

**819****Presence of Perfluorinated Alkyl Substances (PFAs) in Surface Waters in the City of Medellín, Colombia**

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**Abstract**

Perfluorinated alkyl substances (PFAs) are organic pollutants that can cause negative effects on human health and the environment. For that reason, they have been classified by the Stockholm Convention as Persistent Organic Pollutants (POPs). Among the PFAs, perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) have been used extensively in the manufacture of numerous products such as paint additives, non-stick cookware, fire-fighting foams, textiles (carpets, clothing, and outdoor equipment), paper and packaging, electrical and electronic equipment, etc. However, due to its toxic effects, its production has been prohibited in most countries. The presence of PFOA and PFOS in environmental matrices and in human fluids has been reported during the last years.

Little is known about the distribution of PFAs in South America. Some reports have revealed its presence in body fluids (blood and breastmilk) in people from Peru and Brazil. Likewise, its presence has been reported in bodies of water located in Brazil and Colombia.

Medellín and its metropolitan area constitute the second biggest Colombian urban conglomerate, where different types of manufacturing and industrial activities are developed, which may eventually imply the entry of different organic substances into water sources. In this sense, this work presents the most important findings associated with the presence of PFOA and PFOS in surface water and the influents and effluents from wastewater treatment plants (WWTPs) located in this region of the continent.

In general, the obtained results indicate that the WWTPs are the main source of propagation of this kind of contaminants, and that their design does not guarantee a complete removal of them.