



ISO 9001  
S.A.T Global



## TECHNICAL BULLETIN #51

## SAMI Bitumen Technologies

2, 3-5 Gibbon Road  
Winston Hills, NSW 2153

PO Box 164,  
Winston Hills, NSW 2153

Telephone: +61 2 9624 0101  
Facsimile: +61 2 9624 0191

# SAMIfalt Asphalt Grades

## Polymer Modified Binders for Asphalt Mixes

### Description

SAMIfalt asphalt grade binders are used as an alternative to C170, C320, C450 and C600 bitumen in the manufacture of asphalt mixes. SAMI Bitumen Technologies manufactures this range of binders in a purpose built manufacturing plant that includes facilities for thermodynamic, mechanical and chemical modification. The binder is supplied to the asphalt producer for the manufacture of an asphalt mix which is required to have increased performance levels compared to that of asphalt incorporating standard grade bitumens.

### Features

SAMIfalt asphalt grade binders offer the engineer the advantage of an asphalt mix with vastly improved properties in terms of service and performance over conventional asphalt mixes. These include improvements in:

- resistance to deformation (shoving and rutting);
- fatigue resistance
- resistance to crack propagation (reflective cracking);
- temperature susceptibility (improved performance in higher and lower temperature regions/extremes);
- stripping resistance.

### Benefits

The benefits of SAMIfalt asphalt grade binders translate into reduced maintenance and extended pavement life. Applications where the benefits of SAMIfalt would be most noticeable are:

- heavily trafficked and stressed pavements on main roads
- approaches to intersections on main roads
- overlays over existing concrete pavements
- where road geometry limits the thickness of the asphalt overlay
- pavements that experience large temperature extremes, day/night or seasonal

### Product grades and Uses

#### SAMIfalt A10E

The binder complies with Austroads A10E specification and is most frequently used in heavy-duty dense graded pavement applications which carry high axles loadings such as airports, motorways and main arterial routes.

#### SAMIfalt A15E

The binder meets Austroads A15E specification and is best suited for use on medium – heavy-duty pavements such as urban arterial roads.

Both SAMIfalt A10E and A15E provide excellent rutting and fatigue resistance properties and offer very good resistance to reflective cracking.

**SAMIfalt A20E**

Binder complies with Austroads A20E specification and is primarily used in Stone Mastic Asphalt and Open Graded friction courses to improve fatigue performance and to retard ageing and stripping of the binder in these mixes. A20E is also used in less stressed areas where conventional asphalt is not quite performing to expectations and some improvement in fatigue life and/or rut resistance is sought.

**SAMIfalt A35P**

The binder meets Austroads A35P specification and is used where a heavy-duty dense grade asphalt pavement is required where rutting is the primary mode of failure, such as container and port facilities and also on motorways or main arterial routes. SAMIfalt A35P provides excellent rutting resistance properties.

**Manufacture**

Although SAMIfalt binders do not require any other additional additives or bitumen to be added by the user, the addition of adhesion agent may be included.

A separate storage facility at the point of manufacture of the mix will be required to maintain and circulate the binder at a temperature of 165°C – 185°C. This can usually be achieved by connecting the bulk tanker into the plant and recirculating the binder through the tanker and plant simultaneously. Precautions should be taken to ensure that all pumps and lines connecting the bulk tanker into the manufacturing plant are properly pre-heated so as to prevent a cold slug of modified binder blocking lines and delaying the work.

**Storage**

Recommended storage times are as follows:

<b>Asphalt Binder</b>	<b>Mixing Temperature</b>	<b>Holding Time at Mixing Temperature</b>	<b>Medium-Term Storage Temperature</b>	<b>Medium-Term Storage Time</b>
SAMIfalt A10E	165 – 175°C	4 days	120 – 140°C	14 days
SAMIfalt A15E	165 – 175°C	4 days	120 – 140°C	14 days
SAMIfalt A20E	160 – 175°C	4 days	120 – 140°C	14 days
SAMIfalt A35P	160 – 175°C	14 days	120 – 140°C	30 days

All polymer modified binders must be stirred prior to use and regularly circulated during storage due to possible polymer segregation. For storage of binders for periods longer than those listed above please contact SAMI Bitumen Technologies. Longer storage times apply to lower storage temperatures.

**Temperatures**

The mixing temperature and the holding time at mixing temperature on the above table, refer to the binder prior to its introduction to the mixing process. Adjustments to these temperatures may be required to allow for prevailing conditions such as pavement surface temperature, wind speed, asphalt mix type and haulage distance.

Precautions should be taken to ensure that flow meters or other batching systems are properly calibrated to take account of the different viscosity/temperature relationship of SAMIfalt compared to conventional bitumen.

The temperature of the mix at the point of delivery to the paver should not exceed 170°C.

**Laying**

The minimum mix temperature in the paver should be 145°C with compaction commencing at this temperature. SAMIfalt binders cool down at a slower rate than conventional asphalt.

**Rolling**

Use two steel rollers with a minimum capacity of 7 tonnes and vibratory capacity. The first pass should be vibratory.

No pneumatic or rubber tyre rollers should be used until the mix cools down sufficiently, so that no "pick up" occurs.

All compaction should be completed at temperatures greater than 140°C.

The pushing back of excess material from the side of the paver on longitudinal joints should be minimised, as it leaves an untidy finish and does not compact properly. Handwork should be kept to an absolute minimum.

**Binder Sampling**

Binder samples should be heated to between 165 - 185°C and thoroughly stirred before testing.

*NOTE: Whilst every care is taken in the preparation of this data, 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 application.*