

# asphalt

applications

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Decorative and coloured  
finishes for asphalt  
surfacing



Asphalt  
Information  
Service

## Introduction

*"You can have any colour you like as long as it is black".* This remark attributed to Henry Ford might well be used to describe the asphalt\* materials which are chosen to surface the majority of roads and other paved areas, despite the fact that eventually, under traffic and weathering, the natural colour of the aggregate (stone) used in the mix will often become apparent. Indeed, the neat low-glare appearance of the traditional 'blacktop' surfacing, especially when finished with the normal contrasting white lines, is most pleasing and acceptable to the eye in most situations. However, there are times when a specific colour or decorative finish is desired and the object of this information sheet is to indicate the methods by which such finishes might be achieved.

*\*The term 'asphalt' is used in this publication and unless accompanied by a descriptor for example "Asphalt Concrete" (AC), 'Hot Rolled Asphalt' (HRA) or 'Stone Mastic Asphalt' (SMA), is applied in its generic sense to refer to the range of mixtures used in the UK.*

**N.B.** The terminology used in this guide for the structural elements of the pavement is that adopted for use in European Standards. Surface course was previously known as wearing course, binder course was known as basecourse and base was known as roadbase.

Where reference is being made to European Standards it is considered essential that initial reference should be made to the UK National Guidance Document PD 6691<sup>1</sup>.

## Methods of colouring asphalt

### Colour within the surface course

There are three basic methods for obtaining a coloured/decorative finish with an asphalt surfacing:

- 1 the colour can be incorporated into the surface course mixture at the time of manufacture;
- 2 suitable decorative chippings can be applied to some types of surface course during the laying operation;
- 3 an overall decorative surface treatment can be applied to the surfacing after laying.

There are five ways in which colour can be introduced into a surface course during manufacture of the mix and these are:

- a by adding a pigment to a standard bitumen-bound asphalt mixture, usually restricted to dark reds and greens
- b by incorporating aggregate of the required colour in the normal bitumen-bound asphalt mix;
- c by adding both a pigment and an aggregate of a complementary colour to an asphalt mix bound with a black bitumen
- d as in c using both a pigment and a complementary coloured aggregate but utilising a straw coloured synthetic bitumen binder.
- e by incorporating aggregate of the chosen colour with or without addition of pigment in an asphalt mix that is bound with a clear epoxy resin binder rather than the normal or synthetic bitumen binder.

While (a), (c), (d) and (e) will provide an immediate colouration of the mix, in the case of (b) the colour will only become apparent in the surfacing after the surface binder film has been removed by traffic and weathering. The process will, therefore, only be effective on well-trafficked roads and even then the colour is likely to take some time to develop. Process (b) should not, therefore, be considered for sites where an immediate colour effect is required, for which (a), (c) or (d) will be appropriate. It should be noted that process (e) is not a hot mixed asphalt process as is applicable to (a), (b), (c) and (d). Due to the limited time available for spreading and compaction between mixing and the setting of the epoxy resin binder, the mixture is generally mixed in small batches on the site by a specialist contractor.





## Application of chippings to the surface

In the case of both the mixtures using synthetic straw coloured binder (d) and those using an epoxy resin binder (e), through the incorporation of appropriately coloured or decorative aggregate in the mix, manufacturers can provide a wide variety of coloured finishes.

Most of the decorative and coloured finishes of the types described in (d) and (e) are proprietary materials and it is therefore not possible to give detailed information or specifications for them in this information sheet.

However, the Mineral Products Association can advise on suppliers of the different types of material from whom further details of the materials and their use can be obtained.

Textured coloured asphalt surfacings are also now possible through use of the technique of imprinting the asphalt during laying. A variety of patterns is available from specialist companies.

Asphalt mixes with high mortar contents, i.e. Hot Rolled Asphalts to BS EN 13108-4<sup>2</sup> containing no more than 35% of coarse aggregate and fine graded Asphalt Concrete to BS EN 13108-1<sup>3</sup> are particularly suited to carry an application of decorative chippings rolled into the surface at the time of laying. Rolled asphalts are suitable for most traffic situations but fine-graded Asphalt Concrete is appropriate only for very lightly trafficked and pedestrian areas.

To provide a decorative finish to both of these types of surface course, pigmented bitumen-coated or clear resin-coated chippings can be applied during laying. The bitumen or resin coating is needed to ensure adhesion to the surfacing particularly in trafficked areas where chippings are at risk of becoming dislodged by vehicles. It is not recommended that uncoated chippings be used as there will be little adhesion. However, in the case of fine-graded Asphalt Concrete laid on areas subjected to little trafficking such as private drives and footways, a light scattering of uncoated chippings such as white spar can provide an attractive finish if the chippings are uniformly applied and well embedded to ensure their retention for as long as possible.

Decorative chippings cannot be successfully rolled into the surface of the more stony asphalt mixes such as dense Asphalt Concretes, high stone-content Hot Rolled Asphalts or Stone Mastic Asphalt<sup>4</sup>. With these types of surfacing, surface treatments as described in the following section will need to be considered.

## Surface treatments

There are two surface treatments which can be applied to surface courses to provide a decorative finish. These are surface dressing and pigmented slurry surfacing. Both give an overall decorative/coloured effect.

Surface dressing consists of a bitumen or bitumen emulsion spray applied to the surface course following which an overall application of natural stone chippings is applied and well rolled. The finish obtained is relatively deep-textured and will be the colour of the chosen chippings. The process is fully detailed in Road Note 39<sup>5</sup>.

Slurry coats comprise a bitumen emulsion and fine aggregate mixture which is applied to the surfacing either by brush or squeegee to a thickness of approximately 3mm. A fine-textured finish is achieved and a number of colours can be supplied.

Neither of these two surface treatments provides any significant degree of structural strength and it is therefore essential that they are applied only to an adequate construction. The slurry material is normally used only on untrafficked or lightly trafficked surfaces unless the particular material supplied is suitable for heavy-duty use as is the case when brightly coloured and used for delineation of safety and speed restricted areas on more major roads.



## Points to note



The cost of decorative surfacing is inevitably greater than that of normal asphalt surfacings, due to the higher costs of special aggregates and binders and the extra cost of pigments if used. This additional cost may not be very large when simple treatments are used, such as a surface dressing with a local aggregate of preferred colour. It will be larger where special pigmented mixes are used or where chippings have to be transported over long distances.

It should be borne in mind that any lightly-coloured surface finish, whatever the type of construction, can be disfigured by stains, such as those caused by the occasional oil droppings from parked vehicles and tyre rubber marking particularly in the wheel tracks. Indeed, one advantage of the traditional black asphalt surfacing is that such marks are less evident, although it should also be appreciated that significant oil spillages can damage asphalt surfacings.

A wide range of colours is available in naturally-occurring aggregates from the browns and buffs of gravels, through the whites and creams of limestones and spars, to the darker greys of some basalts and the pinks, reds and greens of some granites. Mineral Products Association will be pleased to advise if and where a particular colour of aggregate might be obtained.

For general guidance on the specification and manufacture of asphalts, reference should be made to the Guidance Document PD 6691<sup>1</sup> along with the appropriate European Standards and for transportation preparation and laying of asphalt to BS 594987<sup>6</sup>. When using proprietary mixes, due recognition should be given to additional or alternative advice provided by individual proprietors about their products.

Not all of the above-mentioned types of decorative finish are necessarily available in all areas nor applicable to all situations. Care also needs to be taken to ensure that the selected finish will give an appropriate skid resistance and overall performance for the specific circumstances. It is therefore advisable before specifying such materials to make local enquiries with reputable specialist surfacing contractors to determine availability and suitability. It is also worthwhile asking to see local examples of typical work carried out by the companies to determine if a particular finish is going to give the desired effect. A coloured surfacing matures both in colour and performance with weathering and age and therefore a freshly prepared untreated hand sample of a recently produced mixture may not represent the colour of a surface which has been subject to a few months of use.

## Getting the work done

A list of the specialist surfacing contractor members of the Mineral Products Association in any particular area is available from the address given in this publication.

**It is strongly recommended that surfacing work, and particularly work involving decorative finishes, is NOT entrusted to itinerant or casual callers or non-specialists as there is a risk that the work will not be satisfactory, with little prospect of obtaining redress.**

## References

**Important:** When referring to any of the documents listed it is essential to check that it is the latest/current edition of that document. This can be readily confirmed by checking the currency of the document on the appropriate website.

- 1 PD 6691 - Asphalt. **Guidance on the use of BS EN 13108 Bituminous Mixtures - Material specifications.** BSI, London.
- 2 British (European) Standard BS EN 13108-4 **Bituminous mixtures - Material specifications - Part 4: Hot Rolled Asphalt,** BSI, London.
- 3 British (European) Standard BS EN 13108-1 **Bituminous mixtures - Material specifications - Part 1: Asphalt Concrete,** BSI, London
- 4 British (European) Standard BS EN 13108-5 **Bituminous mixtures - Material specifications - Part 5: Stone Mastic Asphalt,** BSI, London
- 5 **Road Note 39 (Sixth Edition) Design Guide for Road Surface Dressing,** 2008 TRL, Crowthorne, Berkshire. [www.trl.co.uk/library/reports/publications](http://www.trl.co.uk/library/reports/publications)
- 6 British Standard BS 594987 **Asphalt for roads and other paved areas - Specification for transport, laying and compaction and type testing protocols,** BSI, London
- 7 **BSI website for the purchase of European and British Standards and Public Documents.** [www.bsiglobal.com/upload/Standards%20&%20Publications/shop.html](http://www.bsiglobal.com/upload/Standards%20&%20Publications/shop.html)

## Information sheets in this series

- 1 The construction and surfacing of car parking areas including private drives and permeable hardstandings
- 2 The construction and surfacing of parking areas for medium and heavyweight vehicles
- 3 Resurfacing of roads and other paved areas using asphalt
- 4 Decorative and coloured finishes for asphalt surfacings
- 5 Choosing a surfacing contractor
- 6 Asphalt surfacings for high stress areas
- 7 Use of asphalt in the construction of games and sports areas
- 8 Farming applications of asphalt
- 9 Miscellaneous uses of asphalt
- 10 Airfield uses of asphalt
- 11 Construction and surfacing of footways and cycleways using asphalt
- 12 European Asphalt Standards and their application in the UK.

## Booklet

### **'What's in a Road?'**

A general review of pavement construction and the different materials that are used for the construction and maintenance of asphalt roads.

Enquiries for orders for 'What's in a Road?' should be addressed to the Mineral Products Association, details on next page.

## Topics in Asphalt

- Asphalt - Road materials with quality
- Roads are 'green' with asphalt

## Publications

Apart from this and the other information sheets and booklet dealing with uses of asphalt and pavement construction, a range of other publications is available from the Mineral Products Association covering aggregate production and processing, lime, ready-mixed concrete, sand and gravel and slag. A full list of these publications may be obtained from the address shown on the next page.

## Further advice

General advice on the use of asphalts may be obtained from the Mineral Products Association at the address given on this information sheet. For detailed guidance on any site-specific matter, advice should be sought from local specialist surfacing contractor members of the Mineral Products Association.





The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries.

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