



# SPRAY SEAL SURFACING – PART 1 – SELECTION OF BINDER TYPE

**POLICY**

## **SPRAY SEAL SURFACING PART 1 – SELECTION OF BINDER TYPE**

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**Owner:** Department of Transport

**Manager:** Transport Infrastructure Planning Division

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### **Cross Reference**

Austrroads Technical Report AP-T68/06 – Update of the Austrroads Spray Seal Design Method

Austrroads - Guide to the Selection and Use of Polymer Modified Binders and Multigrades – AP-T235-13 (2013)

Standard Specification for Roadworks, Spray Sealing (Department of Infrastructure)  
AS2008 - Bitumen for Pavements (2013)

### **Definitions**

S10E – A class of polymer modified bitumen, used for spray seal work, with an elastomeric modifier, conforming to specified binder properties in the Standard Specification for Roadworks It must be manufactured from bitumen that conforms to the classes in AS2008.

SAMI – Strain Alleviating Membrane Interlayer. A layer of seal sprayed onto an existing cracked surface, prior to asphalt resurfacing.

### **Objective**

The objective of this work instruction is to outline the default position for the selection of Binder Types for spray seal works across all regions.

### **Background**

Spray sealed road surfaces represent over 95% of the bituminous pavement surfacing in the Northern Territory.

In recent years increased axle loads, tyre pressures, traffic volumes and environmental factors have imposed greater demands on spray sealed surfacing, affecting their performance. Early distress such as bleeding and stripping, which can impact on the safety of road users, is a major concern.

Historically, the Northern Territory used R90 bitumen and then moved to Class 170 bitumen until the mid-1980's. From that time, Class 320 bitumen had been used for all spray seal and asphalt work. Class 320 is a tough bitumen with good cohesive strength that has provided sound service in bituminous surfacing work since its introduction. Due to the change in bitumen production and supply Class 320 bitumen has now been found to be not appropriate for the heavy vehicles on the NT Road network due to its inconsistency and differing softening points

The advent of polymer modification saw the use of elastomeric polymers become wide spread for spray seal work across the Northern Territory. The use of polymers to improve the performance of bituminous binders is well documented in the literature (see cross references).

From a Northern Territory perspective some of the benefits of polymer modification include:

- Reduced oxidisation in high temperatures.
- Reduced temperature dependence of properties, e.g. viscosity, softening point.
- Improved aggregate retention.
- Improved reflection crack control.

## Procedures

### Priming and Primer Sealing

Region	Binder Type
All	Class C240/C320*

\* - applied in cutback form

### Tack Coat and Enrichment

Region	Binder Type
All	CRS170/60*

\* - applied in emulsion form

### Initial Seal Work

Region	Binder Type
Darwin, Katherine, East Arnhem Tennant Creek, Alice Springs	S10E

### Resealing Work

Region	Binder Type
All	S10E

### SAMI Work (Using 14mm aggregate)

Region	Binder Type
All	S25E

Selection of binder type other than those specified above can be considered in special circumstances and to the approval of the Executive Director Civil Construction (Chief Engineer) Civil Services. For example, resealing a heavily cracked surface may require a S20E or S25E binder type or crumb rubber S45R.

Material properties for S10E binders and other binder types are contained in the Standard Specification for Roadworks, Spray Seal section.

For further guidance refer to Austroads - Guide to the Selection and Use of Polymer Modified Binders and Multigrades (TT1357 2012)