



ISO 9001
S.M. Global



TECHNICAL BULLETIN # 53

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SAMifalt Multigrade Plus

A Performance Enhanced Multigrade Bitumen

Description

SAMifalt Multigrade Plus multigrade bitumen is an un-modified bitumen with very low temperature susceptibility and designed to exhibit high performance in rut and fatigue resistance comparable to a polymer modified binder in asphalt mixes.

SAMifalt Multigrade Plus is designed to meet the Australian Standards AS2008 specification for Multigrade bitumen M1000 and recommended for use in Dense Grade asphalt mixes.

Features

SAMifalt Multigrade Plus is manufactured with the aid of a blowing column.

SAMifalt Multigrade Plus provides a combination of durability and resilience benefits to the asphalt that significantly improve both the performance and life expectancy of the mix.

SAMifalt Multigrade Plus has been proven to be homogenous under hot storage conditions. This allows the binder to be transported and stored at its utilization temperature without any risk to the binder properties. SAMifalt Multigrade Plus has a high flash point. It does not fume during the manufacturing, laying or compaction of the asphalt mix.

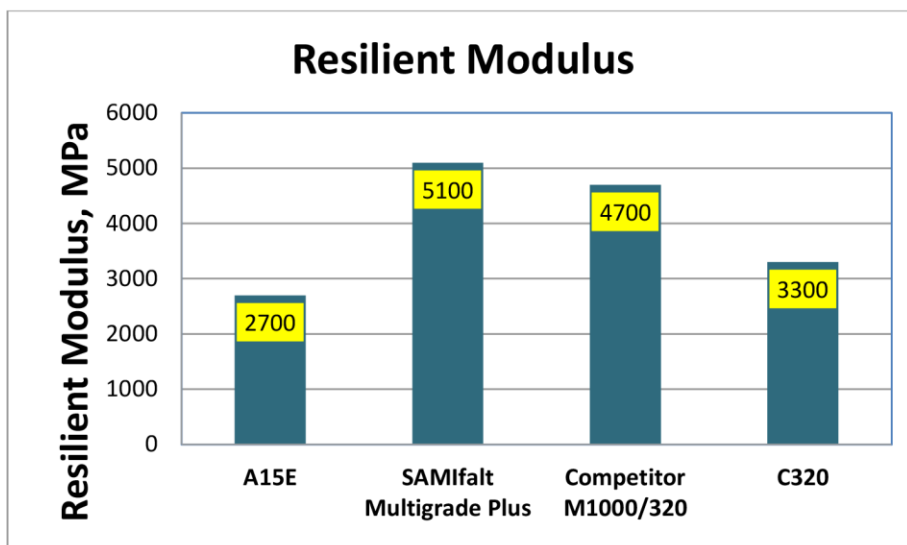
The asphalt which incorporates SAMifalt Multigrade Plus has very good compactability and has very good hand workability at lower temperatures (around 100°C), a fact experienced both in the laboratory and in the field.

Performance Benefits

Laboratory testing of asphalt provides valuable information as the results are used as indicators to determine the expected field performance of an asphalt mix. Tests of "Wheel Tracking" and "Resilient Modulus" are very important in the assessment of its field performance. These tests are usually carried out on laboratory prepared mixes of Dense Grade AC10.

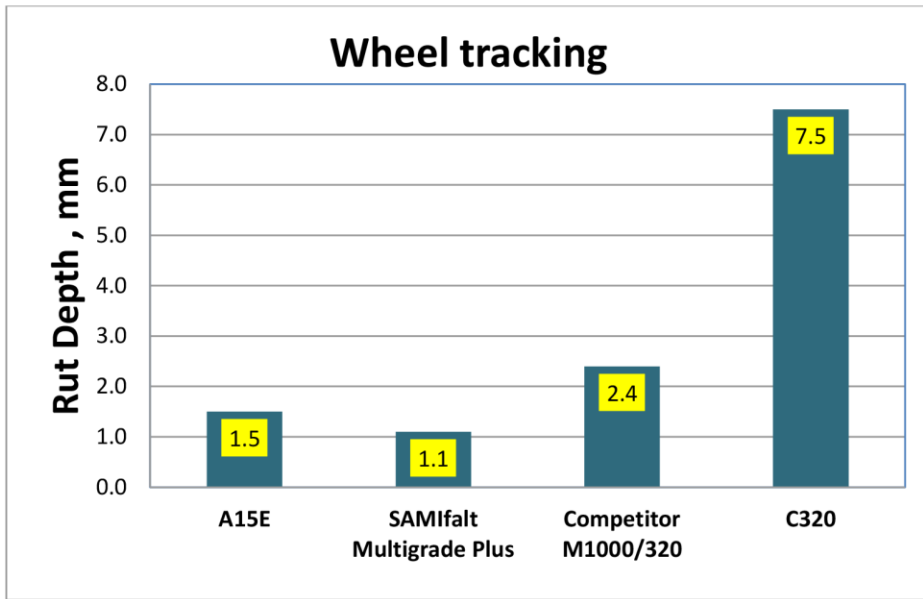
Resilient Modulus:

This test measures the stiffness of the asphalt mix and is related to its load spreading capacity.



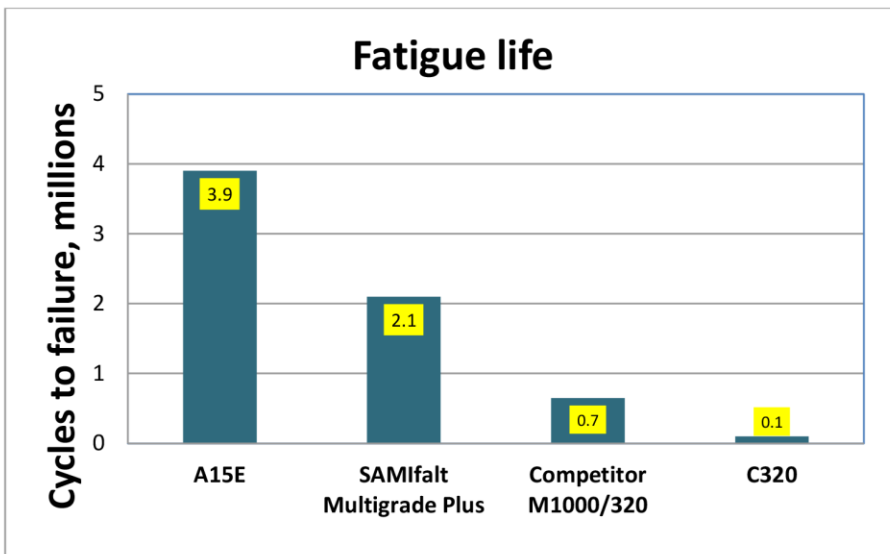
Wheel Tracking:

This test measures rut resistance (expressed as rut depth) of the mix. The results of this test become extremely important when high percentage of heavy vehicles and/or a heavily trafficked pavement are involved in the pavement design. The test carried out using the Cooper Wheel Tester determines the level of rutting in wheel tracks which could be expected on a given mix under trafficking.



Fatigue Life:

Fatigue life of an asphalt mix is expressed in number of cycles (loadings) to failure and is related to the ability of mix to withstand flexural deformation without cracking.



Storage and Handling

Recommended storage times are as follows:

Description	Storage Temperature, °C	Maximum Storage Time, days
Mixing Temperature storage	160 - 175	10
Medium – Term Storage	130 - 150	30

For storage of binders for periods longer than those listed above please contact SAMI Bitumen Technologies. Longer storage times apply for lower storage temperatures.

ApplicationMixing

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 Multigrade Plus compared to conventional bitumen.

The temperature of the mix at the point of delivery to the paver should not exceed 180°C.

Laying

The minimum mix temperature in the paver should be 135°C with compaction commencing at this temperature.

Rolling

Use 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.

Binder Testing

Binder samples should be heated to between 160°C - 170°C, held at this temperature for one hour and thoroughly stirred before immediately casting into test moulds. Casting test moulds at lower temperatures will result in unrepresentative test results, which may be as much as 50% below those achieved by the above procedure.

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.