

# Technical Data Sheet

## Viva Bitumen S20E

### Polymer Modified Bitumen

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#### Description

Viva Energy S20E is a high performance SBS modified sealing grade bitumen. The binder has been designed to be used in seals over moderately distressed pavements where both environmental cracking and traffic induced cracking may be observed. Environmental cracks are slow moving and can be induced by seasonal or diurnal changes in temperature or ground water conditions. Viva Energy S20E is a suitable bitumen for sites where the cracking severity is moderate and crack movement is observed to be less than 0.5mm.

#### 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 Energy S20E substantially improved properties when compared with conventional bitumen and other PMB's.

#### Summary of benefits

Advantages of Viva Bitumen S20E over conventional binders are as follows:

- Improved aggregate adhesion in highly stressed areas.
- 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 S20E is a bitumen with an intermediate level of polymer modification which can be used for sealing applications where conditions require the use of a more robust and elastic seal than offered by conventional binders. Fatigued bases which exhibit slow moving cracks, expanding and contracting with environmental changes as well as fast moving traffic generated cracks provide ideal sites for treatment with Viva Bitumen S20E. 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 S20E can also be considered for SAMI applications where environmental cracking is the predominant distress mode in the base. It can also be applied as a high stress seal (HSS) where high traffic related stresses are transmitted to the seal at steep gradients, tight curves and heavy trafficked areas.

Viva Bitumen S20E 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 S20E 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)	5-8
	Medium (100 - 1500 v/l/d)	5-8
	Heavy (>1500 v/l/d)	4-7
21 - 25	Low	3-6
	Medium	2-5
	Heavy	2-4
26 - 35	Low	2-4
	Medium	2-3
	Heavy	2-3
>36	All conditions	Min 2

#### Health and safety

Viva Bitumen S20E 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 Material Safety Data Sheet.

Specifications/approvals	
AG:PT/T190	S20E
TMR MRS 1.18	S2S
SA Dot	SB-5

#### Typical characteristics

Description	Units	Methods	Typical
Consistency at 60° C	Pa.s	AG:PT/T1 21	2000 to 5000
Stiffness at 15° C	kPa	AG:PT/T1 21	140 max
Torsional recovery at 25° C	%	AG:PT/T1 22	45 min