

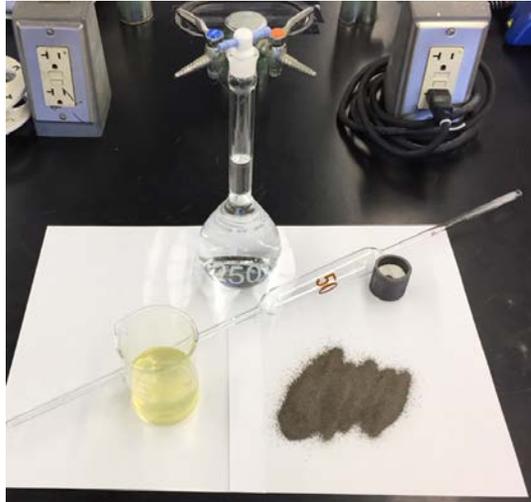


**Productivity First-Round Winner**  
Innovations Challenge

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Prepared by Transportation Planning  
Missouri Department of Transportation

## Determination of Aluminum Oxide in High Friction Surface Treatment



### Description

High Friction Surface Treatment is a localized treatment put down on horizontal curves or other areas where there are friction related accidents on the roadway. The treatment consists of very durable aggregate, called bauxite, embedded in epoxy. Bauxite is an expensive material, but is very effective at increasing friction for HFST. One characteristic of bauxite is that it has very high aluminum oxide content. This characteristic is one that we can use to ensure that the aggregate we are using for HFST is actually bauxite and not a blend of other materials that are not as durable or effective as the bauxite aggregate. Currently, there is no approved method for determining the Aluminum Oxide content in aggregate to be used for HFST. ASTM C25 is listed in the HFST Specification, but it does not produce a viable test method for determining aluminum oxide in HFST. AASHTO has put on the ballot a procedure utilizing an X-ray Fluorescence (XRF) instrument, but this method is not yet approved for use. This innovation uses analytical and instrumental methods to quantitate the amount of aluminum oxide in HFST.

### Benefit

This innovation saves money by utilizing in-house equipment and chemical reagents without purchasing any new equipment and/or using an outside testing facility. This innovation also saves time. Testing can be accomplished in less than a day so results can be relayed quickly and efficiently to internal (laboratory) and MoDOT field personnel. The method also simplifies work by bypassing unnecessary steps to produce results for material that is difficult to test chemically. This method could become an industry standard since no other method is available for testing this material.

### Materials and Labor

The cost of materials is \$10 with 1 to 2 hours of labor.

### For More Information Contact

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Additional information, photos or videos can be seen by accessing Innovations Challenge SharePoint page at: <http://sharepoint/systemdelivery/TP/Documents/InnovationsChallenge.aspx>