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TECHNICAL BULLETIN #22

High Stress Seals (HSS)

Description

High stress seals are a polymer modified sprayed seal which is used in situations where high traffic related stresses are applied to the sprayed seal. These include situations such as tight radius curves, steep gradients and heavy load intensities.

High Stress Seals may be defined in two categories;

Severely stressed sites are typically gradients >5%, curves of a radius <50metres, intersections, T junctions, and heavy traffic entrances involving severe degrees of braking, acceleration or turning.

Moderately stressed sites are typically gradients <5%, curves of a radius >50metres, intersections, T junctions, and heavy traffic entrances involving moderate degrees of braking, acceleration or turning.

Generally it is necessary to use a two coat seal to treat severely stressed sites. In such circumstances the recommended polymer modified binder to be used should be used in the first binder application, the second binder application may be the same binder, a lesser modified binder or an unmodified binder.

Materials

The type of modified binder used in an HSS is very important and is usually determined by the level of stress:

Severe Stress – Use either PolySeal, SAMIseal 5 or SAMIseal S55R

Moderate Stress – Use either PolySeal, SAMIseal 4, SAMIseal 5 or SAMIseal S55R.

Cover material should be an approved pre-coated spray seal aggregate.

Application

When carrying out the seal design, the appropriate SAM PMB Factor (PF) must be included to ensure the correct application rate is determined. The PMB factor is available from either Section 8.3 of AustRoads document AP-T17 "Practitioner's Guide to Design of Sprayed Seals (Revision 2000 method)" or the NSW Roads and Traffic Authority's Sprayed Sealing Guide Section 4 "Design" Edition 2 – April 2002 (interim).

The pavement surface temperature should be a minimum of 25°C at the time of spraying the SAMIseal binder. Where PolySeal is used a lower pavement temperature of 15°C and rising is permissible (see PolySeal technical bulletin #37).

For heating, holding and spraying temperatures of SAMIseal binders please refer to SAMI's technical bulletin #46.

Where an HSS is to be applied directly to a Portland Cement Concrete surface, an application of SAMIprime should be applied prior to the application of the SAM. The concrete surface must be thoroughly cleaned before the application of the prime.

NOTE: *Whilst every care is taken in the preparation of this bulletin, no responsibility is accepted for the interpretation of the information contained herein, nor is any warranty expressed or implied for the suitability of the material for a particular purpose.*