboratories which either:

- Have UKAS accreditation for the tests used in the approval submission which are performed on samples approved by the BBA. The BBA would require the test laboratory to submit a copy of their "UKAS Schedule"

or

- Meet the BBA quality requirements to be a 'BBA approved laboratory' to carry out one or more of the tests on modified bitumen's referred to in Table 1 or Table 2.

4.4 Test data from overseas, external, independent testing laboratories that have the equivalent national accreditation for the specific tests may be accepted if there is a reciprocal agreement between UKAS and the national accreditation authority of the country in question, and the test methods used have been demonstrated as being equivalent to the satisfaction of the BBA.

5 TEST PROCEDURES FOR USE IN THE ASSESSMENT OF PRODUCTS

Table 1 Bond test methods

Property	Test	Test Method
Adhesion to substrate	Torque Bond Test	Appendix A3, Guideline Document for the Assessment and Certification of Thin Surfacing Systems for Highways.
Other	To be defined by the applicant and agreed with the BBA	

Table 2 Mandatory Type approval tests for modified bitumen emulsions for surface dressings, micro-surfacings and bond coats

Test Property	Test Method	As Manufactured	After Recovery(1)	After PAV 85 test condition as specified BS EN 14769
Penetration				
at 25°C 100g 5 sec (dmm)	BS EN 1426	-	√	-
at 5°C 200g 60 sec (dmm)		-	√	-
Softening point (°C)	BS EN 1427	-	√	-
Vialit Pendulum				
Peak cohesion value (J·cm²)	BS EN 13588	-	√	√
Peak cohesion temperature (°C)		-	√	√
Temperature range for X J·cm² (2) (°C)		-	√	√
Rheology by DSR				
T2 kPa at 0.4 Hz (°C)	BS EN 14770	-	√	√
T2 MPa at 0.4 Hz (°C)		-	√	√
G* at 25°C and 0.4 Hz (Pa)		-	√	√
δ at 25°C and 0.4 Hz (Degrees)		-	√	√
G* at 60°C and 0.1 Hz, 0.4 Hz (Pa)		-	√	√
δ at 60°C and 0.1 Hz, 0.4 Hz (Degrees)		-	√	√
For information only				
Installability(3)				
Viscosity (Secs)	BS EN 12846	√	-	-
Minimum binder content (% m)	BS EN 1428	√	-	-
Sieve residue (% m)	BS EN 1429	√	-	-
Mix Setting time (microsurfacing) (Mins)	BS EN 12274-4	√	-	-
Mix Cohesion time (microsurfacing) (Mins)		√	-	-

Notes:

(1) BS EN 13074 Bitumen and bituminous binders – Recovery of binder from bitumen emulsions by evaporation. Part 1 or 2

(2) Range over which cohesion is X J·cm² where X is defined by the applicant. A value of X may be fixed in the future in the light of further evidence.

(3) Instability tests are for information only and are not considered mandatory for type approval. They are considered as a minimum list of tests which should be carried out to ensure consistency as part of any quality control testing by the manufacturer.

Table 3 Mandatory Type approval tests for modified cutback/flux binders for surface dressings

Test Property	Test Method	Base binder	As Manufactured	After Recovery[1]	After PAV 85 test condition as specified in BS EN 14769[2]
Penetration					
at 25°C 100g 5 sec (dmm)	BS EN 1426	√	-	√	-
at 5°C 200g 60 sec (dmm)		√	-	√	-
at 5°C 100g 5 sec (dmm)		-	√	-	-
Viscosity[3][4]	-	-	√	√	-
Vialit Pendulum					
Peak cohesion value (J·cm²)	BS EN 13588	√[5]	√[5]	√	√
Peak cohesion temperature (°C)	SHW Clause 957	√[5]	√[5]	√	√
Temperature range for X J·cm² (°C)[6]		√[5]	√[5]	√	√
Rheology by DSR					
T2 kPa at 0.4 Hz (°C)	BS EN 14770	-	-	√	√
T2 MPa at 0.4 Hz (°C)		-	-	√	√
G* at 25°C and 0.4 Hz (Pa)		-	-	√	√
δ at 25°C and 0.4 Hz (Degrees)		-	-	√	√
G* at 60°C and 0.1 Hz, 0.4 Hz (Pa)		-	-	√	√
δ at 60°C and 0.1 Hz, 0.4 Hz (Degrees)		-	-	√	√
For information only					
Installability Viscosity[3]		-	√	-	-

Notes:

(1) Tests on the recovered binder will be carried out when agreed recovery procedures are in place for cutback binders.

(2) PAV 85 ageing may be carried out on either base binder or recovered binder at the discretion of the applicant.

(3) This is an alternative to measuring penetration at 5°C, 100g, 5 sec.

(4) The viscosity test will be measured at a specified temperature appropriate to the product being tested using a test method confirmed by the manufacturer.

(5) The cohesion testing to be carried out on either the base binder or as manufactured binder.

(6) Range over which cohesion is X J·cm² where X is defined by the applicant. A value of X may be fixed in the future in the light of further evidence.

6 BIBLIOGRAPHY

BS 598-100 : 2004 Sampling and examination of bituminous mixtures for roads and other paved areas. Methods for sampling for analysis

BS EN 1426 : 2007 Bitumen and bituminous binders — Determination of needle penetration

BS EN 1427 : 2007 Bitumen and bituminous binders — Determination of softening point — Ring and Ball method

BS EN 1428 : 2012 Bitumen and bituminous binders — Determination of water content in bituminous emulsions – Azeotropic distillation method

BS EN 1429 : 2009 Bitumen and bituminous binders - Determination of residue on sieving of bitumen emulsions and determination of storage stability by sieving

BS EN 12274-4 : 2003 Slurry surfacing. Test methods. Determination of cohesion of the mix

BS EN 12607-1 : 2007 Bitumen and bituminous binders. Determination of the resistance to hardening under the influence of heat and air. RTFOT method

BS EN 12846 -1 : 2011 Bitumen and bituminous binders - Determination of efflux time by the efflux viscometer. Bituminous emulsions

BS EN 12846 -2 : 2011 Bitumen and bituminous binders - Determination of efflux time by the efflux viscometer. Cut-back and fluxed bituminous binders

BS EN 13074-1 : 2011 Bitumen and bituminous binders — Recovery of binder from bitumen emulsions or cut back or fluxed bituminous binders. Recovery by evaporation

BS EN 13074-2 : 2011 Bitumen and bituminous binders — Recovery of binder from bitumen emulsions or cut back or fluxed bituminous binders. Stabilisation after recovery by evaporation

BS EN 13588 : 2004 Bitumen and bituminous binders. Determination of cohesion of bituminous binders with pendulum test

BS EN 14769 : 2005 Methods of test for petroleum and its products — Bitumen and bituminous binders— Accelerated long-term ageing conditioning by a Pressure Ageing Vessel (PAV)

BS EN 14770 : 2005 Methods of test for petroleum and its products — Bitumen and bituminous binders— Determination of complex shear modulus and phase angle —
Dynamic shear rheometer (DSR)

SHW Clause 957
Appendix A3, Guideline Document for the Assessment and Certification of Thin Surfacing Systems for Highways

APPENDIX A Guidance for acceptability of durability as assessed by the PAV 85 procedure

Ageing Index

The concept of “Ageing Index” (AI) was developed to give an indication of the extent to which the stiffness of paving grade binders changes over a long period of service as a binder on the road due to the effects of oxygen (in air) and temperature.

The “Ageing Index” (AI) of a binder is defined as the ratio of Complex Stiffness Modulus (G*), measured after accelerated ageing, to G* measured on the unaged material (see Note 1). Accelerated ageing is carried out by subjecting a sample to the Rolling Thin Film Oven Test (RTFOT), followed by the PAV 85 procedure (see Note 2). Values of G* measured at 25°C and 0.4 Hz are used for the comparison.

A “Natural Ageing Index” can also be calculated from G* measured after natural ageing for a stated period in service (eg 10 years), divided by G* measured on the unaged material (see Note 3). This value is dependent on the type of asphalt in which the binder is used, and also on the method of recovery of binder from the asphalt, so values of natural AI and laboratory AI are not necessarily comparable.

Note 1: Rheological properties are measured using test method (BS EN 14770 : 2005). The full test procedure must be followed, even though only the value of G* specified above is required for calculation of AI. (Additional data obtained in the full test procedure is required when a sample of modified binder is submitted for HAPAS approval, so calculation of AI requires no additional testing).

Note 2: It is an explicit requirement of the PAV 85 procedure that the binder tested has previously been subjected to the Rolling Thin Film Oven Test procedure. This is a Safety requirement, as well as a Specification requirement.

Note 3: The ageing of a binder in service on the road as a component of an asphalt mixture is influenced by the type of asphalt mixture. Mixtures of low porosity will slow access of air and water to the binder except at the exposed surface.

It has been found that the A1 of several un-modified bitumens in common use in the UK lie in the range of 7 to 17. All these bitumens have been proved satisfactory in service, and there is no indication that those bitumens with AI at the high end of the range are inferior in service to those having an AI at the low end of the range. Several PMB which are known to be satisfactory in service were also found to have AI below 17.

A single figure cannot give an accurate indication of ageing behaviour. In the case of polymer-modified binders, both polymers and bitumens are affected by oxygen and heat, and their changes may alter the rheology of the combination differently – possibly in opposite directions. It is necessary to consider a range of rheological characteristics (which may include traditional tests such as penetration value), measured over a range of temperatures and loading times on material before and after ageing, and evaluate the effect which these changes will have on performance. However, Ageing Index is believed to be useful as an indicator of potential problems and the need for further investigation.

APPENDIX B

Visual assessment of trial sites

1. Scope

1.1 This protocol describes a general procedure for the visual assessment of trial sites by a BBA HAPAS Inspection Panel.

1.2 The protocol describes a procedure that has been developed specifically for the assessment of high-friction surfacing under BBA HAPAS Certification procedures. The method has yet to be proven and shown to be valid. The method is therefore unsuitable for use in specifications and should not be used for this purpose.

2. References

2.1 Normative references.

2.1.1 This protocol incorporates by reference provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed in clause 12. Subsequent amendments to, or revisions of, any of these publications apply to this protocol only when incorporated in it by updating or revision.

2.2 Informative references

2.2.1 The protocol refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed in clause 12, but reference should be made to the latest edition.

3. Definitions

3.1 For the purposes of this Appendix, the definitions given in BS EN 12697-27 : 2001 apply together with the following:

3.1.1 A *site* is a length of highway open to regular traffic on which one or more surfacing materials, component materials or construction techniques has been laid in order to assess their (comparative) performance in service.

3.1.2 A *section* is a distinct length of a site on which one distinct surfacing material, component material or construction technique has been laid or employed.

4 Responsibilities

4.1 The BBA as Convenor is responsible for:

- Fixing the date of the inspection by liaison with the other members of the Inspection Panel and the Applicant.
- Briefing the Inspection Panel on the aims of the inspection), and provide the following information:

  - A copy of this procedure
  - Panel Member's Report Form (Appendix C)

- Collating the panel mark using Table C2.

4.2 The Applicant is responsible for :

- Arranging access to the site for inspection, road closures and any other precautions necessary to ensure that the inspection can be carried out in a safe manner.
- Arranging any site testing required during the inspection by a BBA Approved Laboratory.

4.3 The Panel members will provide and wear the necessary safety clothing and protection during the inspection.

5 Inspection Panel

5.1 The Inspection Panel shall consist of the BBA Convenor and two other members who have experience of bituminous surfacing and bon coats. If due to unforeseen circumstances one member cannot attend on the day, a minimum of two (including the Convenor) will be acceptable.

5.2 After confirming the date for an inspection, the BBA Convenor informs other members as soon as possible prior to the inspection. A copy of this procedure for inspecting road trial sites shall be sent to panel members who have not participated for familiarity.

6 Initial project briefing

The Inspection Panel are assembled, members are given a Inspection Panel Member's Report Form. The BBA Convenor will also have a BBA Convenor's Report Form (Appendix C.1) BBA Convenor will brief members on the particular aims of the trial and any implications on the emphasis of that inspection. A copy of the BBA Inspection Report for the site installation trial will be available on the day.

7 Inspection

7.1 The Panel members will agree on the weather conditions prevailing, and record these accordingly.

7.2 The Panel members will inspect the condition at each section as closely as practicable. By stopping and examining at intervals will ensure members view the surface with the light in a different direction.

7.3 Any localised areas that have been subject to untypical mechanical or chemical actions (e.g. damage caused by a vehicle running on its wheel-rim or by a major diesel spillage) will be ignored.

7.4 Members will record on their Panel Member's Report Form a mark for each section or sub-section soon after inspecting it. Whilst members can discuss points of interest noted during the inspection, they will not reveal their marking until all members have recorded their individual mark.

8 Marking

8.1 Each section or sub-section shall be assessed on the basis of its current serviceability irrespective of the elapsed time since it was laid. If any of the aspects are evident to a significant degree on the section, the relevant suffix from Table G1 is applied to the basic marking. Suffix v will not be applied to a section marked as *t,* nor + to one marked -.

8.2 Once any appropriate fault suffixes have been assigned, the basic mark is allocated from Table C2.

9 Confidentiality

Whilst the Panel marking can be reported, the individual marks allocated by members of the Panel will be treated in confidence. This is to allow members to make judgements as to the condition of the trial sections without consideration of the commercial interests of their organisation.

10 Reporting of results

The inspection report shall include the following information:

- Date, time and location of the inspection
- Number of people in the Inspection Panel present
- Prevailing weather conditions
- Sufficient details of each section inspected to allow unique identification.
- Basic panel marking with any associated fault suffixes for each section inspected
- Any comments about the site(s) not otherwise covered.

11 References

BRITISH STANDARDS INSTITUTION **BS EN 12697-27 : 2001 Bituminous mixtures – Test methods for hot mix asphalt – Part 27 : Sampling**

TRANSPORT RESEARCH LABORATORY (1997). **Laboratory tests on high-friction surfaces for highways.** TRL Report 176, J C Nicholls.

APPENDIX C

BBA HAPAS INSPECTION PANEL

Panel Member's Report Form

Panel Member:	Date of Inspection:
BBA Panel Convenor:	System:
Location:	Job No:
Weather and Road Conditions:	

		Site(s)			
		1.	**2.**	**3.**	**4.**
See Table C1	Fault Suffix				
See Table C2	Mark				

Table 1 – Fault Suffixes

Suffix	Description	
v	Variable	Random variations from point to point within the section only, not 'traffic laning' or of obvious variations from load to load
t	Variability with traffic intensity	Marked transverse difference caused by variations in traffic intensity between lanes and wheel tracks.
+	Fatting up	
-	Loss of chippings, loss of aggregate or loose aggregate	
f	Fretting of mortar	
g	Growth of vegetation	
p	Ponding	
d	De-lamination from substrate	
s	Stripping	
c	Cracking	

BBA HAPAS INSPECTION PANEL

Panel Member's Report Form

Table 2 – Basic Mark	
Mark	**Description**
E	No discernable fault
G	No significant fault
M	Some faults but insufficient for serious problems
A	Several faults but would usually be just acceptable
S	Seriously faulted but still serviceable in the short term
P	Requires remedial treatment
B	Requires immediate remedial treatment

APPENDIX C.1

BBA HAPAS INSPECTION PANEL
BBA Convenor's Report Form

System:	Location	
BBA Convenor:	Date of inspection:	
Weather and Road Conditions:		Job No:

Site(s)		Individual Markings (from Panel Member's Report Form)			Panel Mark	
		Panel Member	Panel Member	BBA Convenor	Mark	Fault Suffix
1.	**Mark**					
	Suffix					
2.	**Mark**					
	Suffix					
3.	**Mark**					
	Suffix					
4.	**Mark**					
	Suffix					

Signed……..

Date……

APPENDIX D **Definitions and Acronyms**

BBA Approved Laboratory	A laboratory approved by the BBA to carry out test work on behalf of the BBA, ie sub-contracted by the BBA, which may lead to the approval of a product and the issue of a BBA Certificate. Before approval the laboratory will have demonstrated to the BBA that it has the relevant expertise, equipment and quality systems in place to carry out the work required.
HAPAS	Highway Authorities Products Approval Scheme
PAV 85	High Pressure Ageing Test. This was developed by certain members of SG4, and is based on the SHRP Pressure Ageing Vessel, but is carried out at 85°C for 65 hours.
HiTAC	Highways Technical Advisory Committee. A committee, appointed by the Council of the BBA, consisting of representatives of parties responsible for overseeing and controlling the HAPAS scheme and the work of the BBA in this area.
Inspection Panel	A team representing the constitution of Specialist Group 4 who are convened, when required, to assess the installation and or performance of a site.
UKAS	United Kingdom Accreditation Scheme
Specialist Group	A Specialist Group formed under the auspices of HiTAC. The objectives of the Group are to develop guidelines and offer specialist advice for the assessment and Certification of products for highways.
Visual Assessment	A procedure for assessing the visual condition of trial sites by Inspection Panel in accordance with the method defined in TRL Report 176: Appendix R
G*	Definition Ex Eurobitume Glossary