



# TURA Program Update

Liz Harriman and Tiffany Skogstrom  
April 13, 2022  
Marlborough, MA



**MassDEP**

Commonwealth of Massachusetts  
Department of Environmental Protection



# Upcoming Continuing Education

- (Virtual) [Resource Conservation Training: Energy](#)  
April 20, 2022, 1:00pm–3:00pm
- (Virtual) [Resource Conservation Training: Materials Contributing to Solid Waste](#)  
April 27, 2022, 1:00pm-3:00pm

# TURA Form S Filing and Reporting Changes



- Reporting Year 2021 (reports due July 1, 2022)
  - US EPA 172 TRI Chemicals (reportable under TRI for 2020)
  - Listed individually with 100 lb reporting threshold
  - Not PBTs, 1% de minimis exemption applies (0.1% PFOA)
- (Virtual) Reporting Workshop (RY 2021)
  - Scheduled for May 12 to 9:00-noon
  - Plan is for recorded workshop to be made available

# TURA Form S Filing and Reporting Changes



- Reporting Year 2022
  - TURA category: Certain PFAS NOL
  - TURI/OTA Guidance available
    - [https://www.turi.org/Our Work/Toxic Chemicals/Chemical Information/Per- and poly-fluoroalkyl substances PFAS/PFAS Tracking Required Under TURA](https://www.turi.org/Our%20Work/Toxic%20Chemicals/Chemical%20Information/Per-and-poly-fluoroalkyl-substances-PFAS/PFAS-Tracking-Required-Under-TURA)

## Industrial Sources of PFAS



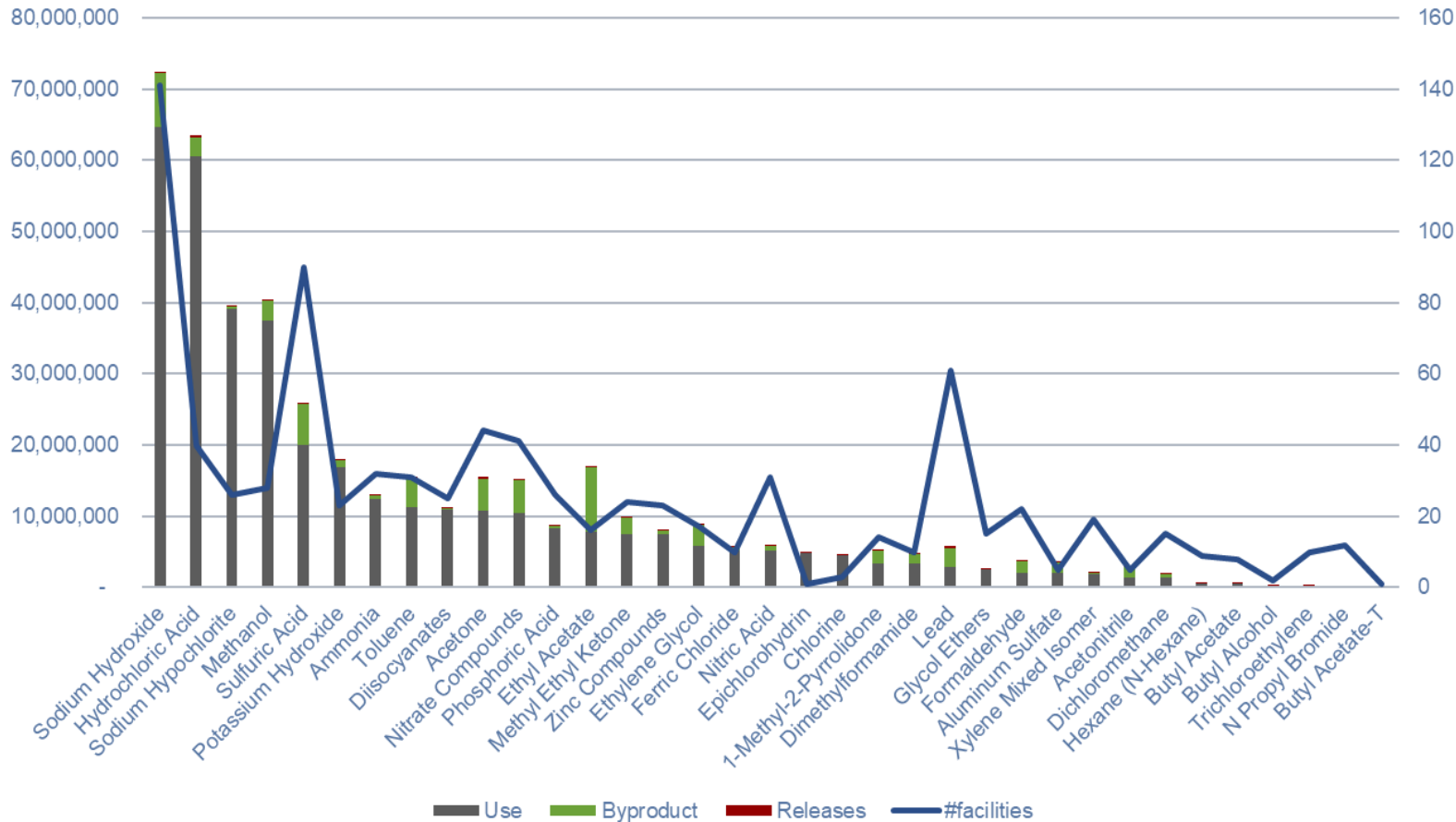
# USEPA TRI Reporting Changes



- Reporting year 2021
  - 3 Additional individual PFAS chemicals
    - Perfluorooctyl iodide (507–63–1)
    - Potassium perfluorooctanoate (2395–00–8)
    - Silver(I) perfluorooctanoate (335–93–3)
  - *(not yet added to TURA, expect for RY2023)*
- Proposed Rule to add 12 chemicals
  - Dibutyltin dichloride; 683-18-1
  - 1,3-Dichloro-2-propanol; 96-23-1
  - Formamide; 75-12-7
  - 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran; 1222-05-5
  - N-Hydroxyethylethylenediamine; 111-41-1
  - Nitrilotriacetic acid trisodium salt; 5064-31-3
  - p-(1,1,3,3-Tetramethylbutyl)phenol; 140-66-9
  - 1,2,3-Trichlorobenzene; 87-61-6
  - Triglycidyl isocyanurate; 2451-62-9
  - Tris(2-chloroethyl) phosphate; 115-96-8
  - Tris(1,3-dichloro-2-propyl) phosphate; 13674-87-8
  - Tris(dimethylphenol) phosphate; 25155-23-1

# TURA Data

Top TURA Use, Byproduct, and Releases



# TURA Program Advisory Committee and Administrative Council



- Program Strengthening Ad Hoc Committee
  - Background documents and meeting minutes available:
  - <https://www.mass.gov/resource/tura-program-strengthening-ad-hoc-committee>
- Advisory Committee
  - Upcoming meeting - May 4, 2022 1pm – 3:30pm
- Administrative Council
  - In 2021, adopted EPA TRI list of 172 PFAS
  - Listed new TURA category - Certain PFAS NOL



- Recommendation to list 24 EPA Registered ADBAC and DDAC quaternary ammonium compounds (QAC's, or "quats")
  - QACs fact sheet  
[https://www.turi.org/TURI\\_Publications/TURI\\_Chemical\\_Fact\\_Sheets/Quaternary\\_Ammonium\\_Compounds\\_Fact\\_Sheet](https://www.turi.org/TURI_Publications/TURI_Chemical_Fact_Sheets/Quaternary_Ammonium_Compounds_Fact_Sheet)
- Deliberations on Carbon Nanotubes and Carbon Nanofibers petition in process.
  - SAB Recommendation to list Multi-Walled Carbon Nanotubes (MWCNTs) based on pulmonary toxicity, lung cancer, mesothelioma and environmental persistence
- Next meeting (virtual): Monday, April 25, 1:30PM
  - Focus on Carbon Nanofibers



# TURA Program Agency updates

Massachusetts  
Toxics Use Reduction



# FY22 TURI Grants – status update

INDUSTRY, SMALL BUSINESS, COMMUNITY AND ACADEMIC RESEARCH



## Safer Cleaning and Solvents

- Central Metal Finishing, *North Andover*
- SE Shires, *Holliston*
- Rindge School of Technical Arts, *Cambridge*
- North Randolph Cleaners, *North Randolph*
- Assoc Prof. Hsi-Wu Wong, UMass Lowell, partnering with Johnson Matthey, *Andover and Devens*



# FY22 TURI Grants – status updates

INDUSTRY, SMALL BUSINESS, COMMUNITY AND ACADEMIC RESEARCH

Massachusetts  
Toxics Use Reduction



## Focus on PFAS

- Prof. Ram Nagarajan, UMass Lowell, partnering with Transene Co., Danvers
  - surfactants in electronics manufacturing
- Community Action Works and Clean Water Fund, Boston
  - Workshops and resources for communities to reduce PFAS use
    - Apr 13 and May 18, 6-7PM webinars
- Nantucket PFAS Action Group, *Nantucket, Fall River and Hyannis Fire Departments*
  - Reducing PFAS in fire fighter turnout gear



# FY22 TURI Grants

INDUSTRY, SMALL BUSINESS, COMMUNITY AND ACADEMIC RESEARCH

Massachusetts  
Toxics Use Reduction



## Safer Consumer Products

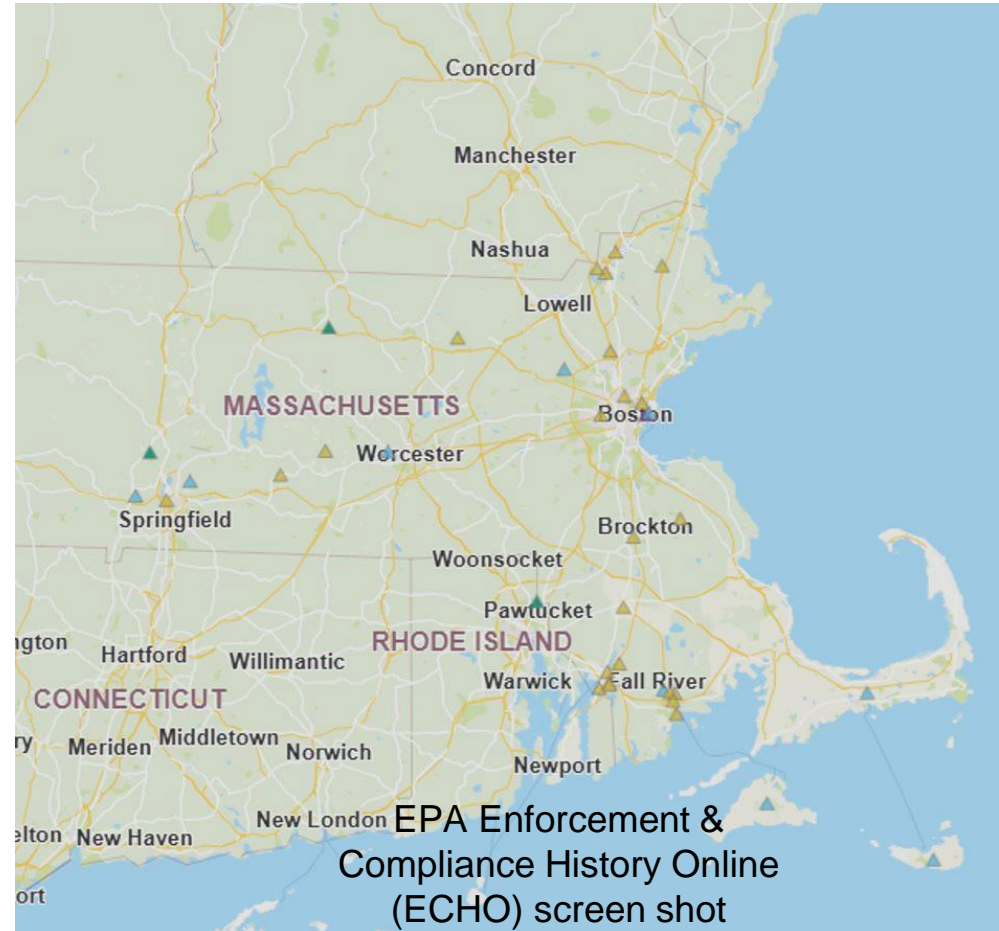
- Silent Spring Institute, *Newton*, and Resilient Sisterhood Project, *Boston*
  - Safer Personal Care Products for Black Women

*Link to all grant project descriptions:*

[https://www.turi.org/Our Work/Grants/Current Grant Projects Awarded in 2021](https://www.turi.org/Our%20Work/Grants/Current%20Grant%20Projects%20Awarded%20in%202021)

# OTA Update

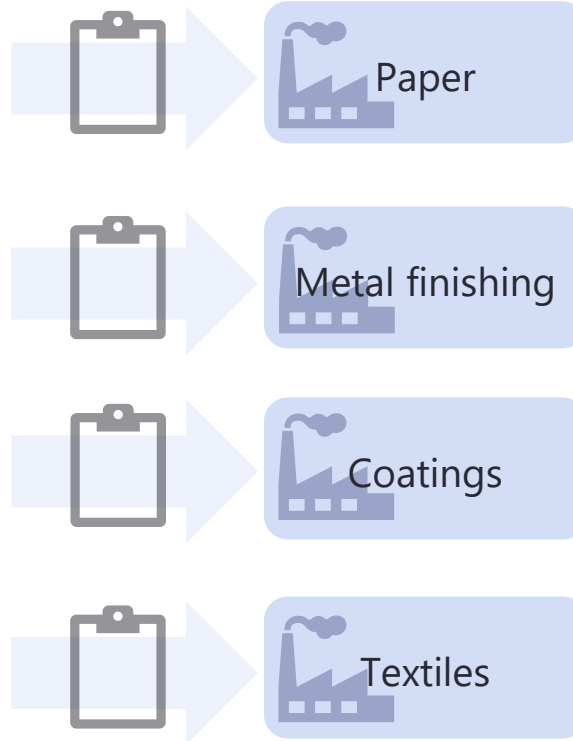
- In-Person Site Visits
- PFAS Surveys for Metal Finishers / Paper Industries
- Outreach to Significant Industrial Users upstream from MWRA / Wastewater Treatment Facilities



# OTA Update

## Resources for Companies: PFAS Identification

Assessments  
to identify  
PFAS sources  
*(in development)*



- OTA technical staff flag likely sources of PFAS
  - Companies may share list of CAS numbers with OTA
- OTA and TURI pursue research on products of concern
- Companies may opt to share product information with OTA to populate a list of PFAS-containing products

# OTA Update

## Supplier Notification Letter

OTA has developed a **supplier notification letter** (template in handouts) that companies can use to request information from their suppliers about PFAS reportable under TRI and TURA.



# Recent Program Publications and Resources

- [Guide to Finding Safer Alternatives to Halogenated Solvents](#)
- [CD Aero Eliminates Use of nPB, Gains Production Capacity – case study, demo video](#)
- [Cadmium and Cadmium Compounds Fact Sheet](#) (updated May 2021)
- Video: [What are Engineered Nanomaterials? Uses and Hazards](#)
- [2020 TURA Data files available for download at MassDEP](#)
- [Family Martial Arts Center Kicks Out Harmful Disinfecting Chemicals While Defending Against COVID-19](#)
- [Evaluation of Conversion Coatings Without Hexavalent Chromium for Aerospace and Defense Applications](#)
- [Removing Acrylic Conformal Coating with Safer Solvents for Re-Manufacturing Electronics](#) (*Polymers journal*)
- [Identification of Safer Alternatives to TCE for Cleaning Applications in Minnesota](#)

## Massachusetts Toxics Use Reduction

**Guide to Finding Safer Alternatives to Halogenated Solvents Used in Surface Cleaning Applications**

**CD Aero Eliminates Use of nPB, Gains Production Capacity**  
Changes over to Aqueous Cleaner

**TURI**  
UNIVERSITY OF MASSACHUSETTS LOWELL

**What are Engineered Nanomaterials? Uses and Hazards**  
Routes of Exposure  
Inhalation  
Ingestion

**Chromatography (2021) M.309-780**  
<https://doi.org/10.3390/10331021406614>

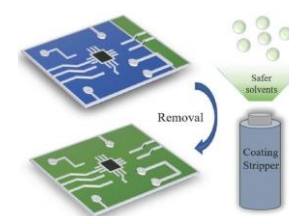
**Safer Solvent Blends for Food, Dye, and Environmental Analyses Using Reversed-Phase High Performance Liquid Chromatography**

Melisa Nallari<sup>1</sup>, Nicholas Tenaglia<sup>1</sup>, Gregory Moroz<sup>2</sup>, Hu-Wu Wong<sup>2</sup>

Received: 14 April 2021; Revised: 5 June 2021; Accepted: 9 June 2021; Published online: 18 June 2021  
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**Abstract**  
Liquid chromatography (LC) is a technique widely used to identify and quantify organic compounds in a complex matrix. Typical operations of high performance liquid chromatography (HPLC) involve continuous use of harmful solvents. Replacing these harmful solvents with safer alternatives will provide significant environmental, health, and safety benefits. In this work, a systematic approach for searching safer solvent blends to replace acetonitrile for reversed-phase (RP) HPLC operations is presented. GreenScreen<sup>®</sup> for Safer Chemicals was used as the first filter to down-select safer solvent candidates from thousands of chemicals based on their safety ratings. A set of LC operation parameters was then employed to determine final solvent candidates. Finally, Hansen Solubility Parameters in Practice (HS-SP<sup>2</sup>) software was utilized to identify the most probable compositions of blends from these solvents for actual LC testing. It was found that a blend of 75% ethanol and 25% methyl acetate by volume proved the chromatograms with the best performance, which had similar response factors and column efficiency compared to acetonitrile when surrogate food additives, dyes, and sugar solutions were tested, suggesting that this solvent blend is a potential safer alternative to replace acetonitrile for certain LC applications.

**Keywords:** Liquid chromatography; Safer solvents; Acetonitrile; Hansen solubility parameters in practice







# Contact us any time!



TURI  
questions

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