White Paint Shouldn't Look Yellow

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Report Title

Improve the Quality and Service Life of Water-based Pavement Marking Paints on Pavements with High-Iron Aggregates

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Report Link

http://www.nh.gov/dot/org/projectdevelopment/materials/research/projects/documents/15680J-FINALREPORT.pdf

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Why was it studied?

Airport pavement markings are white on runways to distinguish them from yellow markings on taxiways. Some airports have experienced staining of the white paint so much that pilots could not distinguish the markings. The danger associated with a plane potentially landing on a taxiway is quite high. Approximately 50% of airports in New Hampshire experience staining of white paint. Other states report problems with staining as well.

This paint should be white.

What was done?

First, the study determined that the staining was caused by the rusting of iron compounds in the pavement aggregate. The study then considered different paint types (both solvent and water-based), various paint additives, and paint treatments (i.e., clear-coating). In addition, pavement treatments, such as sealers and grooves, were evaluated. Life-cycle cost evaluations determined the most cost-effective solution.

What did we learn?

The staining can be removed by pressure washing but it will reoccur within six months to a year. The most cost-effective solution is to modify the specification for type TT-P-1952E paints to include a rust inhibitor. The matching bead type is required for proper marking visibility.

How can we use it?

Projects where it is important that white paint remain white should use the modified specification which includes a rust inhibitor.