

Sprayed seals - pre-spraying to correct surface texture

pavement work tips — no. 36

January 2003

INTRODUCTION

Pre-spraying is a technique developed for:

- Resealing of roads where different binder application rates are required to compensate for variations in texture in different areas of the existing surface. It is particularly used where there is a significant difference in texture between wheel-paths and areas outside the wheel-paths.
- Sealing or resealing with geotextile fabrics where additional binder is required on outer edges or along centrelines and between wheel-paths.
- Pre-spraying of shoulders to enable the shoulder and adjoining traffic lane to be sprayed without a longitudinal join in the finished surface.

Pre-spraying is done without cover aggregate and is usually applied immediately ahead of the second binder application.

SURFACE CORRECTION PRIOR TO RESEALING

General

Binder application rates for reseals are usually designed for the wheel-path condition and can generally tolerate a variation in surface texture allowances of up to about 0.2 L/m².

Greater variation requires consideration of alternative treatments or the use of variable application rates. Some sprayers enable variable application rates to be sprayed using complex twin-bar systems.

The pre-spraying technique can be readily applied using conventional equipment.

Binder application rates

The rate of application of pre-sprayed binder will depend on differences in surface texture allowances, traffic volume, pavement crossfall and alignment. It is generally the difference between the lower rate of application designed for the low texture condition (usually the wheel-paths) and that required for the coarse textured areas (outside the wheel-paths). Rates of application are typically in the range of 0.3 to 0.5 L/m².

Spraying of rates less than 0.3 L/m² is generally neither necessary nor practicable.

Pre-spraying of rates greater than 0.5 L/m² in traffic lanes is generally undesirable, as excess binder may migrate into critical areas. Where the required rate exceeds 0.5 L/m², consideration should be given to an alternative treatment.

Alternative treatments include use of a smaller aggregate as a short-term corrective treatment, treatment of excess binder in wheel-paths, or some other surfacing type such as slurry surfacing or hot mix asphalt (See also Work Tip No 7 – *Treatment of bleeding or flushed surfaces*).

Binder type

Pre-spraying should be done with the same binder type as that intended for the reseal.

continued on reverse

Key Summary

This issue of 'pavement work tips' provides a guide to pre-spraying of road surfaces to compensate for variations in surface texture and binder application rates

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Figure 1. Variable pavement texture prior to treatment

Procedure

Wheel-path areas must be carefully noted, particularly on winding alignments where traffic may wander across the pavement. It is important to keep pre-spraying clear of actual wheel-path areas to reduce risk of subsequent bleeding. This risk increases at higher traffic volumes and increased numbers of heavy vehicles.

The width and limits of areas to be pre-sprayed should be clearly marked for guidance of sprayer driver and operator, allowing a suitable margin for small variations in sprayer alignment.

Pre-spraying may not be practicable near intersections and turning lanes, and alternative treatments may need to be considered.

Where light rates of application are involved, smaller spraying nozzles, e.g. AN 9, will reduce the need for high sprayer forward speeds and assist in uniformity of application.

Two sprayers are generally required to enable pre-spraying immediately ahead of main spray application and avoid any risks involved in traffic driving on pre-sprayed areas.

PRE-SPRAYING OF SHOULDERS

General

Pre-spraying of shoulders in conjunction with sealing of the adjoining traffic lane may be used where the aggregates are of the same size and type and it is desired to reduce the number of longitudinal joints and improve efficiency of spraying and spreading operations.

Binder Application Rates

In this case the design binder application rates for the shoulder and the traffic lane are determined separately using standard design

procedures and may differ by a greater amount than that applicable to surface correction within traffic lanes.

The difference between the two rates becomes the pre-spray rate. For example:

Shoulder design binder application rate	= 2.2 L/m ²
Traffic lane design binder application rate	= 1.5 L/m ²
Difference in design rates	= 2.2 – 1.5 = 0.7 L/m ²

Procedure

1. Spray the shoulder only at a rate of application equal to the difference in design rates (0.7 L/m² in above example).
2. Spray the shoulder and traffic lane in a single width at the lower application rate (1.5 L/m² in above example).
3. Spread and roll aggregate as normal.

Pre- spraying of shoulder on previous day

Depending on job size, traffic volume, weather and site conditions, it may be feasible to undertake pre-spraying of shoulders on the preceding afternoon.

To compensate for additional binder cooling, the pre-spray binder should be cut back with 2 parts (or 2%) more cutter oil than that otherwise required. The total amount will depend upon aggregate type and condition and the prevailing traffic and weather conditions and should be not less than 4 parts (4%).

The second application rate should be cut back as normal. The heat of the binder in the second application is generally adequate to combine with the pre-sprayed binder for effective embedment of aggregate provided that the binder is cut back as recommended above and the pre-sprayed binder has not been damaged by traffic.

For more information on any of the construction practices discussed in "pavement work tips", please contact either your local AUSTRROADS Pavement Reference Group representative or AAPA — tel (03) 9853 3595; fax (03) 9853 3484; e-mail: info@aapa.asn.au

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Figure 2 Applying pre-spray



Figure 3 Applying final spray