NCASI
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Comments on the Chemical Action Plan for Per- and Polyfluorinated Alkyl Substances, Analytical Methods and Techniques

Executive Summary

The National Council for Air and Stream Improvement, Inc. (NCASI) greatly appreciates the opportunity to submit comments on the Chemical Action Plan for Per- and Polyfluorinated Alkyl Substances, Analytical Methods and Techniques. NCASI is a scientific association organized to serve the forest products industry as a center of excellence providing unbiased, scientific research and technical information necessary to achieve the industry's environmental and sustainability goals. Over its 75-year history, NCASI has conducted studies in a variety of areas related to water quality and has worked extensively to develop data that assist industrial and government stakeholders charged with managing water quality.

NCASI agrees with the intent of the Washington Chemical Action Plan to ensure the protection of public health relevant to groundwater. However, this plan should be supported by the best available science, including both an accurate characterization of the toxicity of relevant PFAS compounds and robust analytical chemistry techniques to characterize relevant pathways of human exposure.

NCASI's comments regarding scientific issues identified in the Chemical Action Plan for Per- and Polyfluorinated Alkyl Substances, Analytical Methods and Techniques are attached. Feel free to contact us with any questions regarding these comments.

Sincerely,

Matt Booth

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1.0 Toxicity Values for Individual PFAS Compounds

On page 3 of the New Analytical Methods Chapter, it states:

"Measuring PFAS as a class (total PFAS) due to their persistent nature and toxicity is a more appropriate way to assess exposure and risk to human health and the environment."

This statement is inaccurate and does not reflect the current state of the science regarding PFAS toxicity. Furthermore, it is inappropriate to include such a summary statement related to health risk assessment in a section otherwise dedicated to analytical science. PFAS as a class of chemicals represents thousands of individual compounds with a variety of chemical structures and a diversity of mechanisms of biochemical interaction. Different PFAS compounds also have unique health endpoints of concern across the class of these substances. As a result, the toxicity values of individual PFAS can vary widely, as much as several orders of magnitude in terms of the doses required to impose risks of adverse health effects.

As an example, the United States Environmental Protection Agency (EPA) recently published a draft toxicity value (reference dose or RfD) for PFBS of 0.01 mg/kg-day. This value is three (3) orders of magnitude higher than the published RfD for PFOA of 0.00002 mg/kg-day. Compared to the large diversity of chemical structures under the PFAS classification, PFBS and PFOA are relatively similar in structure. Because toxicity for these compounds is generally related to the chain length of the carbon backbone, larger divergences in structure are expected to result in even greater variances in toxicity values.

Given the large diversity of structures and related toxicity for the thousands of compounds falling under the PFAS classification, the evaluation of human health or environmental risk from total PFAS is not a scientifically defensible risk assessment practice and will result in risk assessment outcomes that are uninterpretable for risk management.

2.0 Comments on Proposed Analytical Techniques

On page 2 of the New Analytical Methods Chapter, it states:

"ASTM methods D7979-17 and D7968-17a use external standard quantitation, which does not account for analyte loss during sample preparation, instrument drift, or matrix effects and hence it is most suitable for clean matrices with little to no matrix interferences."

While this statement is accurate, it should also be noted that most laboratories modify these methods to include isotope dilution standards, thereby treating the sample preparation portion as specified in the ASTM methods while treating the instrumental portion as EPA method 537.1. This allows the laboratories to perform the ASTM methods while achieving the same or better quality control.

On page 4 of the New Analytical Methods Chapter, it states:

"Most PFAS fractions are quantified during targeted liquid chromatography mass spectrometric (LC/MS/MS) analysis, however, only few commercially relevant internal standards are available. Without internal standards, definitive identification and quantitative analysis are difficult or impossible."

This statement should be modified to indicate that "… PFAS fractions are quantified during targeted ***isotope dilution*** liquid chromatography mass spectrometric (LC/MS/MS) analysis..." Commercially relevant isotopically labeled internal standards are now available for most of the method 537.1 analytes. As the list of PFAS analytes grows, corresponding isotopically labeled internal standards for these analytes must also become available, otherwise definitive identification and quantitative analysis are difficult or impossible.

Page 6, first paragraph of the New Analytical Methods Chapter:

In the section titled "Quantitation of linear and branch isomers of PFAS" it should be noted that EPA already has laboratories summing linear and branched isomers for PFAS analytes, even though only the linear isomers are used as quantitation standards. If more accurate branched chained quantitation numbers are required, standards will need to be manufactured and made available.

Page 7 of the New Analytical Methods Chapter:

In the section titled "PFAS Analysis Standard methods summary" it should be noted that the method is not amenable to an expanded list of PFAS compounds or other sample matrices ***unless the method is modified*** as modifications exist to expand this analysis.

Page 8 of the New Analytical Methods Chapter:

Similar to the concern noted on page 2 as described above, the section states "[b]oth the ASTM methods (D7979 & D7968) use external standard quantitation, which does not account for analyte loss during sample preparation, instrument drift, or matrix effects and it is most suitable for clean matrices with little to no matrix interferences. ASTM standard methods D7979 and D7968 are not multi-laboratory validated." Again, it should be noted that most laboratories modify these methods to include isotope dilution standards, thereby treating the sample preparation portion as specified in the ASTM methods while treating the instrumental portion as EPA method 537.1.