

# Technical Direction

## Pavements

PTD 2019/002 | RMS.19.1477 – November 2019

### Short term treatment for sprayed seal distress due to extreme hot weather

Summary:	Audience:
The purpose of this Technical Direction is to provide guidance on short term treatment of sprayed seal surfacings showing surface distress due to extreme hot weather conditions.	<ul style="list-style-type: none"> <li>• District Works Managers</li> <li>• Asset Managers</li> <li>• Maintenance Planners</li> <li>• Councils</li> </ul>

## Background

Pavement temperature exceeding 60°C has the propensity to soften the bituminous binder in a sprayed seal surface. The consequence is aggregate punching into the existing surfacing resulting in a flushed or bleeding bituminous surface. This type of distress generally occurs in the wheel paths. The risk of a surfacing distress caused by flushing and/or bleeding tends to occur more with increasing heavy vehicles on tight curves, steep grades, and braking/accelerating zones.

## Treatments

Unless the sprayed seal surfacings distress is treated, variable skid resistance or damage to the pavement caused by binder pick up by vehicle tyres can occur.

The recommended immediate or short term treatment to surface distress of sprayed seal surfaces due to extreme hot weather conditions are as follows:

## Approvals:

<b>Owner:</b>	Sam Henwood Director Pavements & Geotechnical	<b>Review Date:</b>	November 2022
<b>Authorised by:</b>	Chris Harrison Director of Engineering	<b>Effective Date:</b>	November 2019

- Spray the flushed or bleeding area with water to cool the pavement surface temperature to reduce the risk of binder pick up by vehicle tyres. Spraying the surface with water may need to be repeated during the day.
- Spread 7 mm precoated aggregate over the flushed or bleeding area and provide adequate rolling to ensure that the aggregate embed into the pavement.
- Apply binder hardener and 7 mm precoated aggregate (the binder might take up to 5 to 10 minutes longer to soften when the pavement temperature is greater than 60°C). Binder hardener is highly volatile and flammable therefore safety measures must be taken to mitigate associated risk during storage, handling and application.

The following treatments are not recommended:

- Using sand because it can bulk up resulting in more flushing or bleeding.
- Using 10 mm size aggregate or greater because of the difficulties associated with embedding the aggregate into the pavement and increased likelihood of windscreen damage to vehicles.
- Water blasting because this treatment is not effective to remove the 'soft' binder when the binder is very hot.

In some cases a thin layer of asphalt has been used as a treatment but this is an expensive treatment and has long term consequences and requires specific pre-treatment of the surface.

The treatments suggested are short term and the Asset Manager should ensure that any one of these treatments is followed up with an appropriate treatment in the current or next scheduled work for the site.

For further information, please contact the Pavements and Geotechnical Unit.

## Planning

Consideration should be given to the use of speed reduction and warning signs, and keeping the traffic off a bleeding surface as much as possible until treated, that is divert traffic on shoulders instead where possible.

If extreme hot weather periods are anticipated, pre-order the precoated aggregate in advance or review the availability of stockpile locations on various parts of the road network.

## For more information

For medium and long term treatment, the following references should be consulted:

- RMS Technical Direction on 'Packing coat treatment for sprayed sealing'.
- RMS Technical Direction on 'Pre-spraying in sprayed sealing'.
- RMS Technical Direction on 'Treatments for bleeding seals'.



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**November 2019**  
RMS 19.1477