

# PFAS and Modern Life: Part 2

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# Take Out Toxics Study: PFAS in Food Packaging

## Safer Chemicals Healthy Families/Toxic-Free Future

Study designed to provide grocery stores and retailers with information about PFAS in food-contact papers.

- Samples were collected in 12 states: Alaska, California, Connecticut, Idaho, Maine, Maryland, Massachusetts, Michigan, Minnesota, New York, North Carolina, and Washington
- Collected 78 samples from 20 grocery stores/locations
  - Bakery or deli papers
  - Baking or cooking supplies
  - Single use plates
  - Take-out containers
  - Trays for cook-at-home food



[Source: https://saferchemicals.org/category/health\\_science/](https://saferchemicals.org/category/health_science/)

# Results



TABLE 1: RESULTS OF SCREENING RETAILER FOOD-CONTACT MATERIALS FOR LIKELY PFAS TREATMENT

ITEM CATEGORY	Ahold Delhaize	Albertsons	Kroger	Trader Joe's	Whole Foods (Amazon)	TOTAL BY PRODUCT CATEGORY
Take-out container		0/2	1/1		4/5	5/8
Bakery or deli paper	1/6	1/7	1/11	0/6	1/8	4/38
Single-use plate	1/3	0/2	0/1	0/1		1/7
Tray for cook-at-home food	0/1	0/1	0/1	0/3	0/2	0/8
Baking or cooking supplies	0/4	0/5	0/4	0/2	0/2	0/17
TOTAL BY RETAILER	2/14	1/17	2/18	0/12	5/17	10/78

- Summary of total fluorine screening results by item category and retailer. The number of samples with high fluorine content (indicative of intentional PFAS treatment) is shown relative to the total number of samples tested.
- Summary does not intend to grade retailers in relation to one another or provide a guide that a particular product at a given retailer is likely PFAS treated or PFAS free.

[Source: https://saferchemicals.org/category/health\\_science/](https://saferchemicals.org/category/health_science/)

# Results



- 10 of 78 samples were found with high fluorine levels, likely PFAS. Most common were take-out containers and bakery or deli papers.
- In another test many same types of items were tested free of PFAS.
- PFAS in a single-use item found in multiple stores across the country can translate to large quantities of PFAS-treated paper used and disposed.
- **There are alternatives available.**
- **Highlights an opportunity for retailers to phase out PFAS.**
  - **Whole Foods responded immediately**



BRIEF

## Whole Foods stops using compostable containers with PFAS

By Kristine Sherred  
Published Dec. 12, 2018

Source: [www.grocerydive.com/news/whole-foods-stops-using-takeout-containers-with-problematic-chemical/544165/](http://www.grocerydive.com/news/whole-foods-stops-using-takeout-containers-with-problematic-chemical/544165/)

Source: [https://saferchemicals.org/category/health\\_science/](https://saferchemicals.org/category/health_science/)

# Purdue University Study

## PFAS In Compost

Knowing that PFAS are in food contact materials (FCM) and **composting food waste and compostable food packaging as a good stewardship principle**, the presence and leachability of PFAS in composted material was studied.

In 2017 Zero Waste Washington collected compost samples and worked to have the study results available to share with Washington State Legislators to help them understand the PFAS issues.

- This led to passing the **Healthy Food Packaging Act** (HB 2658) to ban PFAS in January 2020.
- Also worked on the **Compostable Products Labeling** bill (HB 1569) for food service products—along with certain film products—that meet ASTM composting standards must be “readily and easily identifiable” as compostable effective on July 1, 2020.

**Source:** Study from Purdue University (Linda Lee and Rooney Kim Lazcano) and Zero Waste Washington (Heather Trim)  
<https://cswab.org/wp-content/uploads/2018/09/PFAS-Compost-Summary-Sheet-March-2018.pdf>

# Purdue University Study: Compost Samples

Sample	Description	FCM	Composting Method
1	Residential/Commercial yard & food waste	Yes	Windrow (uncovered)
2	Residential yard & food waste	Yes	Unknown
3	Residential/Commercial yard & food waste	Yes	Windrow (forced aerated & trapezoidal mass bed)
4	Residential/Commercial yard & food waste	Yes	Windrow (Gore cover)
5	Residential/Commercial yard & food waste	Yes	Windrow (passive aerated)
6	Residential/Commercial yard & food waste	Yes	Windrow
7	Commercial food (food scraps, coffee grounds, lobster shells), horse manure, and wood shavings	Yes	Windrow (forced aerated)
8	Residential yard waste (leaves & grass)	No	Windrow (forced aerated)
9	Home yard & food waste, unbleached coffee filters	No	Compost bin
10	Residential yard waste (leaves)	No	Windrow

Source: Study from Purdue University (Linda Lee and Rooney Kim Lazcano) and Zero Waste Washington (Heather Trim)

<https://pubs.acs.org/doi/10.1021/acs.estlett.9b00280>

# Results

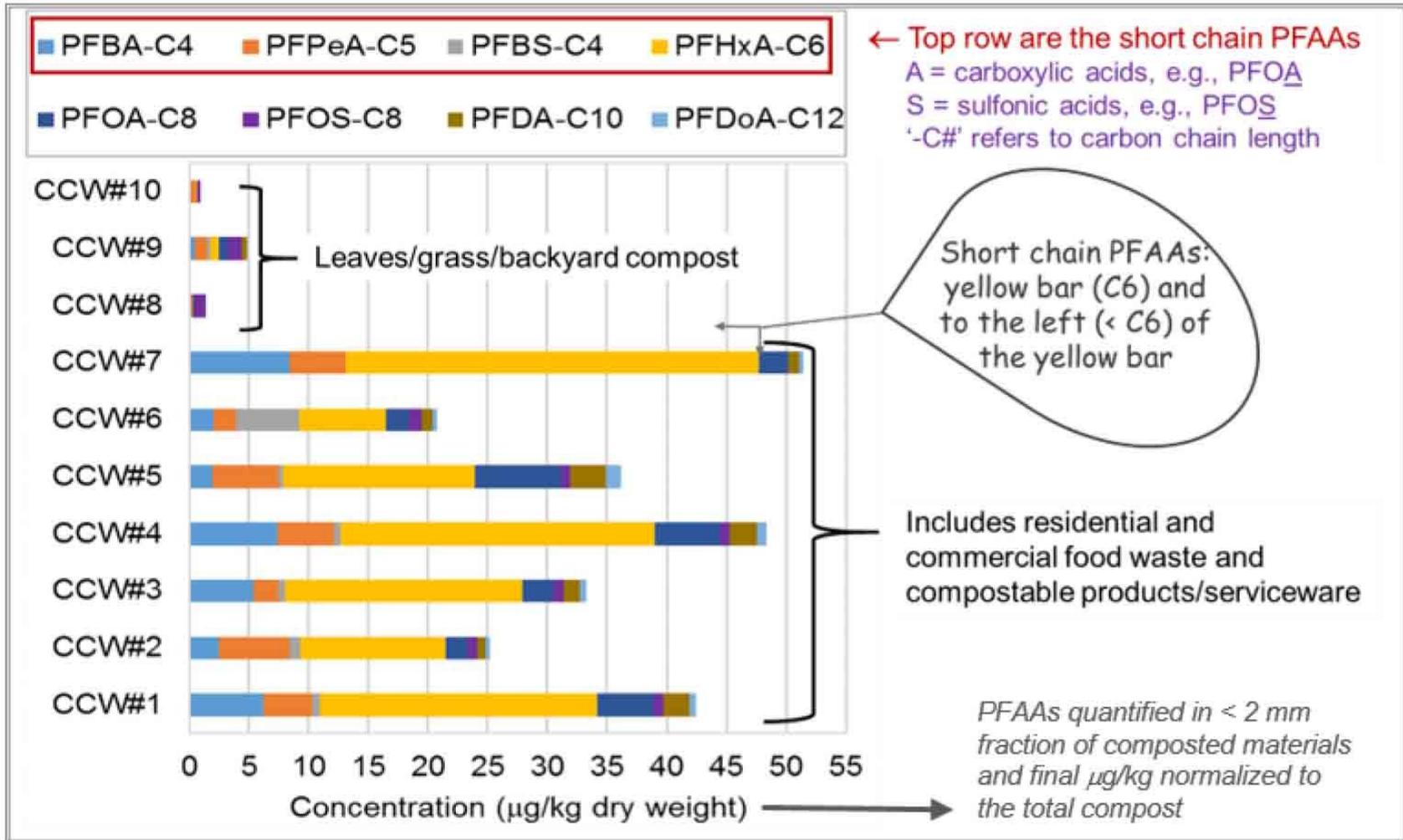
## PFAS Compost Concentration

- **22 PFOA and PFOS were detected in all 10 compost samples**
  - Although manufacturers voluntarily phased out C8 compounds from food contact materials in October 2011.
- **Samples 1 - 7 Accepted FCM**
  - PFAA loads ranged from 31 to 75 µg/kg, of which >64% were PFCAs and 68% were short-chain PFAAs.
- **Samples 8 - 10 No FCM**
  - Total PFAA loads were all lower than those found in compost Samples 1-7 that accepted FCM.
- **Samples 8 and 10 Derived from grass and other yard trimmings**
  - PFAA loads of <3.9 µg/kg, significantly lower than Samples 1 - 7.
- **Sample 9 Included food waste and unbleached coffee filters**
  - Slightly higher at 7.60 µg/kg than Samples 8 and 10.
  - Potential sources of PFAA in yard trimmings, may be from atmospheric deposition, contaminated water or applied fertilizer.
  - Other studies indicate that PFAS migrates from food packaging into food; it could be the food waste.

**Source:** Study from Purdue University (Linda Lee and Rooney Kim Lazcano) and Zero Waste Washington (Heather Trim)  
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# Results

## PFAS Compost Concentration



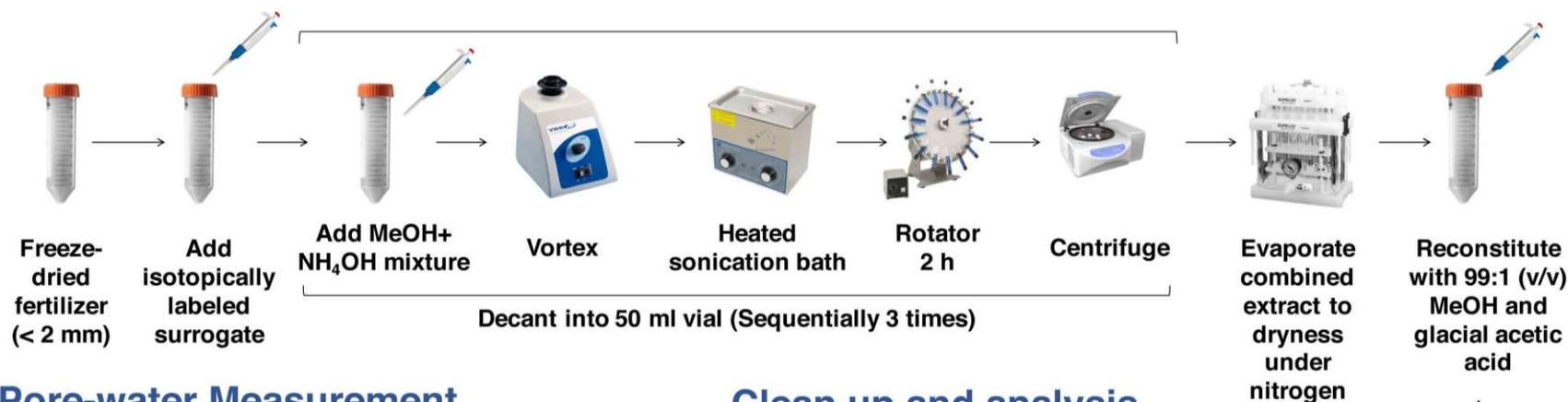
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# Purdue University Study: Experiment Method

(Linda Lee and Rooney Kim Lazcano)

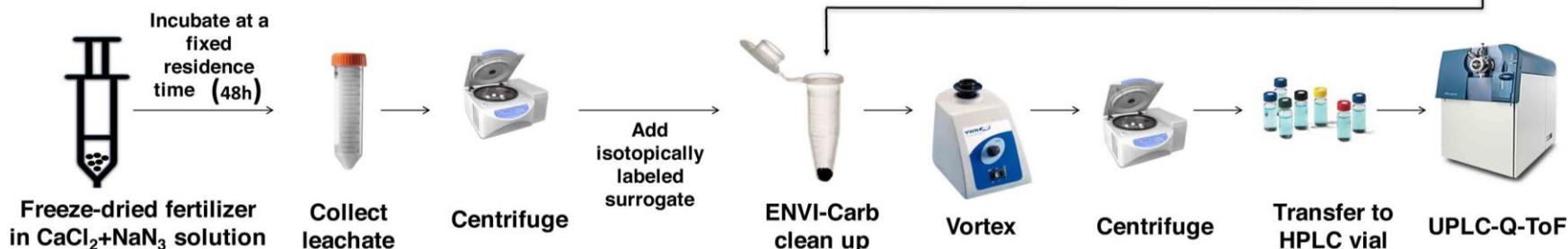
## Extraction Method

\*Modified method from Sepulvado et al., 2011



## Pore-water Measurement

## Clean up and analysis



**Source:** Study from Purdue University (Linda Lee and Rooney Kim Lazcano) and Zero Waste Washington (Heather Trim) <https://pubs.acs.org/doi/10.1021/acs.estlett.9b00280>

# Certified Compostable Products



## **Most BPI certified compostable products already do not contain fluorinated chemicals.**

- Instead achieve water and grease barriers through use of compostable biopolymers like PLA, PBAT, PBS or PHA, and compostable waxes.
- BPI proactively updated its certification to restrict total fluorine test to a 100 ppm limit for the entire class of fluorinated chemicals.
- BPI certified products not meeting the requirements must be phased out by the end of 2019.

## **Compostable products and packaging play a pivotal role in the Zero Waste movement.**

- BPI is working to ensure its certification will continue to be a trusted benchmark for compostability.
- Limiting PFAS from entering food waste composting requires a major shift in food contact paper.

## **What is the impact on composters and the finished compost?**

- Communities should look to ban products containing fluorinated chemicals (i.e., Washington State).

[Source: BPIworld.org](http://BPIworld.org)

# More Research Is Needed

## Environmental Research & Education Foundation (EREF)

Board of Directors has identified a high priority research topic in the area of managing per- and poly-fluoroalkyl substances (PFAS) – issued an RFP in May 2019 to support the long-term needs and strategic direction of the solid waste industry.



**Environmental Research  
& Education Foundation™**  
*Lighting a path to sustainable waste management practices*

## ASTM International

Working on standards that will be critical to achieving worldwide remediation of PFAS in the environment. ASTM is looking to develop a working group to fill a void in industry standardization– a single authoritative method for PFAS sampling analysis, which currently does not exist. Although still in the early stages, the five E50 task groups have begun updating existing standards to cover PFAS.



# Conclusion and Recommendations

## **Public and Policy Leaders**

- Science is still emerging.
- Focus attention upstream to remove PFAS out of consumer products.
- Communities should look to ban products containing fluorinated chemicals (i.e., Washington State).
- Composting plays a critical role toward more sustainable food systems and Zero Waste goals.
- Center for Environmental Health (CEH) supports and encourages Composting and its benefits.

## **Waste and Recycling Industry**

- Important for the Industry to be alert to potential sources. Look upstream for industries that use these chemicals.
- Communicate the value of all recycling efforts in place outweighs the risks from trace levels of PFAS. Recycling facilities are not a “source”; unfortunate situation of modern life, they convey them.
- Steps need to be taken to minimize the unintended negative consequences.
- Commercial composting facilities should specify PFAS-free food service ware in contracts.

## **Retailers and Brands**

- Grocery store chains and food retailers should adopt public policy for eliminating PFAS in all private label and brand name food contact materials and packaging.
- Develop a comprehensive safer chemicals policy to reduce and eliminate toxic chemicals.

# Thank You.

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