



THESIS DEFENSE

April 1, 2025

9:00 AM

Zoom

The Chemistry of Air-Cooled Blast Furnace Slag (ACBFS)

Related to Environmental Exposure Associated with Reuse

Air-cooled blast furnace slag (ACBFS) is a waste product generated from the steelmaking process and is often used as road construction aggregate in Indiana and elsewhere. However, several incidences of adverse environmental effects have been reported from sites where slag has been used, including pollutant discharges to waterways, even though these slags had been previously approved for use by passing State of Indiana leaching procedures. Additionally fundamental studies of material chemistry and field investigations are lacking which would otherwise provide guidance for acceptability testing and other beneficial reuse options.

To address these gaps, new and existing methodologies were utilized to understand the root causes and extent of negative environmental impacts associated with ACBFS reuse. Additionally, a method of potentially reducing these negative impacts and offset of steelmaking carbon dioxide emissions through direct mineral carbonation was evaluated. This research aims to provide state and federal agencies with the necessary information to create new guidance on ACBFS reuse across various industries. Additionally, this knowledge paves the way for creation of an effective system of solid waste management and offset of emissions within the steelmaking industry.



RASUL DIOP

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BIO

Rasul Diop is a Ph.D. candidate pursuing a Doctoral Degree in Environmental and Ecological Engineering. He has M.S. in Environmental and Ecological Engineering and a B.S. in Civil Engineering. His research helps to understand the chemistry and environmental impacts of Air-Cooled Blast Furnace Slag and also explores beneficial reuse available through mineral carbonation methods.

Dr. Chad Jafvert
Advisor

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