

# MOUNTAIN-PLAINS CONSORTIUM

PROJECT BRIEF | MPC 15-302 | December 2015

## Risk of Alkali-Silica Reaction When Using Recycled Concrete Aggregate in New Concrete



### the **ISSUE**

A comprehensive study was performed to evaluate the risk associated with using recycled concrete as an aggregate in new concrete construction. The practice has the potential to reduce materials in the landfill and make more durable concrete.

### the **RESEARCH**

A suite of testing was performed to evaluate the coefficient of variation for multiple laboratories performing the accelerated mortar bar test using recycled concrete aggregate. The precision statements of the ASTM standard were evaluated. As expected, more variability occurs when using recycled concrete as an aggregate. This work presents a comprehensive set of data for three different recycled concrete aggregate sources and two levels of replacement.



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North Dakota State University  
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University of Denver  
University of Utah

Utah State University  
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### Project Title

Risk of Alkali-Silica  
Reaction When Using  
Recycled Concrete  
Aggregate in New  
Concrete

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### Sponsors | Partners

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### the **FINDINGS**

It is possible to produce durable concrete using recycled concrete aggregates in new concrete. In addition, expansions due to alkali-silica reaction can be limited. The mortar bar test provides an indication of future performance.

### the **IMPACT**

Recycled concrete is a viable alternative aggregate. As materials become scarce, this is a good alternative to transporting materials long distances.

For more information on this project, download the entire report at <http://www.ugpti.org/resources/reports/details.php?id=838>

For more information or additional copies, visit the Web site at [www.mountain-plains.org](http://www.mountain-plains.org), call (701) 231-7938 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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