

# Reporting of PFAS under TURA and safer alternatives research

Heather Tenney, April 2024



# Toxics Use Reduction Act - TURA

MA law enacted in 1989

Requires reporting on a similar group of chemicals as TRI

Requires Toxics Use Reduction planning on chemicals

Implemented by DEP, OTA and TURI

Allows addition of new substances

# TURA PFAS TIMELINE

TURA SAB Reviewed PFAS from 2016-2020

Recommended listing a large category of PFAS

Identified sectors of expected use in Massachusetts

Guidance and education for companies

TURA brings preventative approach to other efforts

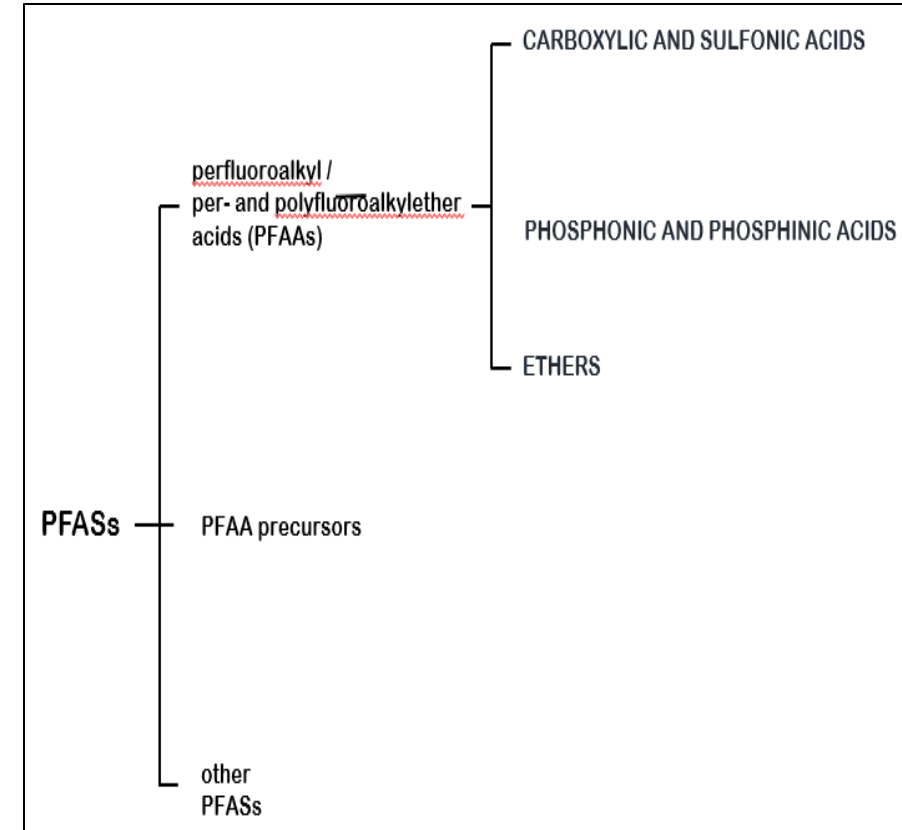
First reporting July 2023

# TURA SAB PFAS Evaluation

To understand the characteristics of a range of PFAAs, the SAB examined eight substances of varying chain lengths: PFNA (C<sub>9</sub>); PFOS and PFOA (C<sub>8</sub>); PFHpA (C<sub>7</sub>); PFHxA and PFHxS (C<sub>6</sub>); and PFBA and PFBS (C<sub>4</sub>).

The SAB then reviewed two ethers (GenX and ADONA), and phosphonic and phosphinic acids (PFPA and PFPIAs) of varying chain lengths.

The SAB reviewed various health impacts as well as a number of degradation/transformation pathways, through which a PFAS precursor breaks down into one of the end degradation products.



# TURA Certain PFAS NOL Listing

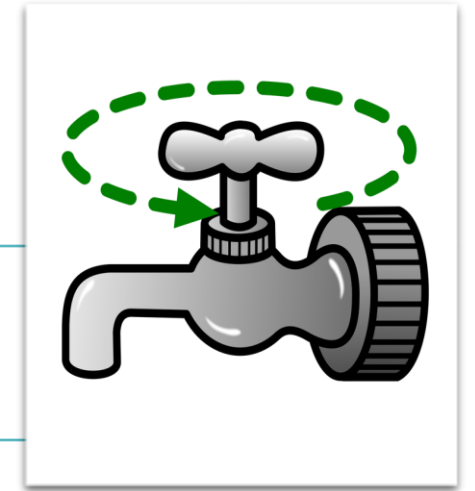
Those PFAS that contain:

a perfluoroalkyl moiety with three or more carbons

a perfluoroalkylether moiety with two or more carbons

and that are not otherwise listed.

# Prevention



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Evaluate use and function. Is it necessary?

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Identify process improvement opportunities

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Evaluate safer alternatives

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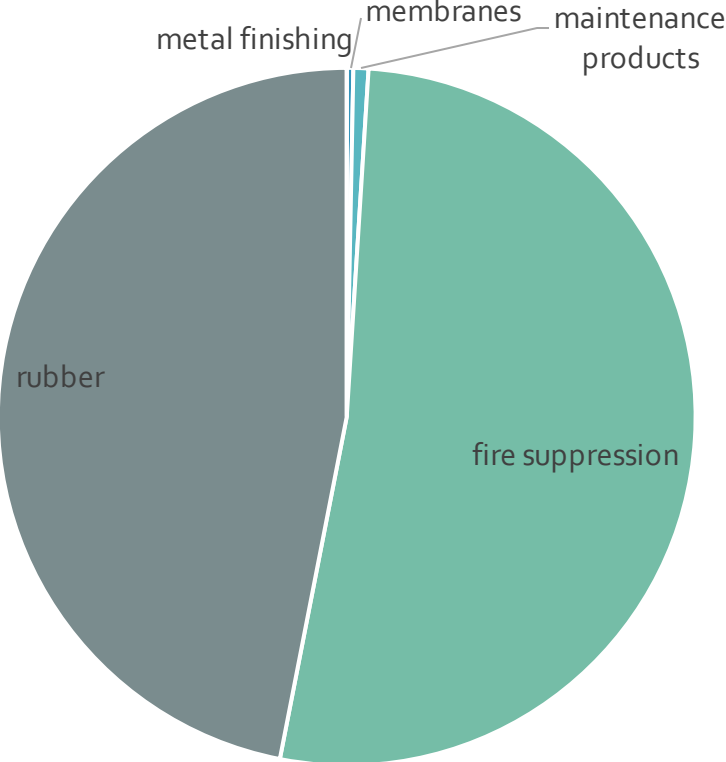
Focus program resources: technical assistance, grants, research, information

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Right-to-Know reporting on use and byproduct

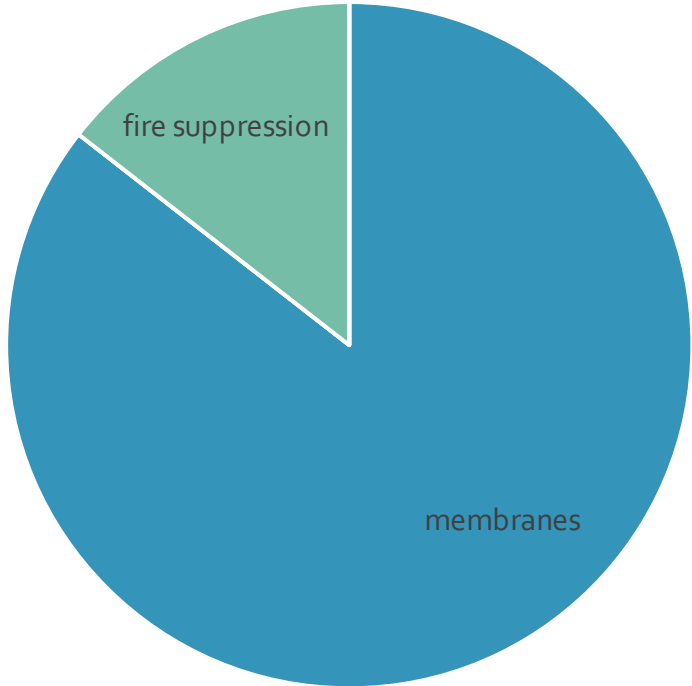
# Use and Release of PFAS by TURA Filers

2022 PFAS Use by TURA Filers



■ membranes ■ maintenance products ■ fire suppression ■ rubber ■ metal finishing

2022 PFAS Releases by TURA Filers



■ membranes ■ maintenance products ■ fire suppression ■ rubber ■ metal finishing

## 2022 TURA Certain PFAS NOL Use and Releases

Company	Use	Release
Entegris	11,647	7,596
AW Chesterton	26,700	0
Kidde Fenwal	1,998,080	1,285
Cri-Tech	1,060,863	0
Titeflex	769,750	0
	3,837,042	8,881



- Waste Transfers
- Pollution Prevention
- Chemicals
- Potential Harm
- Customizable Tables

**Map Options:**

**Dot size represents:**

- Releases (lb)
- Waste Managed (lb)
- Potential Harm

**Dot color represents:**

- Releases (lb)
- Industry Sector

**Demographic data:**

Hide  Show

80th Percentile Demog...

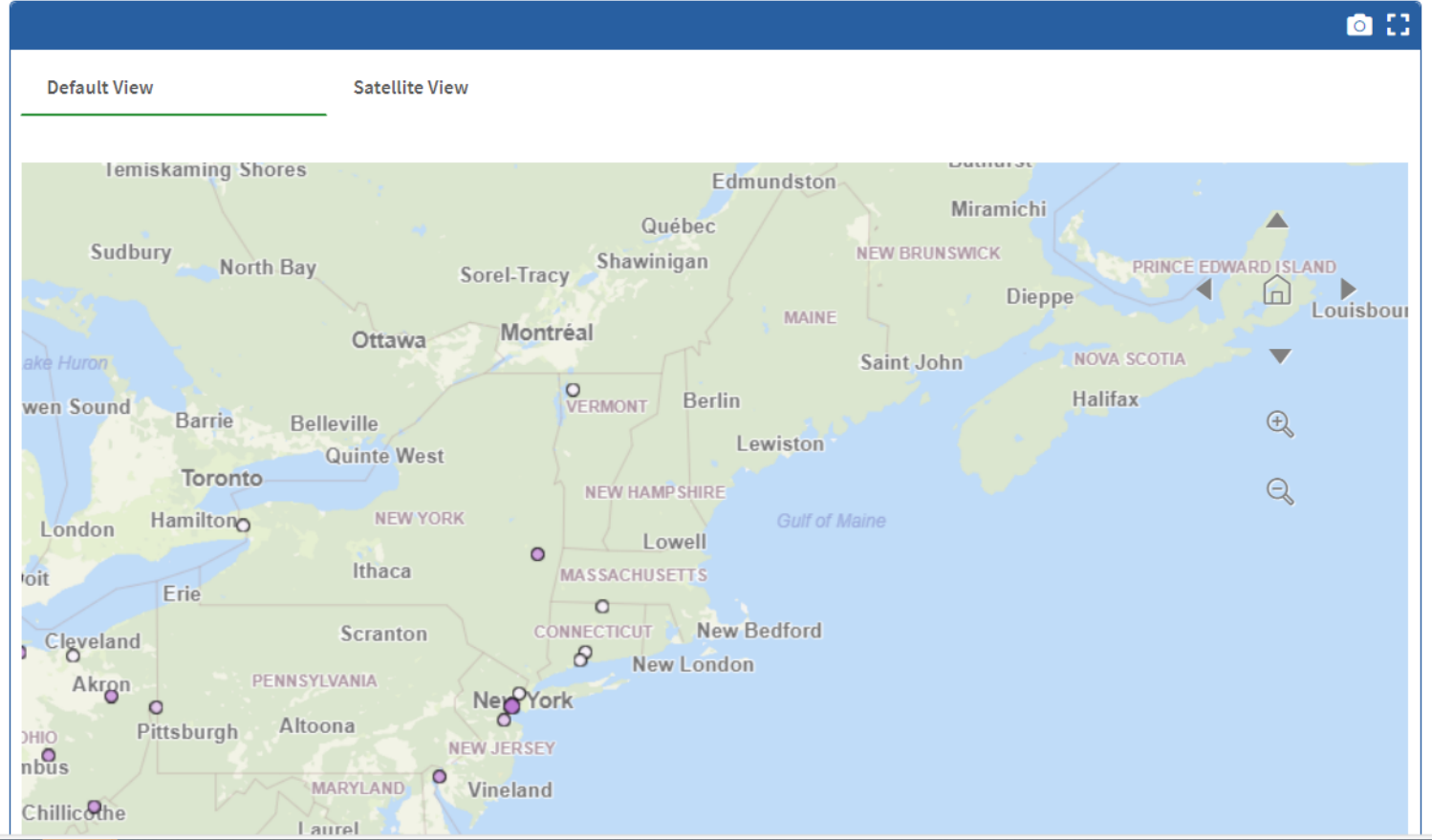
**Non-TRI facilities:**

Hide  Show

**Legend**

**Total Releases by Facility**

- 0 lb
- >0 - 100 lb
- 101 - 10,000 lb
- 10,001 - 100,000 lb
- 100,001 - 1,000,000 lb
- >1,000,000 lb



# Safer Alternatives



CASE STUDY | JUNE 2023

## Transene Company Eliminates its Use of PFAS and Saves Money

<https://www.youtube.com/watch?v=EOAa1YwAiy4>

### **TRANSENE** COMPANY, INC.

#### SUMMARY

Transene worked with the Toxics Use Reduction Institute (TURI), the Massachusetts Office of Technical Assistance (OTA), and the University of Massachusetts Lowell (UMass Lowell) to find safer alternatives

Transene Company, a manufacturer of advanced materials for the electronics industry, wanted to find viable alternatives to perfluoroalkyl substances (PFAS) use in semiconductor manufacturing in response to customer demands for PFAS-free products. Because PFAS have unique properties that can be difficult to replace, Transene's president, Christopher Christuk, turned to TURI and the University of Massachusetts (UMass) Lowell for help.

PFAS, a class of thousands of chemicals, are often dubbed "forever chemicals" because they never fully break down in the environment. Found in a wide array of consumer and industrial products such as waterproof fabrics, food packaging, dental floss and nonstick cookware, PFAS are associated with numerous health risks, including cancer, liver damage, decreased fertility and increased risk of asthma and thyroid disease.

Surfactants based on PFAS are widely used for etching in the semiconductor industry because they are extremely stable even under strongly acidic and alkaline conditions. Although effective, the toxicity and high persistence of PFAS necessitate

## PFAS Alternatives- Transene

PFAS-based  
surfactant in  
microelectronics  
etching products

18 month research  
time

>90% of  
customers have  
adopted

Alternative costs  
\$80/gallon versus  
\$2400/gallon for  
PFAS

# PFAS Alternatives- Current research

Automotive fabrics

Coating for food packaging

## PFAS Alternatives –Additional activities

Firefighter turnout gear – working toward PFAS-free gear with urging of firefighters

Public education on where PFAS are used in consumer products and ways to find PFAS-free products

Funding testing of consumer products using PIGE



Thank you

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Toxics Use Reduction Institute  
University of Massachusetts Lowell