

Leaching of CCBs: Observations from Over 25 Years of Research

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ABSTRACT

Leaching of coal combustion byproducts (CCBs) using various batch laboratory methods has been ongoing at the Energy & Environmental Research Center (EERC) for over 25 years. Early on in the various investigations involving leaching, it became obvious that the methods being advocated and used were generating scientifically invalid and often misleading data. This realization came about because:

1. The wrong leaching solutions were often being used. Methods such as the extraction procedure toxicity test (EP Tox) and later the toxic characteristic leaching procedure (TCLP) used an acetic acid-containing solution that would be unlikely to contact CCBs under any conditions.
2. It was found that the formation of secondary hydrated phases such as ettringite could have a profound influence on concentrations of certain trace elements that exist as oxyanions in aqueous solution.

Because of these realizations, a method that included long-term leaching was developed called the synthetic groundwater leaching procedure (SGLP) which addressed many of the problems with existing methods.

Data collected over the last 25 years will be presented to demonstrate the need for the use of proper leaching solutions and long-term leaching. Additionally, currently utilized and proposed methods will be discussed, including the new suite of leaching methods, recently proposed by EPA.

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