



USE OF SUSTAINABLE BIOPRODUCTS FOR PRODUCING ENHANCED OIL ADSORBENTS

A McIntire - Stennis Supported Project

The goal of this research is to utilize mixes of renewable materials that have been conditioned to act as adsorbents for oil. This study also aims to densify these same adsorbents using pelletization, which refers to the compression of materials into a pellet-sized shape. These materials will include switchgrass, giant miscanthus, bamboo, southern pine, kenaf, cotton, and chicken feathers. The ability of the adsorbent to perform will be examined by determining how much diesel fuel can be adsorbed (by weight) when various particle size distributions of the adsorbent are present in 100% diesel, a mixture of distilled water and diesel, and a mixture of diesel and seawater.

Following the creation of the adsorbent and testing of its oil holding capacity in particle form, the adsorbent will be pelletized. Samples produced will be investigated to determine the adsorbent pellet's ability to adsorb diesel fuel, integrity, moisture content, and bulk density. A life cycle analysis will be performed and an economic analysis of producing the adsorbents will be carried out based on the capital and operational costs.



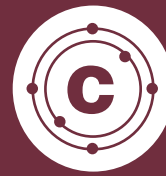
COLLABORATION

Collaborators include the USDA Forest Products Laboratory.

IMPACTS



These renewal adsorbents provide a solution to accidental oil spills that occur in various bodies of water and cause environmental disasters, threatening both animal and human populations. They can also help address the accumulation and disposal of waste oil, which has become a worldwide challenge.



Densification of these materials will allow for reduced shipping costs and a reduced carbon footprint of material transportation.

ABOUT MCINTIRE-STENNIS

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

