Flexiplus Bind

Helps to resolve these problems:

CRACKING RAVELLING RUTTING

Flexiplus Bind Polymer Modified Binder is used in the manufacture of fatigue & rut resistant asphalt.

Flexiplus Bind is a highly modified SBS polymer based binder used in the manufacture of extremely high fatigue and rut resistant asphalt. This binder, when used in conventional asphalt mixes, improves the fatigue resistance of the asphalt mix to levels beyond that achievable with bitumen based binders. The improvement in fatigue life is combined with dramatically improved rut resistance, thereby giving an exceptional increase in performance life of any Flexiplus Bind modified asphalt mix.

Where to use Flexiplus Bind:

Recommended for use in asphalt mixes where the base over which the asphalt will be laid has high deflections (upward of 2.5mm).

Ideal for use in asphalt mixes where the asphalt must withstand extreme loading without rutting or fatigue cracking. Examples include; arterial routes, intersections and slow crawler lanes.

An ideal binder for use in ultra-thin asphalt mixes where exceptional fatigue performance is required.

Benefits:

Flexiplus Bind offers the benefit of a polymer modified binder with improved features as follows;

Exceptional fatigue life

Superior rut resistance

Easy workability

Greatly improved performance and life over all conventional bitumen based binders.

The formulation of the Flexiplus Bind binder has balanced the superior long term performance properties with enhanced constructability. The Flexiplus Bind binder, though mixed at elevated temperatures, provides a mix which is easy to lay and compact.

Habitat

Residential Motorway Round-abouts Intersections Industrial Rural

Specification

Typical properties of Flexiplus Bind.

Property	Method	Specification
Softening Point	ASTM D36	>80°C
Torsional Recovery	AGPT/T122	>60%
Viscosity @ 165°C, 20rpm	ASTM/4402	>400 m.Pas
Density		1.029 (kg/l)

Health & Safety

Flexiplus Bind is handled at elevated temperatures and all precautions should be taken, as for handling hot bitumen. Please refer to the Roading New Zealand "The Bitumen Safety Book" for advice on how to handle hot bitumen binders and to understand the risks involved in handling these types of materials. Full personal protective equipment must be used at all times when pumping, transferring or sampling of Flexiplus Bind.

A safety data sheet for Flexiplus Bind is freely available on the Road Science website and must be read and understood prior to handling the Flexiplus Bind binder.

Properties:

Handling & Mixing Information

a) Dense Asphalt Mixes	
Maximum safe handling temperature:	200°C
The Flexiplus Bind binder should be circulated for at least 2 hours prior to commencing mixing.	
Mixing Binder Temperature	170°C – 195°C
Pumping Binder Temperature	170°C – 190°C

b) Stone Mastic Asphalt	
Maximum safe handling temperature:	200°C
The Flexiplus Bind binder should be circulated for at least 2 hours prior to commencing mixing.	
Mixing Binder Temperature	170°C – 190°C
Pumping Binder Temperature	170°C – 190°C

Critical: Flexiplus Bind Handling Information

- Flexiplus Bind is a highly polymer modified product and is therefore highly viscous. This viscous nature means that Flexiplus Bind is reluctant to move away from a heat source; hence there is a higher risk of "cooking" the polymer than would be experienced when handling conventional bitumen.
- If the tank is fitted with an agitator, then this should be used when heating above 140°C. This will ensure good Flexiplus Bind flow over the flame tubes, thereby reducing the likelihood of localised over-heating and product degradation.
- Electric heating is always preferred over flame tubes for heating Flexiplus Bind due to the lower surface temperatures.
- Under no circumstances exceed 320°C on the flame tube surface.

Sampling

Flexiplus Bind	
Medium Term Storage Temperature (up to 5 days)	150 - 160°C
Long term storage temperature (beyond 5 days)	<150°C

Critical: Long Term Storage

If there is a need to postpone manufacture beyond 5 days, the storage temperatures of the Flexiplus Bind should be dropped immediately to <150°C.
If there is considerable delay, it maybe economic to drop the product temperature to ambient and reheat when the binder is about to be used. If the binder is cooled to ambient, then the reheating cycle must follow the
"Cold Start" procedure (see below).

Critical: Cold Start Heating Procedure

The following procedure must be followed when heating Flexiplus Bind from cold or any temperature where the Flexiplus Bind temperature is less than 100°C.

1. Check & ensure that the product level in the tank is at or above the minimum safe heating level.
2. Carry out all pre operation checks for the tank and burner/heating system.
3. Run the burner/heating system for a maximum of 15 minutes and switch off.
4. Leave the tank heating off for a minimum of 5 minutes.
5. Repeat steps 3 & 4 until the Flexiplus Bind temperature exceeds 100°C.
6. Once the Flexiplus Bind temperature is above 100°C the heating system can be run continuously to bring the product temperature up to the required working temperature.
7. Once the Flexiplus Bind temperature is above 140°C turn on agitator.

Critical: Flushing of bitumen lines

Following the use of Flexiplus Bind, all lines should be flushed with straight run bitumen to prevent any blockage due to the cooling of residual Flexiplus Bind.

Prior to undertaking the manufacture of Stone Mastic Asphalt (SMA) or Ultra Thin Asphalt (UTA) mixes; the design mix using the Flexiplus Bind binder should be tested in the laboratory using the Schellenberg Drainage test to ensure that the mixing temperature will not cause excessive drain down of the binder during transportation and paving.

Samples should be taken following transfer from storage or transport.

Full PPE should be worn including face shield as the product is transferred at elevated temperatures and poses a major burns risk. It is important to ensure that the sample is representative and that any residual conventional bitumen is flushed out of the sample cock prior to collecting the Flexiplus Bind sample.

Testing should only be carried out by an IANZ registered laboratory that is experienced in handling and testing polymer modified binders.