

Case Study

Hockenheim

Shell Bitumen - Shell's track record in Formula One proves at hit at the Hockenheim race track, Germany



Germany's formula one race track at Hockenheim has welcomed over 120,000 spectators since it opened in 1932. The original circuit was considered too long (6.8 km) and unpractical for spectators because various sections ran through dense woods. A shorter circuit with more possibilities for overtaking was designed. The €62 million rebuilding work included track resurfacing and it is now considered one of the best in the world.

Shell has, for many years, been involved in developing special binders for racing circuits, and provided the Hockenheim Formula One circuit in Germany with specialist Polymer Modified Bitumen for its new track surface.

The performance of cars on Hockenheim's Formula One track is enhanced following resurfacing and remodelling

Critical Success Factors:	- Proven track record - Durability - Technical expertise
Application:	- Asphalt surfacing
Product family:	Polymer Modified Bitumen
Client:	Hockenheim-Ring Besitz GmbH
Contractor:	KAM subsidiary of Deutag
Project Engineer:	Tilke - architects Hart - consultant



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The key to successful racing

What enhances the performance of Formula One racing cars? State-of-the-art engines, aerodynamic body design, sophisticated tyres, high performance fuels and lubricants? These are the obvious answers but equally important for both drivers and spectators are the track layout and standard of surfacing.

The track renovation was designed by Aachen-based architects Tilke. The new track incorporates changes requested by Formula One boss Bernie Ecclestone and ensures that Hockenheim will remain the home of the German Grand Prix until at least 2008.

“ We have a proven track record when it comes to race tracks. It's through working with our customers around the world and learning from each experience that has led to the development of a specific polymer modified binder (PMB) for racing circuits. ”

Martin Vondenhof,
Shell Bitumen Technical Manager, Germany

The track's length has been reduced from 6.8km to 4.5km to make it more spectator friendly. Modifications such as the removal of a large section of the famous forest section have helped remove one of the circuits less appealing features: poor visibility in wet weather due to spray held in place by trees.

For the resurfacing work, Shell's expertise was called upon to provide specialist products.

Shell makes tracks - globally

Given Shell's track record in motor circuits, Shell was the natural choice. Shell Polymer Modified Bitumens, such as Shell Cariphalte Race Track, have already been used in the construction of circuits in Nurburgring, Germany, Kuala Lumpur and Sepang in Malaysia and the test track of Ferrari in Italy.

No ordinary job

Hockenheim's new circuit required a new asphalt surface. The binder chosen for was one of Shell's high-performance Polymer Modified Bitumens (PMBs), designed specifically to ensure that the asphalt racing surface will meet the very demanding performance and tough specifications required by motor racing bodies like the FIA.

“The asphalt must have perfect evenness, be homogeneous and contain no black spots caused by bitumen rising to the surface,” explains Rainer Hart, who acted as asphalt consultant at Hockenheim.

“High quality, very clean aggregates must be used and the bitumen content must be carefully controlled; tolerances are much lower than those for public roads. The bitumen also needs to be very high quality. PMBs are used as they provide very high resistance against the aggregate being plucked out of the surface.”

The PMB used at Hockenheim was blended at Shell's nearby Mannheim plant to Rainer's requirements. Qualities such as elastic recovery, penetration and softening point were all carefully controlled. Equally crucial was the laying of the asphalt.

The new surface proves to be a hit

Since the rebuilding work, spectators and drivers alike have enhanced their Formula One experiences at Hockenheim.

Rainer explains: “Hockenheim is now a more exciting circuit. The grandstand has fantastic views and spectators will certainly get more enjoyment from all the improvements. And of course, the new asphalt track surface is better too. It has better evenness and more grip.”

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