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How Analysis Informs Regulation: Success and Failure of Evolving Approaches to Polyfluoroalkyl Acid Contamination

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Worldwide attention has recently been focused on Per- and Polyfluorinated Alkyl Substances (PFAS) due to the growing body of evidence indicating that many of these compounds are toxic, bioaccumulative, and persistent in the environment. Advances in analytical chemistry have played the key role in our developing understanding of how these compounds behave in the environment, how organisms and people become exposed, and what risks may be associated with their occurrence. Environmental chemists have to deal with the near-overwhelming complexity of a new generation of instrumentation and analytical techniques, but in order to maximize their contribution toward progress in protecting public and environmental health, researchers also need to maintain substantial knowledge in a wide range of interdisciplinary fields including chemistry, biology, toxicology, risk assessment, and policy formation. In addition to these technical challenges, there are many practical and organizational impediments researchers need to overcome to maintain their contribution toward progress in this area of research. This presentation provides a brief overview of some of the critical developments in the history of analytical approaches used for the PFAS and focuses on an evaluation of our growing awareness of these compounds in the environment and the problems they pose. Regulatory approaches taken by the USEPA and other governing bodies will be discussed while considering what is currently known and what remains to be accomplished in order to effectively deal with this new class of environmental contaminants.

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