Lights, Catalyst, PFAS! The Durability of a Catalyst for PFAS Degradation

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By using UV light as energy, photocatalysis presents a chemical-free and energy-efficient method to degrade poly- and perfluoroalkyl substances (PFAS) in contaminated water. Hexagonal boron nitride (hBN), a photocatalyst that degrades both perfluorocarboxylic acids such as PFOA and perfluorosulfonic acids such as PFOS, is a promising method for aqueous PFAS remediation. Pilot-scale treatment of PFAS-impacted groundwaters promisingly showed no degradation of hBN after six hours of UV irradiation while less than 1% of hBN is degraded in pure water. Herein, we explore the conditions (e.g., irradiation time, water matrix) that cause hBN degradation and the resultant impact on performance.