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Superabsorbent Polymers in Concrete to Improve Durability

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Abstract

Previous work in Iowa and around the country has clearly demonstrated the benefits of internal curing in improving the potential durability of concrete bridge decks and reducing warping in concrete pavements. One challenge with the use of lightweight fine aggregates for this purpose is that they have to be stockpiled and preconditioned with water for several days before batching, which can be a challenge when paving large volumes.

A potential alternative is to use superabsorbent polymers for the same purpose because they can be treated like an admixture when batching the concrete. While their use is common in Europe, relatively little work has been conducted on them in the USA.

The presentation will review work completed to date in an ongoing project funded by IHRB to investigate:

- How to choose a given product
- How to batch it in concrete
- What are the benefits of its use for decks and for pavements