

# CAST Laboratories ensures smooth track for Singapore F1 race

CAST Laboratories played a major role in the preparation of this year's Singapore F1 Grand Prix, which took place from 19 to 21 September. The company was commissioned by the contractors to conduct the precondition survey of localised sections of the track, in order to ensure a smooth and safe race circuit.

The circuit used on the Singapore Grand Prix requires more checks than the average racetrack, said CAST Laboratories. The road's surface not only has to meet stringent guidelines in terms of smoothness, road profile and compaction density, but also has to cater for the general public that uses these roads on a daily basis.

Before paving took place, a sample was weighed and placed in the 540°C ignition oven to burn off all of the bitumen. It was weighed again to ascertain whether the bitumen content percentage fell within the stipulated range. The loose aggregate mixture was then sieved to separate the different sized particles and electronically measured to assess the percentage of each particle size.

After this the mixture was tested for its Marshall Density – a controlled density test that determines its optimal compaction. Once laid on the track's surface, the actual compaction density had to be within 98 percent of this optimal rate. To measure the actual density, a core sample was taken in-situ at the trackside after paving.

The special mix asphalt is up to 80 percent more expensive than standard mixes, and thus accurate results are necessary to prevent costly repercussions, explained CAST Laboratories. The company also has to take into account how the mixture will perform in the high temperatures and humidity of Singapore's tropical climate.

CAST Laboratories is one of Singapore's leading providers of quality assurance tests for the construction industry, including the assessment of bituminous mixtures. The company has premises in Singapore, Malaysia and Indonesia and is part of the Tai Sin Electric, a publicly listed company. ■

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CAST Laboratories Bitumen Content Test determines the asphalt content of a bituminous paving mixture. The test is carried out by placing a sample into an ignition oven and burning off the bitumen. The mass of the remaining aggregate is then weighed and measured.



CAST Laboratories Wheel-Tracking Test determines the susceptibility of bituminous mixtures to deform plastically at high road temperatures when under pressure.



Right: Once the quality assurance laboratory tests have been conducted, the special mix asphalt is ready to be laid on the Singapore Grand Prix track.