

Technical Data Sheet

Viva Bitumen S5E

Polymer modified Bitumen

Description

Viva Bitumen S5E is a proprietary SBS modified sealing grade bitumen. The binder has been designed to be used in seals over moderately distressed pavements where environmental cracking may be observed and is intended to replicate the performance characteristics of low concentration crumb rubber bitumens. Viva Bitumen S5E has also been designed to improve the early life adhesion properties of the sprayed seal and is suitable for the new category of Extreme Stress Seals XSS.

Performance Features

The performance characteristics of bitumen can be significantly improved through the addition of appropriate polymers. Changes to the rheology of the base binder confer beneficial properties to the seal resulting in the following:

- Reduced temperature susceptibility
- Increased stiffness modulus
- Substantially increased elasticity
- Improved adhesion

Various types of polymers have been used as bitumen modifiers, however tests have shown the most effective to be the thermoplastic rubbers of the SBS type (Styrene - Butadiene - Styrene block co-polymer).

The introduction of the SBS polymer greatly improves binder adhesion and elasticity. These properties are essential in strain alleviating membranes which are commonly used to extend the life of damaged pavements.

This technology is only available through the integration of these premium SBS polymers with high-grade bitumen and other specially selected materials to give a binder that combines extraordinary performance with safe handling and ease of application.

This ensures the formation of a stable, three dimensional network within the bitumen, giving Viva Bitumen S5E substantially improved properties when compared with conventional Class 170 bitumen.

Summary of benefits

Advantages of Viva Bitumen S5E over conventional binders are as follows:

- Improved initial aggregate adhesion.
- Superior rheology for seals subject to traffic induced cracks.
- Higher cohesive strength to withstand stripping action of high speed traffic.
- Higher viscosity at elevated temperatures combats bleeding of binder.

Applications

Viva Bitumen S5E is a lightly modified bitumen which can be used for sealing applications where conditions require the use of a more robust and elastic seal than offered by conventional binders. Viva Bitumen S5E is ideal as an alternative to low to medium concentration crumb rubber binders for Extreme Stress Seal XSS applications. Lightly fatigued bases which exhibit slow moving cracks, expanding and contracting with environmental changes provide ideal sites for treatment with Viva Bitumen S5E. Preferably, a program of crack sealing treatment should be carried out prior to seal application in order to minimise the potential for the crack pattern to reflect through the seal.

Viva Bitumen S5E can be used in conjunction with geotextiles to counteract significant crack movements, i.e. > 0.5mm, which cannot be accommodated by the bitumen seal itself.

Cutting Practice

Recommended cutting practice for Viva Bitumen S5E is as follows:

Pavement Temp (°C)	Parts cutter (vol) per 100 parts binder @ 15°C	
	Traffic Conditions	Rate
15 - 20	Low (<100 v/l/d) Medium (100 - 1500 v/l/d) Heavy (>1500 v/l/d)	5-8 4-6 3-4
21 - 25	Low Medium Heavy	3-6 2-4 1-2
26 - 35	Low Medium Heavy	2-3 2-3 1-2
>36	All conditions	0-2

Health and Safety

Viva Bitumen S5E is unlikely to present any significant health or safety hazard when properly used in the recommended application where good standards of industrial practice are maintained.

Further guidance on Product Health and Safety is available on the relevant Safety Data Sheet

Specifications/Approvals

Viva Bitumen S5E is a Viva proprietary product

Typical characteristics

Description	Units	Methods	Typical
Consistency at 60°C	Pa.s	AGPT/T121	250 - 350
Stiffness at 15°C	kPa	AGPT/T121	100 min
Torsional recovery at 25°C	%	AGPT/T122	12