



Since the 1940s, manufacturers have relied upon a class of man-made toxic chemicals that is resistant to heat, water, stains, grease, oil and friction. PFAS, or Per- and Polyfluoroalkyl Substances, have provided consumers with popular products such as nonstick cookware, stain-resistant furniture, and water-repellent clothing. Teflon, Scotchgard, Stainmaster, and Gore-Tex are just a few examples of brand names containing PFAS. The manufacture and use of PFAS in consumer products and firefighting foam are so widespread that [99% of Americans have PFAS in their blood today](#).

There are now [more than 9,000 PFAS chemical compounds](#) in existence. As research has advanced about their toxicity, concerns have been amplified by their longevity. PFAS are known as “the forever chemicals” because they don’t break down over time and they accumulate in the environment and in the human body. They pose serious health risks to people, including reproductive and developmental issues, reduced response to vaccines, elevated cholesterol and cancers. The two most studied PFAS are PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonate); drinking water standards are often based on these two PFAS.

## HOW ARE WE EXPOSED TO PFAS CHEMICALS?

1 DRINKING CONTAMINATED WATER	
<b>200 million</b> →	Estimated <a href="#">number of Americans</a> having PFAS-contaminated drinking water.  If your water comes from a public water supply, visit the Environmental Working Group’s <a href="#">Tap Water Database</a> . To decrease the PFAS in your home, experts recommend activated carbon filters or a reverse osmosis system. <a href="#">Research</a> has found activated carbon filters may be the less effective option.
<b>70 ppt*</b> →	EPA’s <a href="#">“health advisory level”</a> for public water supplies for PFOS and PFOA combined.  There are no enforceable federal standards at this time. States are free to establish their own standards. Federal military bases (sources of contamination from firefighting foam) are exempt from state laws.
<b>5 ppt/10 ppt</b> →	<a href="#">Standards supported</a> for any single PFAS compound (5 ppt) or more than one compound (10 ppt) by International Bottled Water Association.  A <a href="#">study</a> of bottled water showed many brands had measurable amounts of PFAS.
<b>1 ppt</b> →	<a href="#">Standard supported</a> by Environmental Working Group for drinking water.  Based in part on <a href="#">research</a> examining vaccine responses in children which concluded drinking water limits should be decreased substantially.
<b>7</b> →	<a href="#">Number of states</a> with enforceable drinking water standards (MA, MI, NH, NJ, NY, VT and ME).  Michigan, for example, <a href="#">established drinking water standards</a> for PFOA at 8 ppt and for PFOS at 16 ppt.
2 EATING FISH CAUGHT FROM WATER CONTAMINATED BY PFAS	
Before you eat fish caught in a local lake or stream, check your state’s website for information on fish advisories.	In Wisconsin, the DNR and DHS publish a booklet called <a href="#">“Choose Wisely.”</a> In Minnesota, visit the <a href="#">MDH website</a> .
3 EATING FOOD PACKAGED IN MATERIAL CONTAINING PFAS	
Food packaging containing PFAS can be found at the grocery store, in restaurants and in fast food wrappers and pizza delivery boxes. Microwave popcorn bags are often made with PFAS.	The Environmental Working Group <a href="#">analyzed fast food packaging</a> collected in 2014-15. <a href="#">Compostable molded fiber bowls</a> used in restaurants may also contain PFAS.
4 USING PFAS-CONTAINING CONSUMER PRODUCTS	
<b>PFAS can be found in:</b> clothing, furniture, carpet, ski wax, fabric softener, nonstick cookware, polishes, paint, pesticides, windshield wipers, adhesives, medical products, cleaning products, dental floss, sunscreen, toothpaste, <a href="#">cosmetics</a> , shampoo and conditioner.	<a href="#">Skin Deep</a> – cosmetics and personal care products without PFAS. <a href="#">PFAS-Free Products</a> – links to outdoor gear, apparel, shoes, furniture, cookware, carpets, textiles and more that are PFAS-free. <a href="#">Detox Me app</a> – Silent Spring’s app provides tips on how to reduce exposure to toxic chemicals.
5 BREATHING PFAS-CONTAMINATED DUST	
Walking on carpet containing PFAS or wearing PFAS-treated clothing causes PFAS to become airborne and settle in dust which we may breathe.	
6 EATING FOOD GROWN IN PFAS-CONTAMINATED SOIL	
<a href="#">Research</a> in Minnesota found that the use of contaminated water in home gardens led to contamination of the soil and plants. <a href="#">Dairy cows</a> can concentrate PFAS in their milk upon eating plants grown in fields where contaminated sludge has been spread. PFAS have also been detected in <a href="#">rainwater</a> collected in the Midwest.	

\*ppt = parts per trillion

## GLOBAL AWARENESS

- The European Union (EU) has uniform requirements (under the EU Drinking Water Directive and the EU Persistent Organic Pollutants (POPs) Regulation), as well as local standards in several member states. Denmark, Germany, Sweden and the Netherlands have laid out a [plan](#) to phase out almost all PFAS use in the EU by 2030, stating that regulating “individual substances...will take too long to effectively manage the risk from these substances.”
- EU [Drinking Water Directive](#) (effective January 2021): a limit of 100 ppt for the **sum of 20** named PFAS chemicals; a limit of 500 ppt for **all PFAS**. This is in line with a grouping approach for all PFAS.
- EU [Persistent Organic Pollutants \(POPs\) Regulation](#): PFOS has been prohibited for more than 10 years; PFOA has been prohibited since June 2020.

## STATE OF THE STATES

### ILLINOIS

- **Enforceable drinking water standards** – none adopted.
- **Health advisories** – [Issued by Illinois EPA](#): PFOS (14 ppt), PFOA (2 ppt), PFHxS (140 ppt), PFBS (2,100 ppt), PFHxA (560,000 ppt), PFNA (21 ppt), and HFPO-DA (560 ppt).
- **Community water testing** – currently [testing](#) 1,749 community water supplies to help develop drinking water standards. As of July 2021, [more than 100](#) drinking water systems tested positive for PFAS.
- **Food packaging laws** – none adopted.
- **PFAS legislation** – June 2021: 2 bills were sent to the governor for his signature, banning [PFAS-containing firefighting foam with exceptions](#) and the [incineration of PFAS](#).
- **PFAS contamination sites** – [11 sites](#) have been identified.
- [Illinois EPA](#) and [Illinois Environmental Council](#) websites provide information and PFAS advisory notifications.

### IOWA

- **Enforceable drinking water standards** – none adopted.
- **Health advisories** – uses the [EPA health advisory level](#) (drinking water – PFOA and PFOS: 70 ppt each or combined).
- **Community water testing** – [58 public water supply systems](#) were tested in 2013-15 as part of the EPA’s [UCMR 3](#) testing.
- **Food packaging laws** – legislation pending: [SF 19](#); [HF 293](#).
- **PFAS legislation** – legislation pending regarding establishing drinking water standards, testing public water supplies, consumer products, firefighting foam/equipment: [SF 22](#); [HF 293](#).
- **PFAS contamination sites** – The DNR has identified more than 1,100 contamination sites that may have PFAS. As of July 2021, there were [plans to test](#) 53 of those sites for PFAS.
- Has a loan program for implementing treatment systems, and grant funding to pay for private well water analysis.

### MINNESOTA

- **Enforceable drinking water standards** – none adopted.
- **Health guidance values** – [Issued by MDH](#): PFOS, 15 ppt; PFOA, 35 ppt; PFHxS, 47 ppt; PFBS, 2,000 ppt; and, PFBA, 7,000 ppt; [PFHxA](#) under review. Uses a grouping [approach](#) to assess risk.
- **Community water testing** – MDH has a [goal](#) of sampling all community water systems (CWS); aims to reach 90% of CWS customers by 2025.
- **Food packaging laws** – In 2021, [legislation](#) was passed prohibiting manufacturing or knowingly selling/distributing food packaging that contains intentionally-added PFAS as of 2024.
- **PFAS legislation** – 2021 [legislation](#) funded efforts to continue PFAS biomonitoring and to identify sources and source reduction strategies for PFAS entering the environment; 2019 [legislation](#) banned the use of PFAS-containing firefighting foam with exceptions.
- **PFAS contamination sites** – [more than 150 square miles](#) of the East Twin Cities Metropolitan area; landfills and wastewater treatment facilities [statewide](#).

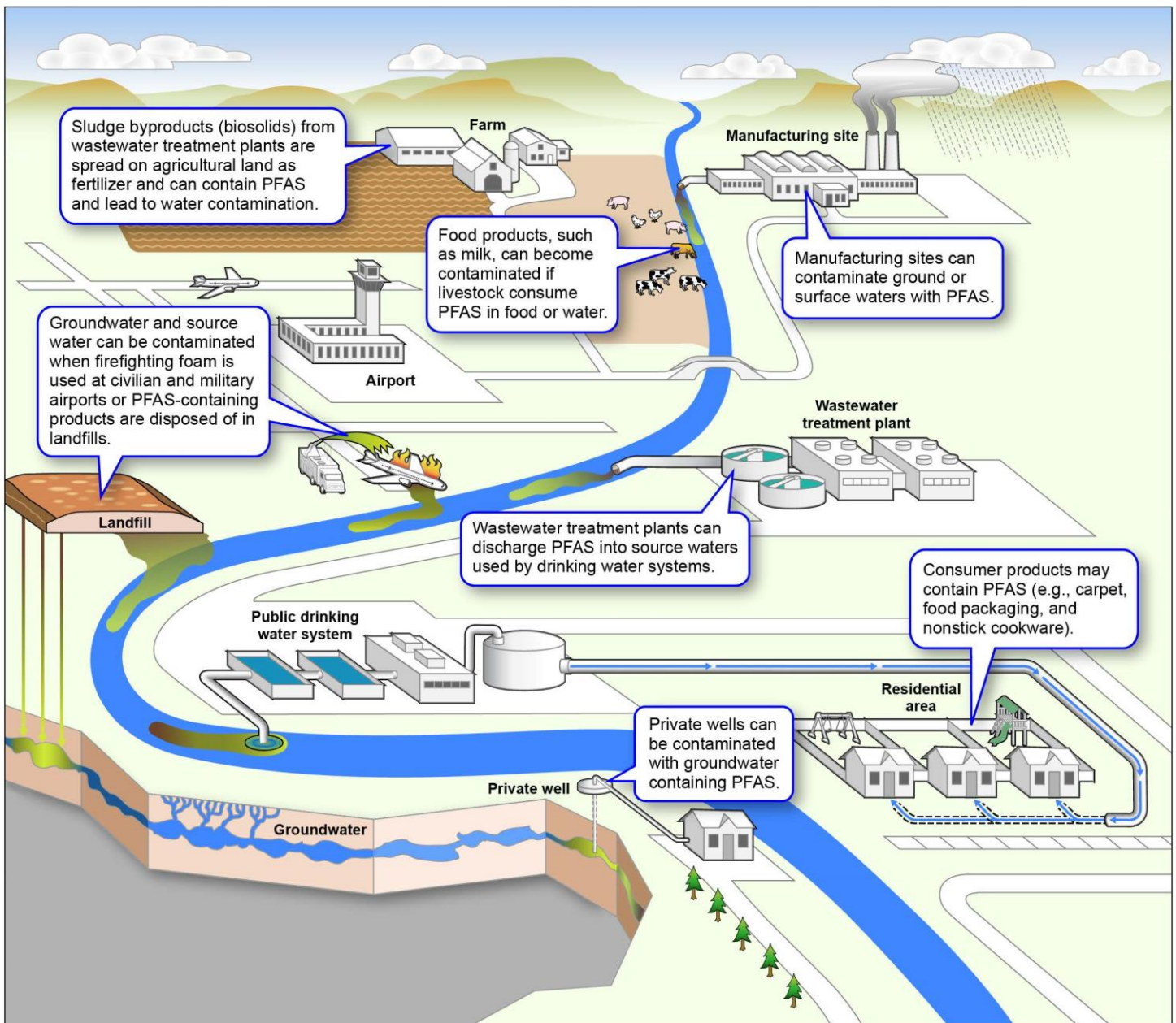
### WISCONSIN

- **Enforceable drinking water standards** – none adopted.
- **Recommended standards** – [DHS recommends](#): groundwater/ drinking water standard of 20 ppt for the sum of PFOA, PFOS and 4 precursors, in addition to standards for 12 more PFAS chemicals; DNR is in the rule-making process for these standards, and for surface water standards for PFOA and PFOS.
- **Community water testing** – The DNR [has sampled](#) 91 municipal water systems; 5 exceed the state's recommended standard of 20 ppt.
- **Food packaging laws** – legislation pending: [SB 361](#); [AB 419](#).
- **PFAS legislation** – 2020 [legislation](#) banned the use of PFAS-containing firefighting foam with exceptions, effective 9/1/20. The 2021-23 state [budget](#) provided \$1 million for the DNR to collect/dispose of PFAS-containing firefighting foam. Legislation pending: [SB 361](#); [AB 419](#).
- **PFAS contamination sites** – [More than 50 sites](#) are being investigated.
- Residents have been advised to use [state-certified labs](#) to confirm PFAS levels in their drinking water.

## HOW TO REDUCE YOUR EXPOSURE TO PFAS CHEMICALS

- Cut back on fast food packaging; pop popcorn the old-fashioned way (avoid microwaveable popcorn bags).
- Choose clothing that doesn’t have Gore-Tex, Polartec or Teflon tags; avoid fabrics labeled stain or water repellent.
- Purchase products that haven’t been pre-treated; skip optional stain repellent treatment on carpets and furniture, including Stainmaster and Scotchgard.
- Avoid nonstick pans and kitchen utensils; choose stainless steel or cast iron instead.
- Buy personal care products without “fluoro” or “PTFE” ingredients. Oral B Glide floss, made with a Gore-Tex fiber, contains PTFE.
- Choose organic foods when possible. Sewage sludge is often spread on crop lands as fertilizer, and the sludge can be contaminated with PFAS; however, sewage sludge can’t be used on fields to grow organic produce.

The U.S. Government Accountability Office created the following infographic to help illustrate how PFAS can enter the environment and water (<https://www.gao.gov/products/gao-21-37>):



Source: GAO. | GAO-21-37