



## Partition behavior of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in riverine sediments

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Received 2 December 2016; Accepted 6 April 2017

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### ABSTRACT

The sorption of perfluoroalkyl substances on the sediments is an important process which determines to their fate, distribution and transport in water system. In this study, the sorption kinetics, thermodynamics and effect parameters on partition behavior of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) at low initial concentration (50 ng/L) were investigated. The results showed that the equilibrium was achieved within 48 h. The sorption isotherms of PFOS and PFOA could be described by Freundlich equation. The surface area and composition of sediment particles as well as solution pH values and ion strength strongly influenced the sorption of PFOA and PFOS. Both PFOA and PFOS exhibited higher sorption capacity on the sediments with high organic matter content. These results indicated that multiple driving forces such as hydrophobic exclusion, specific chemical interaction and electrostatic attraction contributed to the nonlinear sorption of PFOA and PFOS on sediments.

*Keywords:* PFOA; PFOS; Sediment; Partition properties; Natural riverine water

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Presented at the 13th IWA Specialized Conference on Small Water and Wastewater Systems & 5th IWA Specialized Conference on Resources-Oriented Sanitation, 14–16 September, 2016, Athens, Greece.