# PFAS in Pesticides

## Analytical Methodologies Overview and Updates

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# EPA's PFAS Work – BEAD's Analytical Chemistry Branch (ACB)

- Late 2020 - Origin of the issue was presence of PFAS in mosquito products, for general information https://www.epa.gov/pesticides/pfas-packaging

- March 2021 – Determination that source of PFAS contamination in mosquito products was from the fluorinated HDPE containers https://www.epa.gov/newsreleases/epa-releases-testing-data-showing-pfas-contamination-fluorinated-containers

- Since methods for analyzing PFAS in pesticide products are limited, ACB has worked to provide validated methods in several, complex matrices.

# OPP/BEAD/ACB METHODS

| Sample Type | Method | Date Released | Method Type (Sampling, Preparation, Analysis) | ACB Validated LOQ |
|---|---|---|---|---|
| Pesticide products formulated in oil, petroleum distillate or mineral oil | EPA's Analytical Chemistry Branch Method for the Analysis of PFAS in Oily Matrix. | September 2021 | SPE separation of PFAS from oily matrix. Instrument analysis based EPA Method 8327 | 0.025 ppb |
| HDPE containers | EPA's Analytical Chemistry Branch PFAS Testing Rinses from Selected Fluorinated and Non-Fluorinated HDPE Containers | September 2022 | Container rinsing with solvent, followed by concentration of rinsate. Intrumental analysis based on EPA Method 8327 | 0.0004 - 0.002 ppb (semi quantitative) |
| Pesticide products formulated with high molecular weight non-ionic surfactants in oil or water/oil mixtures | EPA's Analytical Chemistry Branch PFAS Extraction Procedure for Pesticide Products containing Non-ionic Surfactants | May 2023 | Solvent extraction of formulation sample follwed by SPE cleanup. Instrumental analysis based on EPA Method 8327 | 0.4 - 2 ppb |
| HDPE containers | EPA's Analytical Chemistry Branch Method for Container Coupon Sampling, Extraction, Preparation and SPE Clean-up | February 2024 | Solvent extraction of coupons cut from containers. Concentrated aliquots of the extracts analyzed based on EPA Method 8327 | 0.2 ppb |
| Pesticide products containing ionic surfactants (SDS, Quats, etc.) | TBD - Multiple Methods may be required | TBD | TBD | TBD - Target 0.5 ppb |

# OPP Actions: Ongoing Studies/Methodology Development

- Methods are being developed to identify and measure PFAS compounds in different pesticide formulations -

  Additional methods on other pesticide formulation types in various stages of consideration and development.
- Continue identification and quantification of PFAS compounds from specific HDPE container manufacturers.
- Continue testing of pesticide products in support of EPA Regions.