Guidance Note on Types of Surface Dressings

1 Introduction

1.1 There are 5 main types of surface dressings; single, racked-in, double, inverted double and sandwich dressings.

1.2 Advice on the parameters used in the design of surface dressings is given in the TRL Road Note 39 Design Guide for Surface Dressing 7th edition.

1.3 This guidance note is not intended to reproduce the information in Road Note 39, but to draw attention to important information on types of dressings and their design.

1.4 The design parameters that should be considered are:

- type of surface dressing
- binder grade and binder rate of spread
- generic type, nominal size and spread rate of the aggregate/s to be used

1.5 Each type of dressing has different characteristics. Care needs to be taken to select the type of dressing which is appropriate for the site to be treated.

1.6 It is also important that the dressing is designed to give maximum performance under the site operating conditions. This will ensure that maximum life is gained from the work. Surface Dressings should last on average 10 years on medium to heavily trafficked sites and 15 years on light to medium trafficked sites.

2. Types of surface dressing

General

There are five main types of surface dressing that vary according to the number of layers of chippings and binder. The five types are described below, together with factors that should be considered when selecting the type of surface dressing to be used.

Texture, skid-resistance and road traffic noise are three properties to consider when assessing end performance. Noise can be reduced by using smaller-size aggregate, while ensuring the required skidding resistance is still achieved.

Single surface dressing

This type includes a single binder application onto a prepared road surface followed by a single layer of chippings. Single dressings are not designed to cope with high stress e.g. braking zones and sharp bends. Single dressings use mainly 6mm and 10mm sized chippings although 14mm can be used on softer road surfaces or where a high retained texture is required.
Racked-in surface dressing

For racked-in dressings the first layer of chippings (using the larger stone size) are applied at a rate of spread that is approximately 90% that of a single dressing using a higher binder rate of spread. The gaps in the chipping mosaic are then filled by a second layer of smaller sized chippings. These smaller chippings lock the larger chippings in position, producing a stable mosaic. There should be a slight excess of the smaller chippings to ensure that each larger size chipping is locked-in by the adjacent smaller size chippings. Racked-in surface dressings are principally used where traffic is heavy and/or higher speeds.

Double surface dressing

A double surface dressing has two layers of chippings and two applications of binder. It is effectively two single dressings with the larger chipping size used in the first layer. There are no gaps in the first layer of chippings. This type of treatment is particularly suitable for road surfaces that are binder lean and where a quiet dressing is required for example in urban areas. Double surface dressings can produce a lower texture depth than racked-in surface dressings using the same size chippings making it a quieter ride and more robust better able to withstand traffic stress.

Inverted double surface dressing

An inverted double surface dressing (previously known as pad coat and single surface dressing) comprises a first layer of a single surface dressing with small size chippings which is applied to a road with uneven surface hardness, possibly due to extensive patching by the utilities, followed by a second single surface dressing with larger size chippings. The first single surface dressing (the pad coat) produces a more uniform surfacing which can be subsequently surface dressed. Inverted double dressings have been used on very hard road surfaces such as concrete, to reduce the effective hardness of the surface, but a racked-in surface dressing is now the generally preferred option.
Sandwich surface dressing

A sandwich dressing involves applying a layer of larger sized chippings onto the road surface prior to applying a single dressing on top using smaller sized chippings. Sandwich surface dressings are principally used to treat situations where the road surface condition is binder rich. It is important to ensure there is sufficient binder at the interface between the existing surface and the first layer of chippings to ensure long term durability.

References

Road Note 39 is available from TRL Ltd based at Crowthorne, Berkshire.  
https://trl.co.uk/reports/RN039
APPENDIX A

FEEDBACK ON THIS DOCUMENT

Any observations, feedback or complaints relating to the content of this document or the process described herein should be addressed (using the form below) to:

Chief Executive
The Road Surface Treatments Association Ltd
Technology Centre, Science Park
Glaisher Drive, Wolverhampton WV10 9RU

Email: enquiries@rsta-uk.org
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Issue Identified:

Suggested Action:

Name:

Organization:

Address:

Contact details:

Date:
APPENDIX B

DOCUMENT CONTROL

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