



## Polystyrene Gets the Job Done!

Many people are aware of the tremendous versatility of polystyrene. The most recognizable forms of polystyrene packaging are:

- **Foamed Polystyrene:** used to make cups, bowls, plates, trays, clamshells, meat trays and egg cartons as well as protective packaging for shipping electronics and other fragile items.
- **Rigid Polystyrene:** used in products such as cutlery, yoghurt and cottage cheese containers, drinking cups and clear bakery and produce containers.

## Polystyrene Fast Facts

### Environmental Impact

- Polystyrene food service foam packaging in most cases has an environmental footprint over the life cycle of the package that is lower than or comparable to alternative packages studied.<sup>1</sup>
- Polystyrene foam 500 ml cup for hot beverages uses a 1/3 less energy, produces 1/3 less greenhouse gases (GHGs) and 50% less solid waste by volume compared to a paperboard 500 ml. cup with a sleeve.<sup>1</sup>
- Polystyrene foam 130 mm clamshell uses around the same amount of energy but produces 25% less GHGs compared to a fluted paperboard 130 mm clamshell.<sup>1</sup>
- Polystyrene foam 1 litre cup for cold beverages uses 50% less energy, produces 25% less GHGs and almost 50% less solid waste by volume compared to a wax coated paperboard 1 litre cup.<sup>1</sup>
- No CFC's (chlorofluorocarbons) are used in the manufacturing of foam polystyrene.

### Effective Insulator

- Foam polystyrene offers excellent insulation properties and strength and is widely used for packaging of take-away meals, hospital meals and cups for hot and cold beverages.
- "Double cupping" with two paperboard cups is not needed. "Double cupping" results in over twice as much energy used and nearly twice as much GHG emissions compared to a single polystyrene cup.

### Health & Safety

- Polystyrene foam foodservice is safe.
- For more than 50 years, polystyrene has been approved by Health Canada and the U.S. Food and Drug Administration for food-contact use.
- Polystyrene is sanitary. Reusables require strict attention to proper washing and drying techniques to prevent the spread of disease. They require water and energy to clean.
- Modern meat packaging, distribution and retailing, use polystyrene foam trays because they do not absorb fluids like pulp trays.

### Economical

- Polystyrene food service products are 2 to 3 times less expensive than paper based materials. Choosing polystyrene affords businesses the ability to keep costs low for their customers.

### Recycling

- **One in four Canadians have access to municipal recycling for foam polystyrene . One in two Canadians have access to municipal recycling of rigid polystyrene.**<sup>4</sup> Polystyrene can be- and is being- recycled into various products like picture frames, coat hangers, seedling trays, cornices, moldings, base boards, office supplies, insulation materials, protective packaging for durable items and in some cases back into food packaging.
- Most single use coated paper board food service packaging materials are not recycled.

### Landfill

- Polystyrene is an inert material which does not break down and release substances in landfill.
- Polystyrene, on average, takes up less than 1% of all landfill space.<sup>2</sup>
- Major contributors to municipal landfill are: Organics 45%, Paper 22%, Plastics 9%, Glass 5% and Metals 3%.<sup>2</sup>

### Litter

- Urban litter audits found that polystyrene cups, trays and clamshells were 1.5 % of total litter found.<sup>3</sup>
- People's careless behaviour creates litter; not a material.

1. *Final Peer-Reviewed Report: Lifecycle Inventory of Polystyrene Foam, Bleached Paperboard and Corrugated Paper Food Service Products*, Franklin Associates Ltd. 2. Stats Canada, Environmental Accounts and Statistics Division 3. Litter Audits from Communities in Ontario, York Region, Peel Region, Durham Region, City of Toronto. 2003-2006 4. CM Consulting "Access to Municipal Recycling", May 2013.

## Polystyrene Myths and Facts

**Myth: Polystyrene is not recyclable.**

**Fact:** Polystyrene is 100% recyclable; every day it is being recycled into many valuable new products, such as picture frames, coat hangers, seedling trays, cornices and mouldings, base boards, office supplies and fire-retardant materials. There is a growing market for recycled polystyrene in North America.

**Myth: It is too expensive to ship non compacted polystyrene to recycling plants**

**Fact:** Polystyrene foam is greater than 95% air making the transportation of loose foam prohibitively expensive. In the past decade a number of companies across the world have developed "Densifiers" to crush the foam into heavy bricks for shipping. It is now possible to transport Polystyrene foam as economically as other recyclable materials.

**Myth: Polystyrene degrades and contaminates the environment.**

**Fact:** Because polystyrene is an inherently inert material it does not break down in a landfill nor does it produce greenhouse gases or release leachates into the groundwater.

**Myth: Polystyrene can break down into smaller pieces and can enter the food chain, causing negative consequences.**

**Fact:** Polystyrene can break down into smaller pieces over time, but it does not leach harmful substances into the food chain.

**Myth: Biodegradable packaging is better than polystyrene ones.**

**Fact:** Biodegradable packaging is not a packaging panacea. When biodegradable materials end up in landfill, they would decompose via anaerobic degradation and produce methane, a green house gas, which is 23 times more potent than carbon dioxide.

**Myth: Alternative items to polystyrene exist.**

**Fact:** Polystyrene has been proven, by an independent, Quebec based Life Cycle Assessment, to have the lowest environmental footprint of the materials studied<sup>5</sup>. The footprint of the polystyrene food tray was comparable to a tray produced from 100% recycled paper pulp. As polystyrene recycling rates increase, the life cycle benefits of polystyrene can also be expected to improve. The same LCA determined that degradable plastics had a higher environmental impact.

**Myth: Polystyrene is not a good container for hot liquids, as the chemicals can leach out.**

**Fact:** Polystyrene has been approved by Health Canada (and other leading health organizations like the U.S. Food and Drug Administration) for food-contact use. This means that it meets all applicable health standards and is safe for use. Polystyrene does not contain Bisphenol A (BPA) or any similar additives

**Myth: Polystyrene is taking up large amounts of landfill space.**

**Fact:** A 1996 report by Franklin Associates shows that polystyrene foam foodservice products account for less than one per cent, by volume and weight, of the municipal solid waste stream. Polystyrene is inert. It should be recycled and not end up in landfill.

**Myth: Styrene is an endocrine-disruptor that mimics the female hormone estrogen, which can lead to reproductive and developmental problems.**

**Fact:** No regulatory body in the world has classified styrene as a known human carcinogen. Most people are exposed to styrene daily through the air we breathe, mainly from auto emissions and cigarette smoke.

A comprehensive review of the potential health risks associated with exposure to styrene was conducted by a 12 member international expert panel selected by the Harvard Center for Risk Assessment. The complete findings were published in the *Journal of Toxicology and Environmental Health*.

The Harvard study reported that styrene is naturally present in foods such as strawberries, beef, and cinnamon, and is naturally produced in the processing of foods such as wine and cheese. The study also reviewed all the published data on the quantity of styrene contributing to the diet due to migration of food packaging and disposable food contact articles, and concluded there is no cause for concern for the general public from exposure to styrene from foods or styrenic materials used in food-contact applications, such as polystyrene packaging and foodservice containers.<sup>4</sup>

**Myth: Polystyrene should be banned**

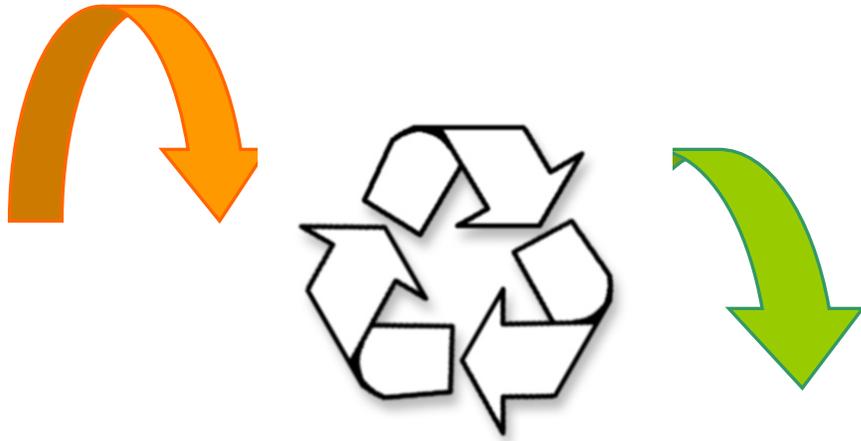
**Fact:** Bans negatively impact businesses as consumers are saddled with increased costs of alternative materials. Further, litter does not go away. Other materials now make up litter.

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<sup>5</sup>"A Comprehensive Evaluation of the Potential Health Risks Associated with Occupational and Environmental Exposure to Styrene", Harvard Center for Risk Analysis, Harvard School of Public Health, Boston, MA (*Journal of Toxicology and Environmental Health*, Volume 5, Number 1-2, January – June 2002), published quarterly by Taylor & Francis.



# Start Recycling Polystyrene Household Packaging Today!



Fireproofing Material