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Surface treatments – Guidance on the use of BS EN 12271 and BS EN 12273

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 18, an inside back cover and a back cover.

Foreword

Publishing information

This Published Document is published by BSI and came into effect on 31 May 2009. It was prepared by Technical Committee B/510, *Road materials*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This Published Document supersedes PD 6689:2006, which is withdrawn.

Relationship with other publications

This Published Document provides guidance on the use of BS EN 12271 and BS EN 12273 which were implemented in the UK in January 2008.

Presentational conventions

The provisions of this Published Document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a Published Document cannot confer immunity from legal obligations.

0 Introduction

0.1 BS EN 12271 – Surface dressing

BS EN 12271 specifies a range of categories for properties of surface dressing to enable users to select appropriate limiting values for a wide range of uses within Europe.

The specifier needs to define BS EN 12271 categories for properties relevant to the particular end-use of the surface dressing. Some example specifications for different end-uses are given in Annex A.

BS EN 12271 covers surface dressing specified by performance of the finished product. It does not cover surface dressing works carried out to the purchaser's design, commonly called a recipe specification. This type of specification can continue to be used, but purchasers are responsible for the performance of the surface dressing provided that the works have been executed correctly.

Performance categories set out in BS EN 12271 should not be included as part of a recipe specification as this might result in the recipe being correctly placed, but the performance categories not being met.

NOTE The body responsible for the design is responsible for the performance of the surface dressing (provided that the works have been correctly executed).

0.2 BS EN 12273 – Slurry surfacing and microsurfacing

BS EN 12273 specifies a range of categories for properties of slurry surfacing and microsurfacing to enable users to select appropriate limiting values for a wide range of uses within Europe.

Specifiers need to define BS EN 12273 categories for properties relevant to the particular end-use of the slurry surfacing and microsurfacing. Some example specifications for different end-uses are given in Annex B.

1 Scope

This Published Document gives guidance on the use of BS EN 12271 and BS EN 12273 in the United Kingdom. BS EN 12271 specifies the properties of surface dressing whilst BS EN 12273 specifies the properties of slurry surfacing and microsurfacing.

This Published Document gives guidance on the performance requirements and control procedures for the installation of both surface treatments as products for the maintenance of roads and other trafficked areas.

The Published Document does not apply to the following:

- surface dressings designed by the purchaser; i.e. the recipe approach for which the contractor is instructed as to the rates of spread, chipping size, etc., and therefore is not responsible for performance requirements;
- surface treatments in tunnels where fire regulations apply;
- small areas under 500 m² which are not contiguous, such as patch repair;
- airfield pavements covered by international regulations (e.g. International Civil Aviation Organization regulations).

NOTE In BS EN 12271 "other trafficked areas" include footways and cycleways.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

BS EN 12271:2006, *Surface dressing – Requirements*

BS EN 12272-1, *Surface dressing – Test methods – Part 1: Rate of spread and accuracy of spread of binder and chippings*

BS EN 12272-2:2003, *Surface dressing – Test methods – Part 2: Visual assessment of defects*

BS EN 12273:2008, *Slurry surfacing – Requirements*

BS EN 12274-2, *Slurry surfacing – Test methods – Part 2: Determination of residual binder content*

BS EN 12274-8, *Slurry surfacing – Test methods – Part 8: Visual assessment of defects*

BS EN 13036-1, *Road and airfield surface characteristics – Test methods – Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique*

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

BS EN 13588 (BS 2000-522), *Bitumen and bituminous binders – Determination of cohesion of bituminous binders with pendulum test*

BS EN 13808:2005, *Bitumen and bituminous binders – Framework for specifying cationic bituminous emulsions*

prEN 15322, *Bitumen and bituminous binders – Framework for specifying cut-back and fluxed bituminous binders*

BS EN ISO 11819-1, *Acoustics – Measurement of the influence of road surfaces on traffic noise – Part 1: Statistical pass-by method*

PD 6682-2:2009, *Aggregates – Part 2: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas – Guidance on the use of BS EN 13043*

3 Terms and definitions

For the purposes of this Published Document, the terms and definitions given in BS EN 12271 and BS EN 12273 and the following apply.

3.1 producer

organization or entity responsible for the design and construction of the surface treatment

NOTE The producer is often called the “contractor” in the UK.

3.2 product

surface dressing or slurry surfacing and microsurfacing

NOTE Microsurfacing is sometimes known as microasphalt. “Slurry seal” is a term no longer used.

3.3 purchaser

organization or person buying the product

NOTE The purchaser is sometimes known as the “overseeing organization” in the UK and this might be a local highway authority.

3.4 road type (UK)/road grade

method used to link the frequency of testing to the different categories of road

NOTE 1 In this Published Document road grades have been defined by reference to the Highways Authorities’ and Utilities Committees (HAUC) New Roads and Street Works Act 1991 “Road Type” [1]. See also Road Note 39 [2] for a link to surface dressing traffic categories. For clarity the term “road type” is used throughout this document instead of “road grade”.

NOTE 2 In Northern Ireland, for HAUC see The Street Works (Northern Ireland) Order 1995 [3].

NOTE 3 Although the road type has been defined in terms of the HAUC New Roads and Street Works Act 1991 [1] it is always preferable to use actual traffic counts where these are available.

3.5 specifier

organization or person specifying the product who might or might not be directly employed by the purchaser or the contractor

3.6 supplier

organization or entity providing the constituent materials to the producer

NOTE The supplier can also provide the binder and the aggregate and any other minor constituent that might be incorporated into the product.

4 Overview

4.1 General

BS EN 12271 covers all varieties of surface dressing including single, racked-in, double and sandwich types. It also covers more complex surface dressings, such as two layers of binder plus three layers of chippings and inverted surface dressing, in which a single surface dressing is followed immediately by, for example, a racked-in surface dressing.

BS EN 12273 covers all varieties of slurry surfacing including microsurfacing, as defined in the National Foreword.

Both BS EN 12271 and BS EN 12273 are based on product performance categories, although the purchaser might have some limited control on components, such as minimum requirements for peak binder cohesion and maximum chipping size. It is recommended that the purchaser relies on the defined categories and the type approval installation trial (TAIT) which demonstrates the producer's ability to design and install a product for a given road type. Essential guidance on the use of these performance specifications and the influence of their constituents is published and regularly updated in the following:

- TRL Road Note 39 (RN 39) [2];
- Manual of Contract Documents for Highway Works Volume 1 Series 900 Clause 922 and Clause 918, Volume 2 Clause NG 922 and Clause NG 918 [4];
- Road Surface Treatments Association Codes of Practice [5].

4.2 BS EN 12271 – Surface dressing

The main performance categories used in BS EN 12271 are:

- a) visual assessment at the end of the guarantee period with different performance categories;
- b) macrotexture;
- c) tolerance on rates of spread of binders and chippings; and
- d) accuracy of rates of spread of binders and chippings (a measure of evenness).

Other performance factors that can be specified are:

- polished stone value (PSV) of chippings; and
- aggregate abrasion value (AAV) of chippings.

4.3 BS EN 12273 – Slurry surfacing and microsurfacing

The main performance categories used in BS EN 12273 are:

- a) visual assessment at the end of the guarantee period with different performance categories; and
- b) macrotexture.