David Beine (David Beine)

See attached letter.

July 18, 2025

Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Washington State Department of Ecology:

We provide this letter in comment to Safer Products Cycle 1.5. The intent of this letter is to share important information regarding Fluorine Testing, reporting methods, and to connect with the State of Washington for this and future conversations on matters related to the cookware and bakeware industry. We want to be part of the solution of these matters to help create the best path forward.

RE: Fluorine Testing Information and Challenges

First, we want to share information regarding fluorine testing when used on products in our industry. Third party labs note that the total fluorine content detected using this method may come from organic fluorine (e.g., PFAS or other organic fluorinated compound(s) and inorganic fluorine. This means that a positive total fluorine test result does not actually confirm the presence of PFAS. In case a positive result is obtained, the testing for individual PFAS is recommended to verify the PFAS substances in the test sample. Targeted testing for individual PFAS will not identify the presence of fluoropolymers.

In order to explain this case, we share the following information:

What are PFAS?
Perfluoroalkyl and polyfluoroalkyl substances, generally known as "PFAS," are a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom in an alkyl molecule. Some definitions of PFAS include at least two fluorinated carbon atoms in an alkyl molecule.

What is Fluorine?
Fluorine is an element that is found in nature as inorganic atoms. Fluorine atoms are also found in PFAS molecules which are synthetic.

Is Fluorine the same as PFAS?
No, not all. Fluorine atoms are distinct from PFAS. As noted above, fluorine is naturally occurring and fluorine atoms can be in organic molecules and also inorganic molecules.

What is a Total Fluorine (TF) Test? And what does it measure?
A Total Fluorine (TF) test measures the level of all fluorine atoms in a test sample, which includes both organic and inorganic sources of fluorine atoms. As discussed above, TF tests will detect fluorine atoms in organic compounds which include PFAS, but also certain pesticides, and other inorganic fluorine compounds that are not considered PFAS.

What is a Total Organic Fluorine (TOF) Test? And what does it measure?
A Total Organic Fluorine (TOF) Test is designed to test for organic fluorine and is widely used by testing laboratories as a more precise indicator for the presence of PFAS. In a TOF test, soluble inorganic fluorine atoms are extracted from a test sample with solvent. Then the sample is re-analyzed for fluorine content, assuming that all inorganic fluorine has been removed.. In some TOF testing procedures, an aqueous solution pretreatment is used to remove soluble inorganic Fluorine before testing for organic Fluorine. Although a TOF test is more precise than a TF test, it will still detect organic fluorine in compounds that are not PFAS.

Can a false positive occur?
Yes, because both TF and TOF test methods will detect substances other than PFAS it is known that false positive results can occur.

What can cause a false positive?
In Total Fluorine (TF) tests, where insoluble inorganic compounds which contain Fluorine atoms are present, this can give false positive results. Manufactured mica, also known as Fluorphlogopite $Mg3K[AlF2O(SiO3)3]$), is a class of pigments which contains insoluble inorganic fluorine atoms. Additionally, naturally mined raw materials, such as mica and talc, are known to be possible sources of insoluble inorganic fluorine. Mica and talc are frequently used in non-stick, including sol-gel (ceramic) coatings. Insoluble inorganic fluorine substances will not be removed during the standard TOF testing process. Fluorine from inorganic sources would be detected and can be misconstrued as PFAS.

Some TOF methods use an aqueous wash step. This step does not completely remove insoluble inorganic fluorine substances, resulting in a detection of fluorine from inorganic sources (i.e. not PFAS).

Can background or environmental contamination cause a false positive?
Yes, sources of fluorine can be found in the manufacturing environment or packaging and can also contribute to false positive results. Testing laboratories should include a wash step with warm soapy water before testing the sample to avoid background or environmental contamination. Accredited third party labs are very careful to use water that is PFAS free. They also check detergents and environments to ensure they are PFAS free as well. They are careful that there are no conditions that could introduce PFAS, to protect the accuracy of the test results they provide.

References for testing Fluorine content in a sample:
https://www.ri.se/en/expertise-areas/expertises/pfas-analysis
https://www.sgs.com/en-us/services/pfas-testing-for-consumer-products
https://cpt.na1.eurofins-info.com/cpc/susi/pfas-testing
https://www.eurofins.com/media/v3nnkhht/erf-webinar-pfas_-regulations-and-testing-Solutions-qa.pdf
https://profilerf.metrohmusa.com/
Information on manufactured mica pigments is available at:
https://www.treehugger.com/what-is-mica-powder-5216422#:~:text=While%20natural%20mica%20powder%20comes,cooling%20to%20produce%20a%20crystal

RE: Reporting Format
Reporting of PFAS should be harmonized with the existing Canadian requirement published in the Canada Gazette, Part I on July 27, 2024, pursuant to paragraph 71(1)(b) of the Canadian Environmental Protection Act, 1999 (CEPA). Harmonizing reporting requirements across the US states and Canada would reduce costs and ensure consistent information across all jurisdictions to reduce a patchwork of differing policies. While we recognize that there are reporting programs in the United States – e.g. in Minnesota, Maine, and others – those

programs have been the subject of significant revisions and in some cases rescissions so none appear to be a reliable framework for consistent reporting. EPA's TSCA Rule 8(a)(7) has also been the subject of significant revisions since its introduction, and EPA has indicated that further revisions will be made, so that also does not appear to be a solid foundation for consistent reporting. By contrast, Canada's reporting structure is established and all reporting will be complete by the end of July. This means that companies subject to Canadian reporting have already gone through the process and can more easily and reliably report in Washington State if that framework is adopted. Also, the Department of Ecology should provide a training webinar for the reporting requirements.

Regal Ware is a fourth generation, family-owned, U.S. cookware manufacturer that distributes its products both domestically and internationally.

Sincerely,

David R. Beine

David R. Beine
General Counsel