

Abstract for CRADA between BioEnergy Development, LLC and NETL

Commercialization of Immobilized Amino-Silane/Amine or Biochar Sorbents for the Capture of Carbon Dioxide from Various Methane Gas Streams

Abstract

Currently, landfill gases are flared-off, which creates carbon dioxide (CO₂) and particulate matter air emissions, while still containing small amounts of unburned methane (CH₄). All of these pollutants contribute to environmental health hazards and global climate change. The same is true with industrial processes that use thermal technologies to process biomass, as these also generate the pollutant gases and particulates. In conjunction with BioEnergy Development (BED), NETL researchers will adapt the Basic Immobilized Amine Sorbent (BIAS) material technology for use in BED's biorefineries. The goal of this proposed work is to develop NETL's immobilized hydrophobic amino-silane/amine pellets in combination with BED's biochar materials (derived from the pyrolysis of biomass) into a commercially-accepted means of capturing/recovering CH₄ and CO₂ gases from landfills. Overall, the NETL-BioEnergy Development partnership will focus on the development and application of this carbon management sorbent technology to commercial carbon capture processes and promotion of clean methane based fuel streams.