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Sustainable Solutions for PFAS Removal: Exploring Biogenic and Circular Approaches in Lignin-based Adsorber Materials

Initiative: Zirkularität mit recycelten und biogenen Rohstoffen

Ausschreibung: Kooperationsprojekte

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Laufzeit:

Perfluoroalkyl substances are widely used in applications from waterproof clothing to fire-fighting foams. Because of their high persistence against degradation, they accumulate in the environment and give rise to health concerns. Their removal from water and the environment is much more difficult than other pollutants and requires adsorbers with special properties. This project, a cooperation of Freie Universität Berlin, Fraunhofer Institute for Applied Polymer Research (IAP) and the Federal Institute for Materials Research and Testing (BAM), combines two industrial waste streams based on biogenic resources (lignin and glycerol) for the synthesis of aminoalkyl-functionalized adsorber beads. In a circular approach these adsorber beads will be used to remove PFAS from contaminated water. The PFAS loaded beads will be regenerated using a new process, and the unloaded adsorber beads will be reused. At the end of their useful life, the PFAS free adsorber beads provide potentially soil improving functions for water and nutrient retention in agriculturally used soils.

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