

Technical Specifications for F1 Race PMB Mix

1. FIA's guidelines specify that the wearing course must be able to withstand high resistance to deformation, high shear resistance and high skid resistance.
2. A gap-graded asphalt mix similar in gradation to Stone Mastic Asphalt (SMA) which is widely used in the highway and airfield pavement wearing course will be used. The main constituents of this mix and their properties as compared to normal mix are shown in table below:

Properties	Raw Materials		Difference
	F1 Race PMB Mix	Normal Mix	
<u>Aggregate-Granite/Stone</u>			
Crushing Value (%)	Max 25	Max 30	16% higher
Impact Value (%)	Max 25	Max 30	16% higher
Los Angeles Abrasion (%)	Max 25	Max 35	29% higher
Polished Stone Value	Min 54	Not Specified	NA
Elongation Index (%)	Max 35	Max 35	same
Flakiness Index (%)	Max 25	Max 35	29% higher
<u>Bitumen</u> <u>(Shell Cariphalte Racetrack</u> <u>PG76</u>			
Additive	Styrene-Butadiene -Styrene (SBS)	Nil	NA
Penetration (0.1mm)	40.7	66.3	39% stronger
Softening Point (°C)	88.5	48.5	83% higher
Viscosity at 60% (cP)	3,280,000	268,333	1122% higher
Viscosity at 135% (cP)	2,879	604	376% higher

3. The technical performance of the F1 Race PMB Mix is as follows:

- a. Resistance to Shear Forces

Tests to determine the resistance to shear forces of the F1 Race PMB Race Mix were carried out according to international standards. The test results are summarized below:

- i. Cantabro Abrasion Test
(To test abrasion resistance and cohesion)

Percentage loss after test = 2.2% < 5% (Pass)

- ii. Moisture Susceptibility Test
(To test susceptibility of “stripping” i.e. loss of stones)

Based on 5.5% binder content, there was no coating stripping or loss of adhesion

b. Resistance to Deformation

The following tests were done to determine the “strength” of the F1 Race PMB Mix:

- i. Resilient Modulus Test
(To test susceptibility to deformation)

2157 (MPa @ 25°C) > 1800 (MPa @ 25°C) (minimum)
- ii. (Dynamic Creep Test)
(To test resistance to permanent deformation)

31.3 (MPa @ 45°C) > 18.2 (MPa @ 45°C) (minimum)
- iii. Rut Resistance (Wheel Tracking) Test
(To test resistance to deformation)

0.92mm (45 minutes test)

c. Resistance to Skid

One of the internationally accepted standards to test skid resistance is the British Pendulum Test (unit in British Pendulum Number (BPN)).

The result of the test is 76 BPN > 60 BPN (minimum)