

Quick Facts about Polystyrene Containers and Thin-Film Plastic Shopping Bags



The Tri-Town Health Department, the Lee Recycling Committee, and the Lenox Environmental Committee, supported by the Massachusetts Department of Environmental Protection and local volunteers, are examining issues surrounding the use of polystyrene drink and food containers and thin-film plastic bags. We are exploring options for possibly regulating either or both of them and promoting safe, reusable, and sustainable alternatives. Our goal is to have consistent measures across our three towns that enhance public and environmental health and reduce waste management problems.

This document presents various facts about these products and supplements a tri-fold flyer that provides an overview of our efforts. To learn more, please visit our website: www.tritownhealth.org.

Polystyrene Containers

- A 2009 study found that the amount of styrene in hot drinks exceeded EPA recommended levels – the hotter the drink, the more styrene.¹
- Polystyrene is not recycled because it is not economic to wash, degrease, transport, and store in order to recycle – it costs thousands of dollars per ton to recycle and litter clean-up costs billions.²
- Polystyrene is not biodegradable and does not easily deteriorate in landfills, taking up more space than paper.³
- The environmental impacts of polystyrene rank second behind aluminum for total environmental impacts, especially in terms of energy consumption and greenhouse gas effects.⁴
- More than 100 American, Canadian, European, and Asian cities and towns have enacted polystyrene bans.⁵

Thin-Film Plastic Bags

- Plastic bags are used for an average of 12 minutes, but a single plastic bag has a life expectancy of up to 1,000 years.⁶
- The energy required to manufacture 12-14 plastic shopping bags “could drive a car 1 mile.”⁷
- The production of plastic uses around eight percent of the world’s oil production.⁸
- Recycle rates for plastic bags are as low as 1% - applying that rate to our three towns means that just 70,000 out of the more than the estimated 7,000,000 bags used are recycled.⁹
- Plastic bags do not biodegrade. Light breaks them down into smaller and smaller particles (micro-plastics) that contaminate the soil and water and are difficult and expensive to remove.¹⁰
- These micro-plastics can hold and concentrate many of the toxic chemicals found today in our oceans. DDT and PCBs are common examples. Thin plastic film, such as polyethylene, combines with these toxins quicker than thicker plastics.¹¹

- In a 2015 review of 42 studies of micro-plastic samples taken at sea or from marine sediments, 79% found polyethylene debris, which was the most prevalent of all plastics recovered.¹²
- Fish and shellfish are most often exposed by ingesting micro-plastics.¹³
- Marine wildlife often mistake plastic bags for food, especially sea turtles hunting jellyfish. In fact, high amounts of plastic material, especially plastic bags, have been found blocking the breathing passages and stomachs of many marine species, including whales, dolphins, seals, puffins, and turtles.¹⁴

Regulatory Concepts about which we want Community Input

Many of the provisions that we will include in our regulations have a range of options. Community input will help us tailor them to best fit the needs and desires of our three towns. These concepts include the following:

- The items within each set of products we should regulate
- The uses we should cover
- How we define approved alternative products
- How soon the regulations will go into effect

¹ Khaksar, M.R. & Ghazi-Khansari, M. (2009) *Determination of migration monomer styrene from GPPS (general purpose polystyrene) and HIPS (high impact polystyrene) cups to hot drinks*. Toxicology Mechanisms and Methods, 19(3), 257-261. DOI: 10.1080/15376510802510299 or Retrieved from: <http://informahealthcare.com/doi/abs/10.1080/15376510802510299>.

² The Way To Go, (2008), *Polystyrene Fact Sheets*. Retrieved from: <http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf>. Californians Against Waste, (2014), *The Problem of Polystyrene*. Retrieved from: http://www.cawrecycles.org/issues/plastic_campaign/polystyrene/problem.

³ The Way To Go, (2008), *Polystyrene Fact Sheets*. Retrieved from: <http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf>.

⁴ The Way To Go, (2008), *Polystyrene Fact Sheets*. Retrieved from: <http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf>.

⁵ The Way To Go, (2008), *Polystyrene Fact Sheets*. Retrieved from: <http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf>.

⁶ Earth Policy Institute, *Plastic Bags Factsheet*. Retrieved from: http://www.earth-policy.org/press_room/C68/plastic_bags_fact_sheet

⁷ "Dangers of Plastic Bags." EnviroSax. Bellouco Pty Ltd., n.d. Web. <http://www.envirosax.com/plastic_bag_facts>. Retrieved from: http://www.environmentmassachusetts.org/sites/environment/files/reports/Bag%20Ban%20Fact%20Sheet%20_0.pdf. Earth Policy Institute, *Plastic Bags Factsheet*. Retrieved from: http://www.earth-policy.org/press_room/C68/plastic_bags_fact_sheet

⁸ Retrieved from: <http://ecowatch.com/2014/04/07/22-facts-plastic-pollution-10-things-can-do-about-it/>

⁹ Retrieved from: http://www.cleanair.org/program/waste_and_recycling/recyclenow_philadelphia/waste_and_recycling_facts

¹⁰ Retrieved from: www.cleanair.org/program/waste_and_recycling/recyclenow_philadelphia/waste_and_recycling_facts

¹¹ The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (Gesamp) presents in its "Sources, Fate and Effects of Microplastics in The Marine Environment: A Global Assessment" Retrieved from:

http://www.gesamp.org/data/gesamp/files/media/Publications/Reports_and_studies_90/gallery_2230/object_2500_large.pdf

¹² The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (Gesamp) presents in its "Sources, Fate and Effects of Microplastics in The Marine Environment: A Global Assessment" Retrieved from:

http://www.gesamp.org/data/gesamp/files/media/Publications/Reports_and_studies_90/gallery_2230/object_2500_large.pdf

¹³ The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (Gesamp) presents in its "Sources, Fate and Effects of Microplastics in The Marine Environment: A Global Assessment" Retrieved from:

http://www.gesamp.org/data/gesamp/files/media/Publications/Reports_and_studies_90/gallery_2230/object_2500_large.pdf

¹⁴ Satariano, Adam. "Pacific Ocean Plastic Mistaken for Plankton Threatens Wildlife." Bloomberg News. Bloomberg, 10 Apr. 2008.

Web. 21 Mar. 2013. Retrieved from:

http://www.environmentmassachusetts.org/sites/environment/files/reports/Bag%20Ban%20Fact%20Sheet%20_0.pdf