



## TECHNICAL BULLETIN #20

# Strain Alleviating Membrane Interlayer (SAMI)

## SAMI Bitumen Technologies

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### Description

A SAMI is a strain alleviating membrane treatment used to absorb strains that can cause reflective cracking to occur in asphalt overlays. The SAMI consists of an application of a polymer modified bitumen, which is covered with sealing-grade aggregate. The SAMI is generally applied to pavements that are cracked or there is some expectation to crack, and are to be overlaid with asphalt. The SAMI will also waterproof an existing cracked pavement surface.

There are two categories of pavement movement which can cause cracking;  
Slow Rate Movement, where the movement is due to volumetric changes in the pavement caused by temperature or seasonal changes (temperature or moisture), and chemical changes (eg cement stabilisation).  
Rapid Rate Movement, where the movement is traffic induced causing fatigue cracking.

SAMI's are also used where a "porous asphalt" pavement surface is to be constructed. In this situation as well as absorbing strains which may cause reflective cracking, the SAMI is also acts as a waterproofing layer for the porous asphalt which is designed to allow water to permeate down through the mix.

### Materials

Prior to applying a SAMI, crack sealing must be carried out on any existing surface cracks using either SAMIfilla HM or SAMIfilla EC.

The type of modified binder used in a SAMI is very important and is usually determined by the rate of movement (see AustRoads technical report AP-T41/06):

For Slow or Rapid Rate Movement – Use either SAMIseal 6, SAMIseal 7 or SAMIseal S55R.

Cover material should be a suitably sized pre-coated spray seal aggregate (10mm is generally used).

Where large cracks are present and where movement is >0.5mm, a geotextile should be considered to be used in association with the SAMIseal binder.

(See also AustRoads Technical Report AP-T68/06 titled "Update of AustRoads Sprayed Seal Design Guide Method",

### Application

The SAMI membrane binder is generally applied at a thickness of between 1.5 – 2.5mm (cold) however final application rate is dependent on the existing surface condition/texture.

The pavement surface temperature should be a minimum of 15°C and rising, and rain should not be imminent. The pavement surface must be clean and dry.

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

SAMIprime should also be applied in certain situations where shear forces between surfaces are high.

### Placement of Asphalt

The placement of the asphalt overlay can commence as soon as the cover aggregate has been applied to the SAMIseal binder and rolled. If the SAMI is to be subjected to traffic other than light construction traffic, then a tack coat should be applied prior to the laying of the asphalt.

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