# PFAS in Food Service & Facility Maintenance

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## What is **NEWMOA?**

- Northeast Waste Management Officials" Association
- Non-profit, non-partisan interstate association
- Solid waste, hazardous waste, waste site cleanup & pollution prevention programs
- CT, ME, MA, NH, NJ, NY, RI & VT
- Formally recognized by EPA in 1986
- www.newmoa.org



# **Agenda**

- . What is PFAS & why do we care?
- . How PFAS gets into the environment
- Information about PFAS in food service & facility maintenance (carpet cleaning & floor stripping & waxing), including ideas to reduce use
- Outline of project with NEKWMD & resources developed

# "Before" Poll Questions

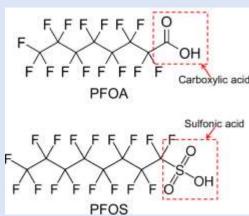
Thank you for your patience!

## What are PFAS?

### PFAS stands for Per- and Polyfluoroalkyl substances

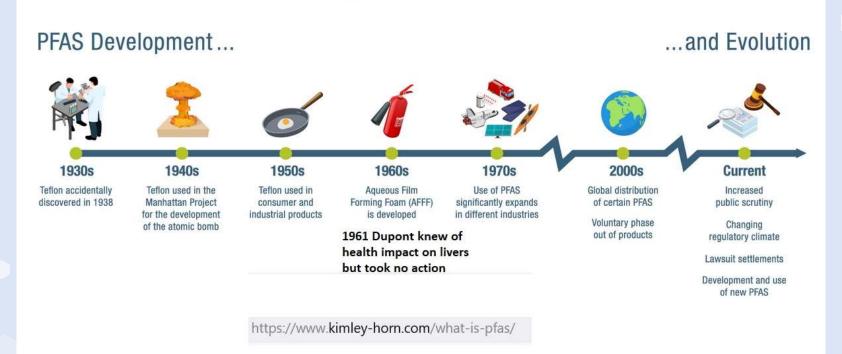
 A group of thousands of synthetic chemicals used in hundreds of types of products

- Water-resistant/waterproof
- Oil/grease resistant
- Stain resistant
- Resistant to friction
- Known as "forever chemicals"
- Main characteristic: Fluorine attached to Carbon
  - The number of carbons determines the length of the PFAS (C6, C8, etc.)
     and if it is considered a long-chain or short-chain



# Most people think if something is for sale, that means it's safe...(but that's not true)

## How did PFAS develop and evolve?





# Why are PFAS so Problematic?

The carbon-fluorine bond is NOT natural	<ul> <li>Created with tremendous heat and pressure</li> <li>Per (fully) fluorinated PFAS do not breakdown – poly (partially) fluorinated PFAS breakdown only into the fully fluorinated portion which then doesn't change</li> <li>Accumulating all over the planet &amp; in the blood of virtually all animals &amp; people</li> </ul>
PFAS impact human & environmental health	PFAS impact the heath of humans, animals, fish and other living beings even with exposure at relatively low levels
PFAS have polluted water supplies	Public water supplies – must test for PFAS - 17 in Vermont have exceeded current standards  Private wells – can be contaminated from a variety of sources – including septic systems

PFAS were not a regulated chemicals... until recently!



# **PFAS Toxicity and Health Effects**

PFAS are Linked to a Multiplicity of Adverse Health Effects



Reduced Immune System Function



Increased Risk of Pre-eclampsia in Pregnant Women



Increased
Cholesterol Levels



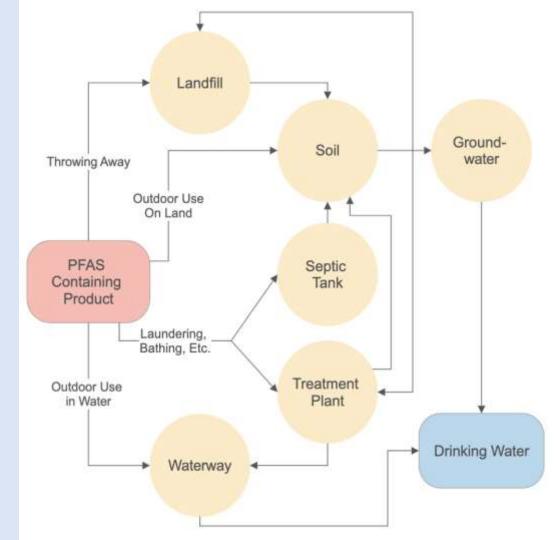
Increased Thyroid
Disorders and Other
Hormone Disruption



Increased Risk of Liver, Kidney, Prostate & Testicular Cancer

# How PFAS in Products Might Impact the Environment

- Remember they do NOT breakdown they just move around
- PFAS can get into groundwater or surface water used for drinking water & lead to significant exposure
- Note: there are other sources of environmental contamination:
  - o Firefighting foam
  - Manufacturer use
  - Air deposition
- BUT studies have shown that wastewater from homes has significant amounts





In 2021, DEC worked with the City of Essex Junction and Town of Middlebury to characterize residential, commercial, and industrial PFAS sources entering their WWTFs and found:

- More PFAS, by mass, were measured in wastewater originating from residential communities than from commercial or industrial discharges in these municipalities
- Industrial facility discharges contained unique PFAS but were not a significant source of PFAS to the WWTF, accounting for < 1% of the total mass of PFAS entering the WWTF

# What Products Often Contain PFAS?

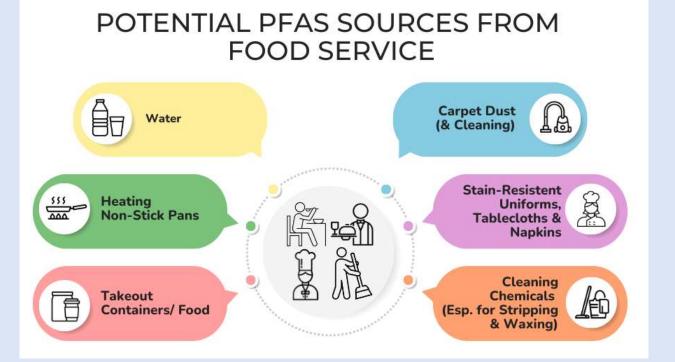
Water-Resistant/Waterproof

Oil/Grease-Resistant

Stain-Resistant/Stain-proof/Stain Release



# **PFAS in Food Service: Potential Exposure**



Understanding which products likely contain PFAS and how to avoid purchasing them helps reduce worker and consumer exposure and decrease the amount of PFAS in the environment!



### **PFAS in Food Service: Potential Contamination**

#### POTENTIAL CONTAMINATION FROM PFAS IN FOOD SERVICE

Floor Stripping & Waxing

Wastewater Down the Drain or Out the Back Door



Carpet Cleaning Wastewater Down the Drain or Out the Back Door



Environmental Contamination & Impacts to Water Resources



Food Packaging into Trash or Compost



Washing Stain-resistant Uniforms, Tablecloths & Napkins

Wastewater and trash containing PFAS can lead to potential environmental contamination that impacts water resources. Choose PFAS-free cleaning methods and reduce use of PFAS products!



# Where are PFAS in Food Packaging?

- Many disposable dinnerware and packaging items are coated in PFAS to achieve water-, oil-, and grease-resistance
  - Increase durability and appearance
- Examples of packaging that may include PFAS:
  - Food contact papers like bags, wraps
     & liners
  - Disposable dinnerware like plates, bowls, food boats & trays
  - Takeout containers such as pizza boxes, clamshells, paper cartons and interlocking food cartons





# PFAS in Food Packaging & Exposure

- PFAS can transfer from packaging to food
- Multiple disposal pathways may lead to PFAS entering the environment:
  - Disposed in a landfill = PFAS enter the leachate
  - Disposed in compost = some PFAS remain in the compost when it is land-applied
  - Disposal in recycling = PFAS enter the waste disposal and/or discharge during the remanufacturing process
- Primary methods of human exposure:
  - Direct consumption
  - Drinking water impacted from PFAS entering environment



Note: Higher temperatures and longer durations of time can lead to greater amounts of PFAS in food



# Be Aware of Green Messaging!

Many molded fiber and recycled paper disposable tableware are being advertised as "greener" and "compostable" but are treated with chemicals such as PFAS to achieve water-, and grease-resistant properties. PFAS can be mixed into the paper pulp during manufacturing and be present without an obvious physical coating.

PFAS are frequently found in food packaging:

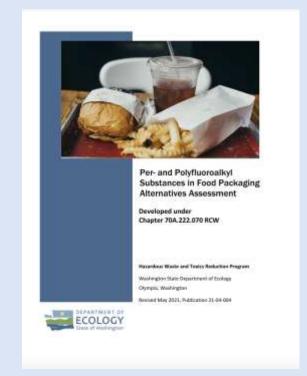
- A 2017 study found 46% of food contact papers and 20% of paperboard samples from fast food restaurants contained PFAS
- Another study found 57% of disposable dinnerware products tested contained PFAS



# WA State Dept. Of Ecology Study

#### May 2021 PFAS in Food Packaging Alternatives

- Viable alternatives that meeting their strict human health and environmental impact safety criteria
- Similar technical performance, commercially available at a similar cost:
  - Wax-coated wraps & liners
  - Kaolin clay-coated & reusable plates
  - Reusable bowls
  - PLA Plastics & reusable trays
  - Kaolin clay-coated & reusable food boats
  - Uncoated paper pizza boxes
  - PLA-coated french fry cartons





## What You Can Do:

- Look for "No/Low F"
  Listed Products in the list
  compiled by the Center
  for Environmental Health
- Look for GreenScreen-Certified Products
- Look for BPI-Certified
   Compostable Products

- If not using only BPI-Certified
   Products, Compost ONLY
   Food Waste
- Choose Reusable Containers

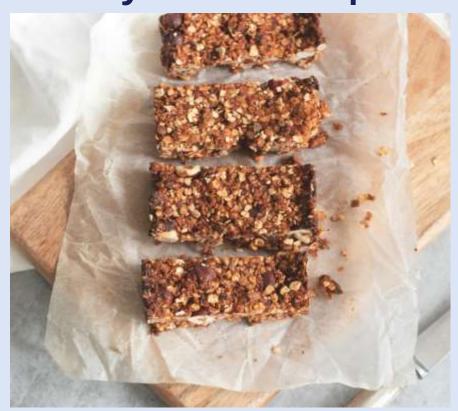








- Choose disposable materials that are wax-coated or truly uncoated
- Choose products that do not advertise oil-, grease-, and waterresistant claims
- Avoid disposable products that consistently test positive for PFAS such as molded fiber products and molded recycled paper products
- Avoid products with listed ingredients containing "fluoro"





# PFAS in Cookware and Exposure

- PFAS can transfer from cookware to food
- Multiple disposal pathways may lead to PFAS entering the environment:
  - Scratched cookware washed in sink = PFAS discharged into water
  - Disposed in a landfill = PFAS enter the leachate
- Primary methods of human exposure:
  - Direct consumption (food)
  - Breathing vapors from overheated cookware
  - Drinking water impacted from PFAS entering environment



Note: Higher temperatures and longer durations of time can lead to greater amounts of PFAS in food



# Be Skeptical!

#### **PFAS-Free Claims**

Some companies state that their products are "PFC-free" or "PFOA-free" or "PFOS-free", but such statements only cover some specific PFAS chemicals and they are likely still using different PFAS in their products. Even if a website states a product is PFAS-free that doesn't mean it is!



Although one particular PFAS chemical (PFOA) was banned in cookware in 2014, other PFAS including PTFE are still used



## What You Can Do:

# Use nonstick-free cookware

Such as stainless steel or cast-iron pots and pan





# Look for GreenScreen-certified products

Greenscreen
maintains a database
of its certified
products

# If using nonstick cookware, only use low to medium heat!

Lower heat and avoiding surface scratches helps reduce the likelihood of PFAS exposures and release into the environment





## PFAS in Textiles and Exposure

- Examples of textiles that may include PFAS:
  - Uniforms, tablecloths, napkins, upholstered chairs, booths & other furniture
- PFAS may enter the environment:
  - Washing textiles = PFAS discharged into wastewater
  - Disposed in a landfill = PFAS enter the leachate
- Primary methods of human exposure:
  - Drinking water impacted by wash water
  - Breathing in and consuming dusts from treated fabrics



Note: The potential health impact from wearing PFAS-containing clothing while sweating in the hot conditions common to foodservice kitchens is unclear and further research is required



## What You Can Do:

Choose wood furniture with cushions rather than upholstered furniture

Don't buy uniforms, tablecloths, napkins or other textiles labeled as water-, stain-, or oil-resistant

Consider replacing suspected textiles with untreated alternatives

Choose untreated natural fabrics such as cotton, hemp, or linen!

Avoid fabrics made of synthetic materials that contribute to other human health and environmental concerns such as microplastics



- Multiple disposal pathways may lead to PFAS entering the environment:
  - Wash water disposed of out the back door = direct discharge or PFAS into soil & eventually water
  - Wash water disposed of down the drain
     = PFAS discharged into septic system or wastewater treatment plant
  - Carpet disposed in a landfill = PFAS enter the leachate
- Primary methods of human exposure:
  - Drinking water impacted by wash water disposal
  - Breathing in and consuming dusts from treated carpets and rugs



## What You Can Do:

- 1. Consider wood or tile flooring
- 2. Opt for new carpet without water-, stain-, or oil-resistant properties
- 3. Frequently vacuum carpet containing PFAS with a HEPA-filter
- 4. Try to spot treat carpet/rugs rather than wash the entire area

- 5. Make sure the carpet cleaning product does not contain PFAS:
- Avoid products with "fluoro" in the listed ingredients
- 6. Never dispose of wash water from carpet cleaning out the back door
- 7. If on a septic system, collect and dispose of wash water at a wastewater treatment facility



# PFAS Exposure in Floor Stripping & Waxing

- Multiple disposal pathways may lead to PFAS entering the environment:
  - Wastewater disposed of out the back door = direct discharge of PFAS to soil & eventually water
  - Wastewater disposed of down the drain = PFAS discharged into septic system or wastewater treatment plant
- Primary methods of human exposure:
  - Drinking water impacted by wastewater disposal
  - Levels in air might be concerning for worker exposure



# PFAS in Floor Stripping, Washing & Waxing

### A NH DES Study at Four Schools (published in February 2024):

- PFAS found at high levels in wastewater from floor stripping at all four schools
- PFAS lower but still significant levels in the wastewater generated from routine floor cleaning
- Floor stripper and finish products were tested and found to contain high levels of PFAS
- Disposal of wastewater from floor stripping and finishing are likely to have contributed to the contamination of groundwater that the schools use for drinking water (all four schools are on septic)



## What You Can Do:

- 1. Avoid floor cleaning dry sweep as much as possible
- 2. To the extent feasible, clean floors with plain water
- 3. Make sure floor stripping, finishing & cleaning products do not contain PFAS:
- Avoid products with "fluoro" in the listed ingredients

- 4. Never dispose of wastewater from floor stripping & waxing out the back door
- 5. If on a septic system, collect and dispose of wastewater at a wastewater treatment facility

# PFAS in Food Service Guide





### PFAS in Food Service

**Promoting Alternatives** 

#### What Are PFAS?

Per- and Polyfluoroalkyl Substances (PFAS) are a large group of human-made chemicals known for their heat-stable, friction-reducing, and water- and stain-resistant properties. PFAS have been added to many industrial and consumer products since the 1940s and there are thousands of different PFAS chemicals in use today. PFAS are frequently called "forever chemicals" because they do not breakdown and build up over time in the environment, animals, and people.

PFAS are used in many categories of products that a food service facility might use:

- Food packaging such as takeout & other disposable containers
- Non-stick cookware

- Textiles such as uniforms, tablecloths, napkins, and upholstered furniture
- Carpets & cleaning
- · Floor cleaning, stripping & waxing

Each of these is discussed further in this quide.

Understanding which products are likely to contain PFAS and how to avoid buying them helps reduce worker and customer exposure and decreases the amount of PFAS entering the environment and drinking water supplies.



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## **USDA PFAS in Consumer Products Project**

 Focused on consumer products and the impacts of PFAS on waste streams

#### Purpose:

- Help people learn about PFAS in the environment and waste streams
- Show people how to avoid purchasing products containing PFAS



# **USDA PFAS in Consumer Products Project**



#### What we've completed so far:

**05** 

#### **Factsheets**

#### Covering:

- Why Care about PFAS
- Clothing & Other Textiles
- Personal Care Products
- Outdoor Recreation
- Foodware & Packaging

06

#### **Outreach Events**

#### Summer 2023:

- Tabled at two farmers markets each in ME & NH

#### In the NEK:

- Lyndonville Farmer
   Market
- Recycling Center

01

#### **Guide for Food Service**

A Guide that shows what items might contain PFAS & how establishments may contribute to human exposure & contamination of the environment



# Overview Factsheet: Why Should I Care?

#### **Key Takeaways:**

- Factsheet addresses exposure, health effects and potential environmental impact
- Children can experience heightened exposure to PFAS due to hand to mouth ingestion and close contact with carpeting/rugs causing inhalation of PFAS-containing dusts

#### What You Can Do:

 Check labels, read ingredients, and be aware that PFAS are considered proprietary ingredients and manufacturers often do not disclose their use



Want to limit PFAS exposure?
Reduce the number of PFAS-containing products you purchase!



# **Four Product Category Factsheets**



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All factsheets can be found at www.newmoa.org/projects/pfas-in-consumer-products/



# **Vermont Bans PFAS in Products**

Act 36 adopted in 2021 (taking effect in 2023):

- firefighting foam
- food packaging
- ski wax
- residential carpets and rugs, and their aftermarket stain or water-resistant treatments

New Bill signed by the Governor May 30, 2024:

Taking effect in 2026:

- Clothing
- Makeup
- Menstrual & incontinence products
- Non-stick cookware

In 2028: Synthetic Turf



# **Upcoming Project Activities**

Hands-on Technical Assistance at a School in NH or VT

Assistance to Purchase Non-PFAS Cleaning Products

If you would like to be considered for a free technical assistance visit and/or request assistance with purchasing, please contact Jennifer at jgriffith@newmoa.org

# "After" Poll Questions

Thank you for your cooperation!



# Thank you!

Any questions?

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