

Remediation of Perfluorooctanesulfonic Acid Using Silicon Nanotechnology

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Perfluorooctanesulfonic acid (PFOS), and its salts and precursors, is a persistent organic pollutant. Used for industrial applications ranging from firefighting foams to grease repellents in fabrics for over 50 years, concentrations of this compound have been found in remote environments, such as the Canadian arctic, suggesting it is susceptible to long-range transport. The strength and stability of the C-F bond makes these compounds incredibly resistant to degradation; PFOS is resistant to hydrolysis, photolysis, aerobic and anaerobic biodegradation, and metabolism by vertebrates. Though the prevalence of this compound in the environment is well known, the concentrations of PFOS in Canadian soil samples remains unknown. This research looks at using silicon nanotechnology in combination with high end analytical detection for the remediation of PFOS and other related perfluorinated compounds in the environment.

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Dr. Brown holds a Bachelor of Science Honours degree and a PhD in Chemistry from the University of Alberta. During her tenure at the University of Alberta, Dr. Brown was responsible for managing a research program for the use of canola oil as a carbon source for the production of value-added materials, supervising and training a number of undergraduate researchers and junior graduate student researchers. After completing her PhD, Dr. Brown applied her skills as a science communicator in business development for a granting agency at the University of Calgary, providing grants for industry-academia research collaborations.

