

slag Successes

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Sudden stops and starts don't bother the Illinois Tollway plazas anymore

HECKETT MULTISERV supplies the slag sand that helps
prevent ruts and tears when the traffic hits the skids



Touhy Plaza near Chicago's O'Hare Airport

The Illinois State Toll Highway Authority (ISTHA), looking for a way to increase durability of its entire system of highways, especially at toll plazas where stopping and starting creates added wear and tear on road surfaces, developed a mix that uses electric arc furnace (EAF) slag sand.

They formulated a polymer-friction mix dubbed "F-4" that uses 36% EAF slag sand. The slag-sand mix combines with a high quality coarse aggregate giving ISTHA the

rut-free interchanges they demanded – for the safety of travelers, above all else.

Rut-free isn't all they were looking for. Safety is of primary concern. That's where the slag sand mixture enters in, providing the skid resistance needed as thousands of 16-wheelers, mini-vans, SUVs and tiny compact cars roll into and take off from highway toll plazas.

Most of these Tollway plazas

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were resurfaced with the new polymer-friction mix in 1994 and are still showing little or no sign of ruts and tears.

Six Years and Counting

This overlay with 36% slag was designed to last five years. Needless to say, there are happy highway engineers and taxpayers alike in the state of Illinois, as these resurfaced interchanges go into year seven.

Two additional Tollway plazas have been resurfaced since Touhy Plaza (pictured on front) according to Steve Gillen, Illinois Tollway engineer.

“The mix holds up to deformation. There has been some deflective cracking, but no severe delamination has occurred. The slag mix is a quality product.”

Steve Gillen
Illinois Tollway Engineer

With the average daily traffic count exceeding 100,000 vehicles, Heckett MultiServ’s slag sand, produced at the company’s Sterling, Illinois facility, is being thoroughly tested.

“Using slag sand with softer limestones decreases voids in mineral aggregates (VMA) and increases durability.”

Richard Russell
Heckett MultiServ

Richard Russell adds:

“The mix gives drivers a safer interchange and truck lanes maintain increased stability, indicated by the absence of ruts.”

“This fine aggregate material (FAM-20) slag sand shows great promise in helping contractors obtain VMA requirements in Superpave. Gyrotory compaction up to 120 shows no breakdown of mix design. The use of the polymers help keep the mix pliable. Even in

Chicago’s extreme freeze-thaw cycles, the mix is still performing up to its design criteria and is exceeding its design life.”

As with steel slag, EAF slag sand uses 100% crushed material with an angular shape that provides stone-on-stone contact and better particle interlock.

Not only does the slag outperform other materials when non-skid surfaces are absolutely necessary, it is also environmentally safe to use.

For more than 25 years the Illinois Department of Transportation (IDOT) has been using steel slag throughout and now slag sand, in a mix with other materials, is making itself a “must have” for any area where skid resistance is paramount.

This is another Slag Success Story brought to you by the National Slag Association.