

slag Successes

News and Information about the Iron and Steel Slag Industry

Indianapolis Motor Speedway Chooses Steel Slag For Its Durability, Strength And Friction

As the world's largest spectator sporting facility, Indianapolis Motor Speedway (IMS) in Indiana hosts four events in three major racing series each year and relies on the track to be in peak condition.

In 2004, because of steel slag's skid resistance qualities, IMS paved the main oval for the first time using steel slag. Almost 10 years later it is showing excellent wear, with at least five years of additional life span expected.

Benefits of using steel slag include:

1. It's a neutrally charged aggregate with considerable micro-texture, which promotes an exceptional bond between the slag and asphalt cement.
2. The cubical particle shape and overall particle strength provides a strong aggregate structure to ensure adequate mix strength under race conditions.
3. The polishing resistance of steel slag, in addition to the overall macro-texture of the mixture, provides good skid resistance for racing.
4. The quality and durability of steel slag is exceptional, allowing very good pavement durability.

Because of IMS' success on the main oval, in late 2013, the organization upgraded its road course track, paving it completely with steel slag.



Placement of the 9.5 mm steel slag surface course in front of the IMS Pagoda and MotoGP Garages.

The project included cold milling the 1.6-mile long infield portion of the 2.6-mile-long by 46-foot-wide and 7-1/2-inch-thick road course at a depth of 5 inches. Then a 3-1/2-inch lift of 19 mm nominal maximum aggregate size (NMAS) dense-graded hot-mix asphalt (HMA) intermediate course was placed, followed by a 1-1/2-inch lift of 9.5 mm NMAS steel slag dense-graded HMA racing surface. A PG (Performance-Graded) 76-22 asphalt cement was used in the racing surface.



Core showing the 9.5 mm steel slag surface course (darker colored lift).



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Upgrades included:

1. Rehabilitating the existing infield portion of the road course and realigning multiple turns.
2. New, full-depth asphalt pavement construction in areas to create an improved road course layout designed specifically for the IndyCar Series and the MotoGP.
3. New connector sections of full-depth asphalt pavement, allowing sections of the road course to be used for club car events.

Approximately 7,800 tons of HMA racing surface was placed during the project. Steel slag comprised approximately 70% of the aggregate structure, along with 20% of two different dolomitic limestone manufactured sands and 10% fractionated recycled asphalt pavement (FRAP).

“One of the two steel slag products used in the mix was very unique, and Beemsterboer/TMS International, provided that product, which comprised approximately 50% of the aggregate structure. They really went out of their way and played a crucial part in getting the right material,” commented William Pine, Quality Control Director of Asphalt Technology for Heritage Construction & Materials, parent company of Milestone Contractors, L.P.

The 9.5 mm NMAS steel slag racing surface was designed at 75 gyrations with a Superpave™ Gyratory Compactor, achieving Voids in Mineral Aggregate (VMA) of 15.9%. Optimum asphalt cement (AC) content was chosen to provide 4.0% voids.

“Consistency is key with any product in an asphalt mixture, but even more so when you’re designing and producing the racing surface for the world’s most renowned race track,” commented Pine.

The excellent paving properties of slag provided the ideal mix of durability, strength and friction necessary for IMS’ world-class tracks.



Placement of the 9.5 mm steel slag surface course on the road course in the center of the IMS infield, looking north, parallel to Hulman Boulevard.

Average Gradation Beemsterboer SS Product

Sieve	% Passing
3/8"	100.0
1/4"	68
#4	40
#8	7
#16	4
#30	3
#50	2
#100	2
#200	1.3

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