

TURI Grants

Each year, TURI provides grants to industry, small businesses, academic researchers, community organizations, and municipalities to support efforts to reduce the use of toxic chemicals. The annual cycle is based on TURI's fiscal year that runs from July through June. Typically, grant applications are available in April and decisions are made in August for the current fiscal year. **We encourage anyone interested in pursuing a grant to talk to us at any time.** We can help shape your idea and recommend partners to strengthen your application.

Small Business Grants provide funding to qualified small businesses in Massachusetts to change processes or replace toxic chemicals with safer alternatives.
Contact Joy Onasch, joy@turi.org or 978-934-4343.

Academic Research Grants provide seed funding to UMass faculty and graduate students to conduct research intended to help Massachusetts companies develop solutions for some of the more challenging uses of toxic chemicals.
Contact Greg Morose, greg@turi.org or 978-934-2954.

Industry Grants provide funding to qualified Massachusetts manufacturers to implement process modification or modernization opportunities for toxics use reduction.
Contact Joy Onasch, joy@turi.org or 978-934-4343.

Community Grants are available for community organizations and municipal departments to create and promote healthier communities by raising awareness and educating people about safer alternatives to toxics.
Contact Felice Kincannon, felicek@turi.org or 978-934-3346.

TURI Grant Projects – Fiscal Year 2018-19

Small Business Grantees

The Auto Repair Shop at Assabet Valley Technical High School of Marlboro will replace toxics that are currently used to clean vehicle parts. The project team will purchase bio-based part washing systems that will reduce chemical exposures for high school students and their instructors and teach them environmentally-friendly practices. The project team estimates that they will reduce the use of perchloroethylene and other solvents by 92 gallons per year and will save over \$3,000 annually.

Pilgrim Cleaners of Haverhill and Dory Cleaners of Swampscott will convert their dry cleaning shops from using perchloroethylene, a known human carcinogen listed as a Higher Hazard Substance in Massachusetts, to professional wet cleaning technology. This safer alternative allows the small businesses to clean "dry-clean-only" clothes with water and detergents in computer-controlled machines. Workers then use tensioning and pressing equipment to achieve high-quality results.

Academic Research Grantees

Assistant Professor James Reuther of the Chemistry Department at UMass Lowell aims to find a safer and more effective nail polish remover for methacrylate-based gel nail polish. Gel nails are popular with customers due to a harder surface that reduces chipping and extends nail polish life. However, the removal of the polish requires application of acetone remover for up to 15 minutes. Acetone can cause serious eye irritation, drowsiness and dizziness; chronic exposure to acetone-based nail removers may damage the central nervous system and renal system.

Professor Ram Nagarajan of the Department of Plastics Engineering at UMass Lowell is partnering with **Bradford Industries of Lowell** for a second year to find and evaluate safer solvent blends to replace the use of the toxic solvent

dimethylformamide (DMF). In the first phase of the project, the research team identified combinations of safer and effective solvents that dissolve the target polymer used by the company. The goal of the second phase is to vary the relative ratios of solvents in the mixtures to meet the company's performance and cost requirements.

Assistant Professor Hsi-Wu Wong of the Department of Chemical Engineering at UMass Lowell is partnering with **Waters Corporation of Milford** for a second year to continue identifying and testing the performance of safer solvents used in liquid chromatography equipment. The new formulations will replace the harmful solvents currently in use, including methanol, acetonitrile and tetrahydrofuran.

Industry Grantees

Kettle Cuisine of Lynn, a maker of small-batch, all natural soups for restaurants, food-service operators and grocery retailers, is continuing its work with UMass Lowell's Food Safety Lab to reduce the use of sodium hydroxide. Sodium hydroxide, which is used to clean food processing tanks, is corrosive to the eyes, skin and the respiratory tract. Previous project work determined how the facility could optimize their use of the cleaning chemical (thereby reducing volume) and identified potential alternatives. This year, UMass Lowell students will test the safer alternatives in the field to determine effectiveness.

Lytron of Woburn, a designer and manufacturer of cold plates, chassis, chillers, cooling systems and heat exchangers, continues to work toward eliminating the use of trichloroethylene (TCE) from its copper cleaning line. Acute exposure to TCE vapors can cause central nervous system anomalies and other adverse physiological effects. Lytron will use TURI lab services to test the performance of safer alternatives that will effectively clean copper, focusing on

identifying a water-based or enzymatic cleaning solution. This work builds on Lytron's commitment to provide the safest work environment for employees and the community.

Morgan Advanced Ceramics of New Bedford, a manufacturer of ceramic feedthroughs for medical and aerospace industries, aims to eliminate TCE used in a vapor degreaser. The company will purchase a water-based cleaning system that is expected to eliminate 3,300 pounds of TCE use per year. By not using TCE, the company expects to save \$10,000 per year, improve worker health and safety and reduce regulatory obligations.

MSI Transducers Corp. of Littleton, a designer and manufacturer of acoustic transducers used for a variety of commercial and defense applications, expects to significantly increase production within the next five years. In anticipation of this growth, the company aims to reduce its use of lead and lead waste generated in the manufacturing process by re-engineering two injection molding tools.

Community Grantees

Don't Take That Receipt! of Haydenville, a public health and social justice group of youth and adults, will build upon a previous project that included the creation of an education video about exposure to bisphenol A (BPA) and bisphenol S (BPS) from store receipts. View the video at www.bpa-free.me. This next phase of the project includes communicating the dangers of BPA and BPS through personal exchanges and social media. The team will reach out to stores in and around the low-income community of Holyoke and other towns in western Massachusetts, focusing on retailers, workers and consumers.

The Field Fund, Inc. of Martha's Vineyard works to preserve and maintain Martha's Vineyard's playing fields using an organic, systems-based approach. The project team aims to share their success with other communities who are evaluating whether to invest in natural grass or artificial playing fields. The team will create a video, build a website and develop brochures and fact sheets that show that, when thoughtfully maintained, natural grass is a durable, safe, economical playing surface that is also beneficial to children and the environment.

Lawrence Fire Department will integrate toxics use reduction awareness into their fire safety visits to all 103 auto body and car repair shops in the city. During the visits, the fire prevention team will conduct an initial safety assessment, provide owners with a list of safety concerns to work on and encourage owners to use safer products. Products that contain toxic chemicals include wheel washes, spray gun washers, brake cleaners, degreasers and lead wheel weights. During a later visit, fire prevention officials will evaluate whether the shops switched to safer alternatives. They will continue inspections on an annual basis, encouraging toxics use reduction and safer product trials.

Worcester Public Schools will work to make school buildings safer for students, teachers and tradesmen. The project team will identify safer alternatives that tradesmen use to maintain the buildings. Products that contain toxics include adhesive removers, caulking, lubricants, rust removers, and boiler additives. The project team is also identifying safer products used to maintain the buses, such as degreasers, lubricants, oils and coolants. They will share the information with facility managers and vocational teachers across the state.