

## **Per- and Polyfluorinated Alkyl Substances (PFAS): Lessons Learned during the Evolution of Global Regulations**

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**Background/Objectives.** Global interest in PFAS has increased over the last five years. As data emerge regarding the prevalence and potential effect of these compounds, regulatory scrutiny has increased on facilities that have manufactured or used PFAS or PFAS-containing materials. Several countries, and regions within those countries, have begun to establish regulatory guidelines with a focus on mitigating the human health and environmental risk associated with the release of PFAS into the environment.

**Approach/Activities.** Because PFAS have been used in such a large variety of commercial and household goods, low concentrations of PFAS have been detected not only in environmental media near manufacturing facilities and firefighting/firefighting training areas, but also in wastewater treatment plant effluent, landfill leachate, and surface water far removed from industrial areas. PFAS have also been detected in the blood stream of populations in Europe, North America and other industrialized areas. The large-scale exposure risks have led to public demand for swift government action.

**Results/Lessons Learned.** This presentation will focus on the evolution of PFAS regulations across the world, with a focus on rationale behind the development of compound specific advisory levels. The presentation will include a discussion of the evolution of regulatory standards including a look at how guidance documents were developed in Australia, the United States, and several countries within the European Union. The presentation will also provide a discussion of the toxicology data available to inform development of risk-based standards for specific media streams including soil, groundwater, and surface water. Although regulatory standards have been set in several countries for at least some PFAS compounds, the body of toxicology data available for these chemicals has not yet been fully developed. The presentation will discuss what we know and what we don't know about the potential effects of PFAS compounds on human health.

The presentation will conclude with lessons learned from areas where regulatory limits have been issued for PFAS compounds. Discussion will be around the following questions and associated answers: (1) How are the potential releases of PFAS being identified? (2) Has the exposure risk decreased as a result of regulatory guidelines? (3) What complications have arisen as a result of setting standards drinking water for a new class of compounds? (4) What has been the effect on business and on municipalities? And last (5) How are remediation strategies impacted by the limited available technologies for PFAS treatment?