**Are volatile PFAS an environmental and a vapor intrusion concern?**

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Per- and polyfluoroalkyl substances (PFAS) are a large class of synthetic fluorinated chemicals known for their chemical and thermal stability, making them widely used in industrial and commercial applications, such as aqueous film-forming foams (AFFFs) used by firefighters to suppress hydrocarbon fires. However, AFFF use has led to PFAS contamination in water and soil, and various PFAS compounds have been detected in the blood serum of firefighters exposed to AFFFs. While dermal exposure is one possible route, inhalation of volatile PFAS may also be significant, though less is known about their atmospheric behavior and potential for vapor intrusion into households.

This study aims to provide critical data on the types and concentrations of volatile PFAS detected in AFFF headspace, the atmosphere, and residential environments. Henry’s law constants, which describe the partitioning between gas and liquid phases, were determined for several volatile PFAS for the first time.

Preliminary results from the analysis of AFFF headspace identified 16 PFAS compounds: five fluorotelomer alcohols, ten perfluorinated carboxylic acids, and one fluorotelomer sulfonate. Additionally, five saturated, iodinated, and ethenyl fluorocarbons were detected, likely originating from the AFFF manufacturing process as precursors to other PFAS. Henry’s law constants were determined for 15 volatile PFAS through static headspace analysis.

This research provides essential insights into the identity, concentration, and release rates of volatile PFAS, highlighting the need for further treatment to protect public health and the environment.