

A Slick New Guide to Avoiding PFAS (Forever Chemicals) in Products Using Massachusetts Statewide Contracts

by the Responsible Purchasing Network for MA Operational Services Division
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What are PFAS?

There is growing concern about the pervasive use of a class of highly persistent and toxic “forever chemicals” that are used to make products water-repellant, grease-resistant, and/or heat tolerant. PFAS have been found in a wide array of consumer and institutional products, including non-stick cookware, stain-resistant carpet and furniture, waterproof clothing, compostable food service ware, firefighting foam, refrigerants, artificial turf, building materials, and more.









Photo by EuChem

Scientifically speaking, PFAS stands for per- and poly-fluoroalkyl substances (PFAS). The class includes thousands of chemical compounds containing “at least one fully fluorinated carbon atom.” PFAS have come under intense scrutiny because they:

- Migrate into soil, air, and water during production, use, and disposal;
- Persist in the environment because they do not readily break down;
- Bioaccumulate in the food chain;
- Are universally detected in humans, fish, and wildlife; and
- Pose health risks at extremely low levels (some at parts per trillion).

Current peer-reviewed scientific studies cited by the [US Environmental Protection Agency](#) and many other authoritative bodies have linked PFAS to a growing list of serious health effects. For example, the [US Centers for Disease Control and Prevention \(CDC's Agency for Toxic Substances and Disease Registry \(ATSDR\)\)](#) has reported that exposure to high levels of certain PFAS may lead to the following adverse health effects in humans:

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|  | Increased cholesterol levels |  | Changes in liver enzymes |  | Small decreases in infant birth weights |
|  | Decreased vaccine response in children |  | Increased risk of high blood pressure or pre-eclampsia in pregnant women |  | Increased risk of kidney or testicular cancer |

How to Use this Guide

Since no one expects purchasing agents to be chemists, this guide has been created to make it easier for state agencies, local governments, and other users of Massachusetts’ contracts to spot products that are likely to contain PFAS and find safer replacements when purchasing products using Statewide Contracts (SWCs).

The first step purchasers may take is to avoid several types of PFAS that commonly show up in products. These include:

- Polytetrafluoroethylene (PTFE, CAS #9002-84-0), which is a highly durable, water-resistant fluoropolymer (fluorinated plastic) that is used to create non-stick cookware, waterproof fabrics, lubricants, plumbing tape, dental floss, and even cosmetics.
 - Teflon™ is a brand of PTFE that has been used to manufacture non-stick cookware and other products. Early formulations were manufactured from a long-chain PFAS called perfluorooctanoic acid (PFOA), which has been phased out of production by US manufacturers due to well-documented health impacts and persistence in the environment. However, the replacement shorter-chain PFAS currently used to make PTFE can also cause serious health effects.




- GORE-TEX® is a patented type of flexible waterproof fabric used to make rain jackets, boots, and other outdoor gear that is a variant of PTFE called expanded PTFE.
- Durable water repellants (DWRs) containing PFAS are often applied to outdoor clothing, footwear, PPE, carpeting, furniture, and vehicle upholstery to make them resistant to dirt, water, and other fluids. Over time, DWRs often need to be re-applied after they are washed off or degrade in sunlight.
- Fluorinated refrigerants such as Freon™ brand products, which are used in air conditioners, refrigerators, and freezers, are typically considered PFAS. These can be replaced in some existing equipment with fluorine-free refrigerants.








The table below identifies several types of products that may contain PFAS and recommends strategies purchasers may employ to find safer products in each category. This includes choosing products that have been certified by credible independent organizations to be PFAS-free (or contain very low concentrations of either fluorine or total organic fluorine, which indicates the products do not likely include “intentionally added” PFAS). This includes, but is not limited to:





- [Biodegradable Products Institute \(BPI\)](#)
- [Compost Manufacturing Alliance \(CMA\)](#)
- [Cradle to Cradle \(C2C\) Certified](#)
- [Declare Red List-Free](#)
- [ENERGY STAR certification registry](#)
- [Green Seal](#)
- [Greenhealth Approved](#)
- [GreenScreen for Safer Chemicals](#)
- [LEVEL e3 Furniture Sustainability Standard](#)
- [Oeko-Tex 100 Standard](#)
- [US EPA’s Safer Choice Program](#)







If no certification exists for a specific product category, it recommends strategies for avoiding certain types of PFAS-containing chemicals or materials, including using health product declarations (HPDs) or asking vendors to provide test results. The table also lists which Massachusetts Statewide Contracts offer these safer product options.




At the end of this guide is a list of PFAS-free purchasing resources designed to help readers gain a deeper understanding of ways to avoid products containing PFAS and replace them with safer alternatives.


| Products That May Contain PFAS | What to Ask Your Vendors | Massachusetts Statewide Contracts That Offer Safer Products |
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| Carpet Including carpet tile, broadloom carpet, and carpet padding | <p>Ask vendors for carpet products that are:</p> <ul style="list-style-type: none"> ● Greenhealth Approved, which meet Health Care Without Harm’s Healthy Carpet Guidance at the Silver level or higher.  ● Cradle to Cradle (C2C) Certified or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher).  ● Declare Red List-Free (preferably with the Living Product Challenge [LPC] verification of this claim).  <p>Also, avoid carpet that has been manufactured with PFAS-containing stain-resistant chemicals – and direct your carpet installers and cleaning companies not to treat your carpets with PFAS.</p> | <p>FAC98: Floor Coverings and Accessories; Floor Coverings Installation, Maintenance and Repair</p> <p>Vendor price sheets may list each product line’s third-party certifications, disclosed chemicals and ingredients, and note if product lines have an Environmental Product Declaration (EPD) or Health Product Declaration (HPD), which may disclose whether the product has PFAS.</p> <p>An HPD is a document that provides a full disclosure of the potential chemicals of concern in a product.</p> <p>An EPD is a document that communicates what a product is made of and how it impacts the environment across its entire lifecycle.</p> |

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| Cleaning Chemicals , such as cleaners and degreasers for appliances, carpet and floors, counters and other surfaces, glass, restrooms, toilet bowls, and vehicles, as well as furniture and metal polish | <p>Ask vendors for cleaning products that are certified by:</p> <ul style="list-style-type: none"> Green Seal, which eliminated all cleaning and personal care products with PFAS from its certified directory in 2022; or US EPA's Safer Choice Program, which never allowed PFAS as ingredients in its certified products, except for floor finishes. In addition, PFAS are no longer eligible for use in any Safer Choice-certified products. <p><i>Note: UL is in the process of updating its ECOLOGO standard for cleaning chemicals and may prohibit PFAS in its certified cleaners when it does so.</i></p>   | <p>FAC118: Environmentally Preferable Cleaning Products, Programs, Equipment and Services</p> <p>Most non-disinfecting cleaning chemicals on this contract have one of these two certifications.</p> <p>FAC114: Environmentally Preferable Janitorial Services</p> |
| Compostable Food Service Ware PFAS are most often found in molded fiber plates, bowls, trays, clamshells, and portion cups, as well as non-plastic deli wraps and bags. | <p>Ask vendors for (or check registries to find) disposable food service ware products that are certified by:</p> <ul style="list-style-type: none"> Biodegradable Products Institute (BPI); Compost Manufacturing Alliance (CMA); or GreenScreen for Safer Chemicals <p>Compostable food service ware that are certified by BPI or CMA are tested to confirm they contain less than 100 parts per million (ppm) fluorine, which is designed to ensure they do not contain intentionally-added PFAS.</p>    | <p>GRO40: Food Service Supplies and Equipment</p> <p>Compostable food service ware items offered on this contract must be certified by BPI or CMA, which do not allow intentionally added PFAS in products they certify.</p> |
| Construction Materials PFAS have been found in many types of construction materials such as ceiling tiles, insulation, and wallboard. | <p>Ask vendors for building materials that are:</p> <ul style="list-style-type: none"> Cradle to Cradle (C2C) Certified or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher). Declare Red List-Free (preferably with the Living Product Challenge [LPC] verification of this claim). <p>Similarly, ask construction contractors to use products with these certifications whenever they are available or to confirm that the construction materials contain <100 ppm total organic fluorine, which means they are safer because they contain little-to-no PFAS. Also, if you need plumbing thread-sealant tape or electrical tape, avoid products that contain PTFE whenever possible.</p>   | <p>FAC100: Building Maintenance Repair and Operations</p> <p>FAC101: Facilities Maintenance, Repair & Operations (MRO) Industrial Supplies</p> <p>FAC119: Maintenance Repair and Operations Retail Products & Supplies</p> |

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| Cookware Such as non-stick frying pots, pans, baking sheets, waffle irons, air fryers, etc. | <p>Avoid cookware containing any type of PFAS, not just Teflon™, which is a proprietary PFAS coating made of PTFE that is used to create a non-stick surface on frying pans and other cookware.</p> <p>Teflon originally contained PFOA, a long-chain PFAS linked to several health risks such as chronic kidney disease, liver disease, thyroid disorders, testicular cancers, low birth weight, and infertility. Some imported non-stick cookware may contain PFOA, and products labeled PFOA-free may have replaced it with other types of PFAS such as PTFE, which may create toxic fumes if overheated.</p> <p>If non-stick cookware is needed, ask vendors for products on PFAS Central's list of <i>PFAS-free Products</i>; see https://pfascentral.org/pfas-free-products/. Alternatively, consider other types of cookware, such as stainless steel, ceramic, and cast iron.</p> | <u>GRO40: Food Service Supplies and Equipment</u> |
| Firefighting Foam (Class A and B) This includes aqueous film-forming foams (AFFFs) used in training and emergency response. | <p>Ask vendors for firefighting foam products that are listed on the  <u>GreenScreen Certified Products Registry</u>. "The <u>Expanded GreenScreen Certified Standard for Firefighting Foam</u> prohibits PFAS and reduces the chemical footprint of both Class A and Class B firefighting foam products."</p> <p>Use the state's <u>takeback program</u> to safely manage stockpiles of legacy Aqueous Film Forming Foam (AFFF) in order to prevent PFAS from being released into the environment.</p> | <u>PSE01: Public Safety Equipment and Supplies</u> GreenScreen-certified firefighting foams, which have been tested to be free of both PFAS and other chemicals with high health and environmental concerns, are offered on this contract and comply with <u>MA Department of Fire Services guidance</u> . |
| Flooring | <p>Ask vendors for flooring products that are:</p> <ul style="list-style-type: none"> • <u>Greenhealth Approved</u>, which meet <u>Healthcare Without Harm's Healthy Flooring Guidance</u> at the Silver level or higher.  • <u>Cradle to Cradle (C2C) Certified</u> or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher).  • <u>Declare Red List-Free</u> (preferably with the Living Product Challenge [LPC] verification of this claim).  <p>Avoid purchasing flooring products that claim to be waterproof. In addition, avoid product that require floor polish and/or sealants (e.g., vinyl composite tile [VCT]) as these floor maintenance chemicals may contain PFAS.</p> | <u>FAC98: Floor Coverings and Accessories, Floor Coverings Installation, Maintenance and Repair</u> Vendor price sheets may list each product line's third-party certifications, disclosed chemicals and ingredients, and note if product lines have an Environmental Product Declaration (EPD) or Health Product Declaration (HPD), which may disclose whether the product has PFAS. |

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| Furniture Especially products with upholstery such as chairs and couches | Ask vendors for furniture products that are: <ul style="list-style-type: none"> • Certified under the Business and Institutional Furniture Manufacturers Association (BIFMA) LEVEL e3 Furniture Sustainability Standard and specifically have earned credit 7.4.4 (Targeted Chemical Elimination), which confirms they are free of PFAS as well as vinyl, flame retardants, antimicrobials, and formaldehyde. While the BIFMA LEVEL registry does not enable users to search by credit, each LEVEL certificate lists the credits the product has earned. Ask vendors for a list of (or static links to) their compliant products.  • Cradle to Cradle (C2C) Certified or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher).  • Declare Red List-Free (preferably with the Living Product Challenge [LPC] verification of this claim).  | OFF38: Office, School and Library Furniture, Accessories and Installation The Operational Services Division's Environmentally Preferable Products Procurement (EPP) Program worked with existing vendors to identify environmentally preferable "lines" of furniture on Statewide Contract OFF38 that have reduced indoor air quality emissions and toxicity. This includes furniture that is free of per- and poly-fluorinated chemicals used as stain/water/oil resistant treatments. |
| Hand Soaps Including foam and lotion products | Ask vendors for hand soaps that are: <ul style="list-style-type: none"> • Certified by Green Seal, which eliminated all cleaning and personal care products (including hand soaps) with PFAS from its certified directory in 2022.  • Certified by US EPA's Safer Choice Program, which never allowed PFAS as ingredients in its certified hand soap products.  • Cradle to Cradle (C2C) Certified or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher).  | FAC118: Environmentally Preferable Cleaning Products, Programs, Equipment and Services Most hand soaps on this contract have one of these certifications. Hand soaps are offered on several other MA Facility Maintenance SWCs, such as FAC100 , FAC101 , and FAC119 . DESE K-12 Health Safety Supply/PPE Program OFF47: Office Supplies, Recycled Paper and Envelopes |
| Keyboard Cleaners Canned "air" dusters | Ask vendors for mechanical (non-chemical) keyboard cleaners, such as mini-vacuums and brushes instead of compressed "air" dusters, which do not actually contain air (e.g., oxygen or nitrogen). Instead, most air dusters contain hydrofluorocarbons (HFCs) that contribute to global warming. At least one HFC compound found in some air dusters – 1,1,1,2-tetrafluoroethane (also called R134a) is considered PFAS. | OFF47: Office Supplies, Recycled Paper and Envelopes |

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| Lubricants Used for equipment, machine, and vehicle maintenance | Avoid lubricants (e.g., oils and greases) that contain polytetrafluoroethylene (PTFE) or other PFAS, especially for general purpose applications where it is not needed for technical performance. | <u>FAC100: Building Maintenance Repair and Operations</u> <u>FAC119: Maintenance Repair and Operations Retail Products & Supplies</u> <u>VEH114: Automotive Parts, Paint, Lubricants, and Other Fluids</u> |
| Paints, Primers, and Coatings Especially waterproofing sealants and other types of exterior coatings | <p>Ask vendors for paints, sealants, and other types of coatings that are:</p> <ul style="list-style-type: none"> • <u>Cradle to Cradle (C2C) Certified</u> or have a C2C Material Health Certificate (including all products under V4.0 and products under V3.1 at the Gold level or higher).  • <u>Declare Red List-Free</u> (preferably with the Living Product Challenge [LPC] verification of this claim).  <p>Check with vendors to make sure all products – especially those with a waterproofing claim – do not contain PFAS (i.e., they have been tested and found to have <100 ppm total organic fluorine).</p> | <u>FAC100: Building Maintenance Repair and Operations</u> <u>FAC101: Facilities Maintenance, Repair & Operations (MRO) Industrial Supplies</u> <u>FAC119: Maintenance Repair and Operations Retail Products & Supplies</u> |
| PPE Including face masks, gowns, slippers, etc. | Ask vendors for N95 face masks and other types of personal protective equipment (PPE) that are free of PTFE and has not been treated with a durable water repellant (DWR). | <u>DESE K-12: Health Safety Supply/PPE Program</u> <u>PSE01: Public Safety Equipment and Supplies</u> <u>HSP45 Laboratory Supplies and Equipment</u> <u>FAC118: Environmentally Preferable Cleaning Supplies</u> No products offered on this contract may contain PFAS. PPE also is offered on several MA Facility Maintenance SWCs, such as <u>FAC100</u> , <u>FAC101</u> , and <u>FAC119</u> . |
| Refrigerators, Freezers, and Ice Makers - Commercial | <p>Ask vendors for commercial <u>refrigerators</u>, <u>freezers</u>, and <u>ice makers</u> that are on the <u>ENERGY STAR certification registry</u> and use a refrigerant with a lower impact on global warming, such as R600a (iso-butane) or R290 (propane). Many commercial refrigerators and freezers still use hydrofluorocarbon refrigerants such as 1,1,1,2-tetrafluoroethane (also called HFC 134a or Freon 134a) that not only contribute significantly to climate change, but are also considered PFAS. Increasingly, some <i>existing</i> refrigerators and freezers can transition to PFAS-free refrigerants.</p>  | <u>GRO40: Foodservice Supplies and Equipment, Institutional Commercial Grade Large and Small</u> This contract offers commercial refrigerators, freezers, and ice makers that are certified by the EPA's ENERGY STAR program. |

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| Synthetic Turf/ Artificial Turf Carpet | Specify native plants, rather than artificial turf for athletic fields and other landscaping projects. If artificial turf is needed, ask vendors to provide you with test results showing their product has <100 ppm total organic fluorine. | <u>FAC104: Landscaping Products, Parks and Recreation Equipment</u> |
| Textiles/Clothing Such as clothing, foot ware, towels, linens, etc. | <p>Ask vendors for clothing, bedding, and other textile products that are certified under the <u>Oeko-Tex 100 Standard</u>, which restricts PFAS in textile products, such as bedding and linens. Also, point vendors to outdoor gear, apparel, shoes, and textiles on PFAS Central's list of <i>PFAS-free Products</i>; see <u>https://pfascentral.org/pfas-free-products/</u>.</p> <p>In addition, avoid textiles that are treated with a durable water repellant (DWR).</p>  | <p><u>CLT08: Clothing, Footwear, Uniforms, Accessories, Personal Care Products, and Bedding</u></p> <p><u>PSE01: Public Safety Equipment and Supplies</u></p> |

Additional Resources

General Guidance on PFAS-Free Purchasing

- [How EPA's Recommended Standards and Ecolabels Address Per- and Polyfluoroalkyl Substances](#), US Environmental Protection Agency, August 2022
- [PFAS-Free Products](#), PFAS Central (a project of Green Science Policy)
- [PFAS-Free Purchasing](#), Ecology Center and Safer States, June 2022

Health and Environmental Hazards of PFAS

- ["Forever Chemicals" Called PFAS Show Up in Your Food, Clothes and Home](#), Natural Resources Defense Council (NRDC), April 6, 2022
- [Our Current Understanding of the Human Health and Environmental Risks of PFAS](#), US Environmental Protection Agency, March 16, 2023
- [Per- and Polyfluorinated Substances \(PFAS\) Fact Sheet](#), US Centers for Disease Control and Prevention, May 2, 2022
- [Statement on Potential Intersection Between PFAS Exposure and COVID-19](#), Agency for Toxic Substances and Disease Registry (ATSDR), US Centers for Disease Control and Prevention, November 1, 2022

PFAS in Cookware and Disposable Food Service Ware

- [Avoiding Hidden Hazards: A Purchaser's Guide to Safer Foodware](#), Center for Environmental Health, January 2018
- [You Can't Always Trust Claims on 'Non-Toxic' Cookware](#), Consumer Reports, October 26, 2022

PFAS in Firefighting Foam

- [PFAS and Firefighting Foam](#), Massachusetts Department of Fire Services, accessed March 31, 2023

PFAS in Furniture

- [Approved Products: Who Has the Seal, Greenhealth Approved](#)
- [Technical Specifications for Chemically Safer Commercial Furniture and Fabrics](#), Center for Environmental Health, March 2022

PFAS in Synthetic/Artificial Turf

- [Athletic Playing Fields: Selecting Safer Alternatives](#), Massachusetts Toxics Use Reduction Institute (TURI), 2023
- [Per- and Polyfluoroalkyl Substances \(PFAS\) in Artificial Turf Carpet](#), MA TURI, February 2020