



PFAS desktop screening tool

Background

By eliminating or reducing PFAS use in your operations, you can help keep toxic chemicals out of our environment, lower potential treatment costs, and prepare for Minnesota's upcoming PFAS bans.

By January 1, 2024, food packaging products containing intentionally added PFAS cannot be sold or distributed in Minnesota. The Minnesota Pollution Control Agency (MPCA) is also beginning work to implement Amara's Law, Minnesota's new law that bans nonessential uses of PFAS. By January 1, 2025, many categories of consumer products with intentionally added PFAS will be prohibited for sale or distribution. By January 1, 2026, reporting will be required for all products containing intentionally added PFAS. **By 2032, all uses of PFAS that are not "currently unavoidable" will be prohibited.**

PFAS chemicals are associated with adverse health effects. Their normal, everyday use in consumer and industrial products means that they end up in waste streams directed to wastewater treatment plants (WWTPs) and solid waste facilities. The MPCA refers to these facilities as "conduits" because they don't produce or generate waste containing PFAS but can become pathways for releases to the environment. PFAS entering WWTPs and solid waste facilities are difficult to treat and contribute to treatment and disposal costs, which are often passed on to consumers through higher rates and fees.

This desktop screening tool may help you identify sources of PFAS and develop a source reduction plan. It is intended for use as an educational and awareness tool. The survey should take no longer than 10 to 15 minutes to complete. There are four steps to this self-evaluation, and at the end, you will be provided with an estimate of your business's risk for PFAS based on a broad scale from low to high risk.

PFAS have been used in commerce for more than 70 years, and many commonly used products contain PFAS. Many industries do not have a clear understanding of which products contain them because they often appear at levels below regulatory reporting requirements or are trade secrets.

In addition to reducing PFAS in waste streams, it is a good idea for industry to understand potential source(s) of PFAS in their operations to:

- Prepare for the upcoming PFAS product ban in Minnesota
 - Manage costs associated with disposal and potential pre-treatment
 - Proactively evaluate how changes in processes using PFAS products could affect the cost of operations
 - Evaluate elimination of PFAS-containing products that are non-essential to operations or the final product
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Instructions

The screening tool is a quick and easy four-step process that anyone can use. It is designed to help you assess whether your activities could unintentionally result in disposal or discharge of PFAS. When you're done, you have the option to further evaluate specific PFAS-containing products within your facilities.

The four-step process is outlined below:

Step 1 is a simple check of the industry or activity. Even if you do not meet any of the listed industries, move on to Step 2.

Step 2 is a search of your North American Industry Classification System (NAICS) code(s). If you have more than one, check each box before moving on to the next step. Step 1 and Step 2 may seem similar; however, Step 1 covers broad industry categories, whereas Step 2 covers additional activities not listed as an industry. If you have no industry codes or your codes are unknown, move on to Step 3.

Step 3 is a questionnaire. Check the boxes for any of the situations that apply to you. Filling in additional details is up to the user and is not factored into the score.

Step 4 allows the user to review their PFAS risk ranking.

After completion of Steps 1 through 4, users can complete an advanced search for PFAS. An advanced search tutorial is included at the end of the survey, beginning on page 14. This option involves searching for PFAS in safety data sheets (SDS) or product specification sheets.

Let's get started!

Step 1: Check the box next to the applicable industry or activity, if listed

INDUSTRIES/ACTIVITIES ASSOCIATED WITH PFAS (Consider for Current and Historical Property Use)		
INDUSTRY/ACTIVITY		POTENTIAL SOURCES
☐	Adhesives	PFAS can be used in solvent and water-based adhesives. These may include fluorinated ethylene propylene (FEP). Brands include Zonyl FSN-100, FSO-100, FSA, FSP, and FSN.
☐	Agricultural Industry	Agricultural land may have been treated with PFAS-containing municipal biosolids or industrial sludge. Some historic and currently used pesticides contain PFAS as well.
☐	Airports/Harbors	Possible PFAS sources include use of Class B firefighting foam, aviation hydraulic fluid, aircraft cleaning, painting, AFFF training, and suppression system calibration and testing.
☐	Antifogging	PFAS can be used in antifogging agents intended for humid environments, vehicle windshields, eyeglasses, goggles, or other eye safety PPE. Examples include TS-403 (China Fluoro technology co) and SUNMORL FN-Series (NICCA).
☐	Aqueous Film Forming Foam (AFFF) Manufacturing and use for chemical manufacturing/distribution, petroleum industry, airports, military bases, or harbors	Class B firefighting foams are used in the following situations: • To extinguish non-polar (hydrocarbon) solvent fires • In some fire-extinguishing wetting agents • At airports, railyards, oil refineries, petrochemical facilities, and other locations • Discharged during National Fire Protection Association (NFPA) Fire Suppressant Systems testing • Note: AFFFs are not used in class A firefighting foam for forest fires or residential fires and are not typically used at retail service stations
		AFFFs may also be alcohol resistant (AR). These AFFFs are used to extinguish flammable liquids, including fires containing hydrocarbons and/or polar (alcohol) solvents, including those listed below: • Alcohols (methanol, ethanol, and isopropanol) • Ketones and aldehyde (acetone and acetaldehyde) • Esters (ethyl acetate) • Ethers (diethyl ether, methyl tert-butyl ether, and tetrahydrofuran) • Glycols, a mixture of alcohol and ether (momo ethylene glycol, butoxyethanol, and butylcarbitol) • Amines (trimethylamine) • Acids (acetic acid and propionic acid)

Step 1: Check the box next to the applicable industry or activity, if listed

INDUSTRY/ACTIVITY		POTENTIAL SOURCES
☐	Aqueous Film Forming Foam (AFFF), continued	AFFFs are used at airports, chemical manufacturing sites and in manufacturing industries that use these chemicals for accidents, testing, and training. AFFF examples include, but are not limited to: • FC-500F Light Water ATC AR AFFF 3 or 6 % (3M) • FC601AFP 1 or 3% AR-AFFF (Thunderstorm) • Fluoroprotein AR-AFFF (Chemguard) • ANSULITE 3% AFFF FP AFC3B-FP29 (ANSUL) • Arctic 3% AFFF and DB AFFF foam (Solberg) • WC2 – Also F-601B (Tyco)
☐	Cement Additives	PFAS can be used as an additive to cement to increase weather resistance and prevent shrinkage. They are also used in primer for coating cement mortar.
☐	Cosmetics and Personal Care	PFAS may be used in the cosmetics and personal care industry as emulsifiers, lubricants, or oleophobic agents. They can also be used in hair conditioning formulas and hair creams, and in foundation, moisturizer, eyeshadow, powder, lipstick, and shaving cream.
☐	Electronics Industry	PFAS can be used in the electronics industry in printed circuit boards, electroluminescent lamps and capacitors for use in cameras, cell phones, printers, touchscreens, scanners, satellite communication systems, radar systems, and more. They can also be used in fluorocarbon gases used for etching and chamber cleaning, including liquid crystal displays (LCDs), photovoltaic cells (PV), and semiconductors (including light-emitting diodes). PFAS can be used as lubrication on magnetic recording devices and within insulation of wiring. Perfluoropolyether (PFPE) is used as a heat transfer fluid. Wiring may include FEP. One example is wire manufacturing pulling lubricants (KrisTech). In the past, PFOA has been used in wire manufacturing.
☐	Etching	PFAS can be used as wetting agents in etch baths. Examples include but are not limited to: • Zonyl FSN (Dupont) • FC series and FS Series (Tyco-Chemguard)
☐	Fire Training Facilities	Many fire training facilities use AFFFs that contain PFAS.
☐	Food Packaging	PFAS are sometimes used as non-stick chemicals for fast food wrappers, bags, liners, takeout containers, food trays, straws, pizza boxes, and other food packaging products. Note that as of January 1, 2024, PFAS use in food packaging will be prohibited in Minnesota. However, PFAS used historically at food packaging manufacturing sites may be ongoing sources of PFAS release.

Step 1: Check the box next to the applicable industry or activity, if listed

INDUSTRY/ACTIVITY	POTENTIAL SOURCES
☐ Industrial and Household Cleaning Products	Potential PFAS sources include: • Electrical contact parts cleaners, including keyboard cleaners and computer cleaners • Floor strippers, cleaners and polishes, carpet cleaners, shampoos, and dishwasher liquids • Car washing products and waxes • Concrete, metal, and masonry cleaners • Metal plating machine cleaner • Dry-cleaning solvents Brands for these cleaning products include, but are not limited to Novec (3M), Polyfox (OMNOVA Solutions), and Valclene® (DuPont).
☐ Landfills	PFAS can be deposited in municipal and industrial landfills and discharged as leachate.
☐ Medical Uses	PFAS can be used within endoscopes, as dispersants in radio-opaque ethylene tetrafluoroethylene (ETFE) production, in compatibility enhancement, and in cell dispersion used to diagnose cell abnormalities. Importantly, PFAS are often used in medical personal protective equipment (PPE). Surgical masks and gowns are frequently coated with PFAS to impart repellency to fluids, and antifogging agents are frequently used on medical goggles in hospitals.
☐ Metal Plating	Possible PFAS sources include chrome, tin, and copper plating, as well as nickel-boron layering. PFAS are also used in corrosion and mechanical wear prevention and mist suppression, including, but not limited to Fluorotenside-248, SurTec 960, and Fumetrol. For more information, see “PFAS in the metal plating and finishing industry”: https://www.pca.state.mn.us/sites/default/files/gp3-05.pdf.
☐ Military Bases and Airfields	Possible PFAS sources include AFFF fire-fighting training, fires, aircraft and equipment cleaning, and painting.
☐ Mining Industry	PFAS can be used as surfactants to enhance recovery of metals from copper and gold mines. They can also be used in the ore flotation process of aluminum, vanadium, and uranium.
☐ Nuclear Power	Parts, coatings, and seals may contain fluoropolymers such as ETFE or polyvinylidene fluoride (PVDF) for radiation resistance.
☐ Oil and Gas Exploration and Production Drilling	PFAS can be used in drilling fluids to help prevent drilling fluid loss, reduce friction while drilling, increase extraction efficiency during fraction, and other applications.
☐ Oil Industry	Refineries and terminals have a history of possible AFFF fire suppressant use. PFAS can be used to enhance recovery in production wells. In addition, the United Nations has reported fluorochemistry use as an evaporation inhibitor to store fuels and oils.

Step 1: Check the box next to the applicable industry or activity, if listed

INDUSTRY/ACTIVITY		POTENTIAL SOURCES
☐	Oil Spills	PFAS can be used to prevent spreading of oils spilled on water. This is done by injecting PFAS to create a chemical barrier. Examples include PFAS-treated perlite and vermiculite.
☐	Paper Mills, Paper Coating, and Recycling Industry	Paper mills can manufacture paper treated with various PFAS for water or grease resistance. Paper recycling does not differentiate between non-treated and PFAS-treated paper and thus may contain PFAS.
☐	Pesticides	PFAS can be used as a dispersant and wetting agent for herbicides and aids in penetration of insecticides. An example is ADVION Cockroach Gel Bait (Syngenta, or Bell)
☐	Petrochemical Manufacturing	Aboveground Storage Tanks (ASTs) with flammable materials are mandated to maintain fire suppressant systems that are routinely tested and calibrated. These systems often include AFFF and may contain active and inert ingredients that are categorized as PFAS.
☐	Photographic Industry	PFAS can be used during the production of film, paper, and plates for various purposes in the photographic industry.
☐	Plastic Container Industry	Fluorine gas treated plastic containers are available for products that may permeate the plastic container. Treatment of high- and low-density polyethylene containers with fluorine gas strengthens the walls of the containers and prevents permeation and deformation of the container.
☐	Plastics, Resins, and Rubbers	PFAS can be used to manufacture plastics or applied plastics that have hundreds of uses in consumer and industrial products. These materials include thermoplastic polypropylene, epoxy resins, and polyurethane elastomer mold release agents such as: • Moldspat (AGC) • TM10 (Sicongchem) • NOXFREE® (Ultimatec) • SUNMORL FN-Series (NICCA) PFAS can also be formed during the fluorination process of certain types of plastic container surfaces—namely fluorinated HDPE containers—which may then leach into the products stored in those containers.
☐	Printing facilities	PFAS can be used in lithographic printing and in toner and printer inks.
☐	Semiconductor Industry	There are many applications of PFAS in the semiconductor industry. For example, PFAS can be used to reduce surface tension for photolithography, and PFPE is used as a heat transfer fluid. PFC-14(CF ₄) (Daikin) is one example of this. For more uses, see: https://doi.org/10.1117/1.JMM.21.1.010901 .

Step 1: Check the box next to the applicable industry or activity, if listed

INDUSTRY/ACTIVITY		POTENTIAL SOURCES
☐	Surface Coatings, Paints, Varnishes, Inks, and Waxes	PFAS can be used in coatings, paint, varnishes, dyes, inks, ski waxes, and anticorrosive paints. Brands include the SUNMORL FN-Series (NICCA) and more.
☐	Textiles	PFAS are often used in waterproofing and/or stain proofing clothes, outdoor gear, uniforms, linens, carpets, upholstery, and leather. Waterproofing and stain proofing brands include, but are not limited to: • Protective Material (3M) • Zonyl (Chemours) • Foraperle, and Capstone (DuPont) • TF-26A series, TF-27A30, TF-29A20, and TF-51A30 (Taiwan Fluoro) PFAS can be incorporated directly into waterproof membranes, such as GORE-TEX brand membranes. Textiles can also be purchased with waterproofing or stain proofing coatings already applied and may become sources of PFAS when they are laundered or disposed of. For more information, see “PFAS in the textiles and leather industries”: https://www.pca.state.mn.us/sites/default/files/gp3-06.pdf
☐	Waste Management	Construction and demolition debris landfills, municipal and industrial landfills, and wastewater treatment plants are conduits of disposed PFAS-containing materials. These waste management facilities often do not have PFAS treatment in place and therefore can release PFAS to the environment through their own waste streams (effluent, leachate, and air emissions).

For more information see the links at the end of this document.

Step 2: Check NAICS code(s), if listed

North American Industry Classification System (NAICS) codes are a self-assigned coding system to identify particular industries by sector (2-digit code), subsector (3-digit code), industry group (4-digit code), NAICS industry (5-digit code), and national industry (6-digit code). A business may have more than one NAICS code depending on the products or services they provide.

NAICS CODE							
HIGHER RISK				LOWER RISK			
	NAICS	YEAR	DESCRIPTION		NAICS	YEAR	DESCRIPTION
☐	-		Federal Facilities (No NAICS)	☐	111998	2017 & 2022	All Other Miscellaneous Crop Farming
☐	211130	2017 & 2022	Natural Gas Extraction	☐	212323	2022	Kaolin and Ball Clay Mining
					212324	2017	
☐	212390	2022	Other Chemical and Fertilizer Mineral Mining	☐	212323	2022	Clay and Ceramic and Refractory Minerals Mining
	212393	2017			212325	2017	
☐	313	2017 & 2022	Textile Mills	☐	212390	2022	All Other Nonmetallic Mineral Mining
					212399	2017	
☐	314	2017 & 2022	Textile Product Mills	☐	221	2017 & 2022	Utilities
☐	315	2017 & 2022	Apparel Manufacturing	☐	311	2017 & 2022	Food Manufacturing
☐	316	2017 & 2022	Leather and Allied Product Manufacturing	☐	312	2017 & 2022	Beverage and Tobacco Product Manufacturing
☐	322	2017 & 2022	Paper Manufacturing	☐	321	2017 & 2022	Wood Product Manufacturing
☐	323	2017 & 2022	Printing and Related Support Activities	☐	327	2017 & 2022	Nonmetallic Mineral Product Manufacturing
☐	324	2017 & 2022	Petroleum and Coal Products Manufacturing	☐	333	2017 & 2022	Machinery Manufacturing
☐	325	2017 & 2022	Chemical Manufacturing	☐	337	2017 & 2022	Furniture and Related Product Manufacturing
☐	326	2017 & 2022	Plastics and Rubber Products Manufacturing	☐	425120	2017 & 2022	Business Electronic Markets
☐	331	2017 & 2022	Primary Metal Manufacturing	☐	425120	2017 & 2022	Wholesale Trade Agents and Brokers

Step 2: Check NAICS code(s), if listed

NAICS CODE							
HIGHER RISK				LOWER RISK			
	NAICS	YEAR	DESCRIPTION		NAICS	YEAR	DESCRIPTION
☐	332	2017 & 2022	Fabricated Metal Product Manufacturing	☐	423510	2017 & 2022	Metal Service Centers and Other Metal Merchant Wholesalers
☐	334	2017 & 2022	Computer and Electronic Product Manufacturing	☐	488390	2017 & 2022	Other Support Activities for Water Transportation
☐	335	2017 & 2022	Electrical Equipment, Appliance, and Component Manufacturing	☐	511110	2017 & 2022	Newspaper Publishers
☐	336	2017 & 2022	Transportation Equipment Manufacturing	☐	513120	2022	Periodical Publishers
					511120	2017	
☐	339	2017 & 2022	Miscellaneous Manufacturing	☐	513120	2022	Book Publishers
					511130	2017	
☐	423930	2017 & 2022	Recyclable Material Merchant Wholesalers	☐	513140	2022	Directory and Mailing List Publishers
					511140	2017	
☐	424690	2017 & 2022	Other Chemical and Allied Products Merchant Wholesalers	☐	513191	2022	Greeting Card Publishers
					511191	2017	
☐	424710	2017 & 2022	Petroleum Bulk Stations and Terminals	☐	513199	2022	All Other Publishers
					511199	2017	
☐	541713	2017 & 2022	Research and Development in Nanotechnology	☐	512230	2017 & 2022	Music Publishers
☐	541715	2017 & 2022	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	☐	512250	2017 & 2022	Record Production and Distribution
☐	561990	2017 & 2022	Firefighting Service as a Commercial Activity	☐	513110	2022	Internet Publishing and Broadcasting and Web Search Portals
					519130	2017	
☐	561720	2017 & 2022	Janitorial Services	☐	811192	2017 & 2022	Car Wash
☐	561740	2017 & 2022	Carpet and Upholstery Cleaning Services	☐	811490	2017 & 2022	Other Personal and Household Goods Repair and Maintenance
☐	562112	2017 & 2022	Hazardous Waste Collection				

Step 2: Check NAICS code(s), if listed

NAICS CODE							
HIGHER RISK				LOWER RISK			
	NAICS	YEAR	DESCRIPTION		NAICS	YEAR	DESCRIPTION
☐	562211	2017 & 2022	Hazardous Waste Treatment and Disposal				
☐	562212	2017 & 2022	Solid Waste Landfill				
☐	562213	2017 & 2022	Solid Waste Combustors and Incinerators				
☐	562219	2017 & 2022	Other Nonhazardous Waste Treatment and Disposal				
☐	562920	2017 & 2022	Materials Recovery Facility				

Step 3: Check answers to questions/add comments as needed

QUESTION(S)	RESPONSE	OPTIONAL COMMENTS/ DETAILS
Have SDSs of raw materials and processing aids been reviewed for PFAS indicator terms such as “fluoro,” surfactant, polytetrafluoroethylene (PTFE), ETFE, FEP, PVDF, polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy alkanes (PFA), or ethylenechlorotrifluoroethylene (ECTFE), and do one or more SDS contains any of these search terms for PFAS?	☐ Yes ☐ No	
Do past land uses include any of the industries in Step 1 and/or Step 2?	☐ Yes ☐ No	Which one(s)? _____
If yes to the previous question, are any past uses in the higher risk activities listed in Step 2?	☐ Yes ☐ No	Which one(s)? _____
Has the facility ever had a fire that required the use of AFFF or had an AFFF training area? Check with the State Fire Marshal or search internet records for evidence of a fire.	☐ Yes ☐ No	
Does the facility have a fire suppression system? Please specify in the comments if it is a water or chemical-based system. If the facility uses a chemical-based fire suppression system, how often is it tested and how is the discharge disposed of?	☐ Yes ☐ No	
Are there any surfactants (used as a processing aid to decrease the surface and interfacial tension and to stabilize the interface) at the facility? Note: Surfactants may function as emulsifiers, wetting agents, detergents, foaming agents, or dispersants.	☐ Yes ☐ No	

Step 3: Check answers to questions/add comments as needed

QUESTION(S)	RESPONSE	OPTIONAL COMMENTS/DETAILS
Does the business make products that are considered to be durable, low friction, fire retardant, corrosion resistant, stain resistant, water resistant, or waterproof?	☐ Yes ☐ No	
Does the facility maintain tanks on-site that contain flammable substances?	☐ Yes ☐ No	If yes, list the number of tanks and volumes.
Does the facility report any regulated substances of very high concern (SVHC) in its products under Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) to the European Chemicals Agency (ECHA) under the European Union?	☐ Yes ☐ No	If yes, there may be public reports available for search.
Is the facility required to provide Tier II or Toxicity Report Inventory (TRI) reports in the U.S.?	☐ Yes ☐ No	If yes, there are TRI public reports available for search at the following link: https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools#nationalreports

Step 4: Check next to Risk Rating based on number and type of responses

RISK RATING	
☐	LOWER
☐	MEDIUM
☐	HIGHER

KEY:

Lower – None of the boxes are checked in Steps 1 through 2, and in Step 3, only “No” boxes are checked. Note that low risk does not mean there is no risk, however, as there are still many gaps in how PFAS are reported.

Medium – At least one box is checked in Step 1, the NAICS industry is in the “Lower-Risk” category in Step 2, and no more than one “Yes” box is checked in Step 3.

Higher – At least one box is checked in Step 1, the NAICS industry is in the “Higher-Risk” category in Step 2, and/or PFAS-related key search terms are observed in the SDSs.

Advanced search

Supplemental SDS screening tutorial for potential PFAS sources

This advanced search provides supplemental support for screening SDSs or product technical specifications for intentionally or unintentionally added PFAS.

- When searching SDSs for PFAS, ensure the SDSs or product specification sheets are in a searchable PDF format, and not an image file. Image files are generally not electronically searchable.
- Using Adobe, you can utilize the “find” feature to type in key search words.
- You will typically find that those key words will be found in the “Composition,” “Ingredients,” “Regulatory Information,” or “Compliance” sections of an SDS.
- Please note some SDSs are out of compliance with the global harmonized SDS system section format as provided in the link. For example, the composition or ingredient section is generally in “Section 3” but, occasionally, some out of conformance SDSs include it in Section 2.

Below is a picture of a compliant SDS with composition and ingredient information in Section 3.

SECTION 3: Composition/information on ingredients		
Ingredient	C.A.S. No.	% by Wt
Ethyl nonafluoroisobutyl ether	163702-06-5	25 - 40
Ethyl nonafluorobutyl ether	163702-05-4	15 - 30
1,2-Trans-dichloroethylene	156-60-5	15 - 25
Methyl nonafluoroisobutyl ether	163702-08-7	10 - 20
Methyl nonafluorobutyl ether	163702-07-6	5 - 15
Carbon dioxide	124-38-9	1 - 5
Poly(Dimethylsiloxane)	63148-62-9	1 - 2

Below is a picture of a non-compliant SDS with ingredients listed in Section 2.

SECTION 2: INGREDIENTS		
Ingredient	C.A.S. No.	% by Wt
WATER	7732-18-5	83 - 87
DIETHYLENE GLYCOL BUTYL ETHER	112-34-5	5
ALKYL SULFATE SALT +(5890P)	Trade Secret	1 - 5
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE + (5887P)	Trade Secret	1 - 5
INORGANIC ACETATE SALT + (5892P)	Trade Secret	1 - 5
THICKENERS + (5127P, 5123P)	Trade Secret	1 - 5
PERFLUOROALKYL SULFONATE SALTS(5) +(5144P)	Trade Secret	0.1 - 1
RESIDUAL ORGANIC FLUORO CHEMICALS	Mixture	Not Known

Advanced Search

Supplemental SDS screening tutorial for potential PFAS sources

Check the compliance section of the SDS.

- Generally, the regulatory compliance information can be found in Section 15. U.S. SDSs provided after 2020 typically list PFOS or PFOA under California Prop65 or CA Prop65 if they are included as ingredients. Therefore, we don't recommend searching strictly by SDS section numbers but recommend using the key search terms.

Key PFAS search terms include:

- Fluor – this will find almost everything that is potentially PFAS. Additional evaluation will then be needed to confirm if the results are PFAS. Some fluorine-containing products are not PFAS. Minnesota defines PFAS as compounds with at least one fully fluorinated carbon atom.
- Surfactant – PFAS are often used as surfactants, so this term indicates that further evaluation should be performed.
- Confidential Business Information (CBI), or Trade Secret, or Proprietary – these terms used in a NAICS industry/activity known to be associated with PFAS could indicate that a compound should be evaluated further.
- PTFE – as previously defined, this is the acronym for polytetrafluoroethylene. Often, SDSs will use the acronym for polytetrafluoroethylene or other fluoropolymers instead of the chemical name. If only searching for “fluoro,” these PFAS would be missed in the screening.

Other common fluoropolymers are listed below along with the acronyms. These should be included as key PFAS search terms:

- ✓ Ethylene tetrafluoroethylene (ETFE)
- ✓ Fluorinated ethylene propylene (FEP)
- ✓ Polyvinylidene fluoride (PVDF)
- ✓ Polychlorotrifluoroethylene (PCTFE)
- ✓ Perfluoroalkoxy alkanes (PFA)
- ✓ Ethylenechlorotrifluoroethylene (ECTFE)

Developing a PFAS risk management strategic plan

Investigate and identify – using the above tools.

- PFAS in an SDS or product specification may have long names. Examples include:
“1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonyl fluoride,”
“2,3,5,6,7,8-hexafluoro-1-(1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctyl) uinoline-4-one,”
or “tetradecafluoro-7-(trifluoromethyl)octanoic acid.”
- The above PFAS name examples are related to or break down to PFOS or PFOA, which are common PFAS observed in landfills and WWTPs.

Collaborate – work with suppliers on PFAS concerns and upcoming bans.

- Consider broaching the topic with industry associations to get support on common supply chain uses of PFAS in your industry.
- Consider open discussions on PFAS with suppliers and discuss risk management strategies.
- If suppliers claim trade secrecy for PFAS uses, consider non-disclosure agreements to gain access to such information.
- Consider sending notice letters to suppliers making clear your expectations that they notify you about any of their products you purchase which contain fluorine.
- Identify your company’s list of banned product ingredients, generally called a Red List, as well as what constitutes an acceptably safer alternative. Discuss these with suppliers.

Phase out – work to phase out the use of PFAS-containing substances.

Minnesota’s PFAS ban law distinguishes between “currently unavoidable” and all other uses of intentionally added PFAS in products. “Currently unavoidable” means 1) uses essential to the health, safety, or the functioning of society, and 2) uses for which alternatives are readily available. Examples of PFAS uses that are not “currently unavoidable” are the 11 product categories in which intentional PFAS use is banned in Minnesota by 2025.

- Consider replacing PFAS in your products with safer alternatives and/or re-negotiating supplier contracts. The longest timeframe in Minnesota for this replacement is January 2032, unless the MPCA determines a use to be “currently unavoidable”.
- Consider replacement costs versus future costs of regulatory compliance and liability risks.
- Evaluate replacing fluorine-containing fire suppression, which is now or soon to be banned in Minnesota. Note that Mil Spec non-fluorine foam is available by October 2023, leaving airport and land-based military firefighting foams uses of PFAS no longer meeting the “essential” component of the currently unavoidable use definition (above).
- Periodically contact suppliers for fluorine-free alternatives that meet any applicable performance standards.

Developing a PFAS risk management strategic plan

- In general, if PFAS alternatives are in use in products which compete with yours, you should consider replacing your PFAS use, as it likely will not meet criteria for “currently unavoidable use.”
- Evaluate how a change to a safer alternative to PFAS can affect processing.
- Evaluate the cost of wastewater or air emission pre-treatment for PFAS.
- Discuss potential options for continued PFAS use with regulatory authorities, your waste collector, and your municipal WWTP.
- Minnesota’s full intentionally added PFAS ban goes into effect in 2032. Only those uses which the MPCA determines by rule to be “currently unavoidable” can continue after that point. Consider the risks if that determination does not cover your product(s) at that point.

See MPCA’s “PFAS ban” website link on page 18 for more information.

Additional support

Additional online support may be found on the following topics:

Alternatives:

Chemsec PFAS Guide

<https://pfas.chemsec.org/>

POPFree Promotion of PFAS-free alternatives

<https://www.ri.se/sites/default/files/2020-12/POPFREE%20Final%20report%20public.pdf>

PFAS Red List

<https://living-future.org/red-list/>

Minnesota resources:

PFAS in Minnesota

<https://www.pca.state.mn.us/pfas-in-minnesota>

PFAS in industry

<https://www.pca.state.mn.us/air-water-land-climate/pfas-studies-and-reports#industry>

PFAS ban

<https://www.pca.state.mn.us/get-engaged/pfas-ban>

Disclaimer

This guide provides suggestions based on information available at the time of its development, but its contents should not be interpreted as formal guidance, policy, or bases for regulatory action by the Minnesota Pollution Control Agency. Available information about PFAS applications is evolving rapidly, and this document may be updated as needed to reflect current knowledge. Inclusion or exclusion of products or product types herein does not indicate an endorsement by the Minnesota Pollution Control Agency or State of Minnesota.

While screening may identify PFAS in industrial processing, there are data gaps in SDS reviews that could limit the ability to identify PFAS. These limitations include:

- The Occupational Safety and Health Administration (OSHA) does not require listing the chemicals on SDSs that are not federally recognized as hazardous.
- Currently, the threshold for reporting on SDSs are concentrations equal to or greater than 1% (10,000 milligrams per kilograms [mg/kg]) for non-cancer-causing substances and 0.1 % for cancer causing substances. However, if the *de minimis* rule is eliminated for PFAS, and PFAS are identified federally as “Chemicals of Special Concern” under the TRI, the reporting threshold will be any amount of PFAS. <https://www.federalregister.gov/documents/2022/12/05/2022-26022/changes-to-reporting-requirements-for-per--and-polyfluoroalkyl-substances-and-to-supplier>
- The reporting detection limit for aqueous environmental media is between 2 and 20 nanograms per liter (ng/L) or parts per trillion (ppt) depending on the PFAS constituent. https://www.epa.gov/system/files/documents/2022-12/3rd%20Draft%20Method%201633%20December%202022%2012-20-22_508.pdf
- Manufacturers may not have caught up to changes in the reporting rule under the National Defense Authorization Act (NDAA) in 2020 for PFAS reporting under TRI. Therefore, you may consider requesting updated SDSs for each new order from your supplier for compliance with TRI for PFAS regulations. TRI applies to unintentionally added PFAS in disposed fluorine-treated plastic containers. <https://www.federalregister.gov/documents/2022/12/05/2022-26022/changes-to-reporting-requirements-for-per--and-polyfluoroalkyl-substances-and-to-supplier>