Green Care:

Foodservice Packaging Life Cycle Inventory

This peer-reviewed study from Franklin Associates Ltd. provides an extensive and comparative look at the energy and environmental performance of foodservice packaging products made with polystyrene foam, bleached paperboard or corrugated paperboard, including hot and cold beverage cups and sandwich “clamshells.” Known as a life cycle inventory, or simply LCI, the study offers a cradle-to-grave picture of a product’s environmental attributes, from raw material extraction and manufacturing to post-use recovery or disposal.

The 2006 Foodservice Packaging LCI evaluated products across the full range of resource and energy use, solid waste generation, atmospheric emissions and waterborne emissions. Comparisons between systems were summarized for four key performance areas: energy, solid waste (weight), solid waste (volume), and greenhouse gas emissions. The full report, Franklin Associates, Ltd., Final Peer-Reviewed Report: Life Cycle Inventory of Polystyrene Foam, Bleached Paperboard, and Corrugated Paperboard Foodservice Products (Prepared for The Polystyrene Packaging Council, March 2006), may be downloaded at www.dart.biz.

This LCI meets international standards (ISO 14040) and has been independently peer-reviewed. More information on the peer-review can be found on page PR-3 of the full report.

About Life Cycle Studies—What is an LCI?

A life cycle approach means we recognize how our choices influence what happens at each of these points so we can balance trade-offs and make informed choices that can help reduce overall burdens on the environment. In this regard, LCI studies are an essential source of information for government, scientists, manufacturers and retailers, and individuals who want to make an educated environmental choice.

An LCI is a compilation and quantification of the inputs and outputs of a given product system. In this case, foodservice packaging products, including hot and cold beverage cups, plates and sandwich clamshells, were reviewed. LCI studies conduct a system analysis that begins with extracting raw materials from the ground for use as material feedstocks or fuels. Materials and energy use, as well as releases to the environment, are then assessed throughout product manufacturing, transportation, use, and management at the end of the product’s useful life.

In Public Policy

LCI studies are particularly important in the public arena, where they can help policymakers arrive at well-informed decisions and avoid the shortcomings of focusing on a single environmental performance attribute. The 2006 Franklin LCI provides comparative information on air, water, solid waste and energy as well as a complete range of post-use options, such as recycling, composting, landfilling and waste-to-energy incineration. This enables policymakers to evaluate these factors in the broader context of other important environmental attributes spanning the product life cycle.

In the Foodservice Industry

Similarly, decision makers in the foodservice industry can assess the study’s findings in combination with other important criteria, such as cost, convenience and product performance, to make better-informed choices about the products they use.

For additional environmental information, visit our website at www.dart.biz
Foodservice Packaging Life Cycle Inventory (cont.)

Report Highlights
Comparisons between systems were summarized for four key performance areas: energy, solid waste (by weight), solid waste (by volume), and greenhouse gas emissions.

- In the four key areas, the LCI study demonstrates that in most cases the alternative products studied have environmental burdens that are higher than or comparable to polystyrene foam products. These include plastic-coated paperboard cups for hot beverages (both with and without a corrugated sleeve), plastic-coated and wax-coated cups for cold beverages, and fluted paperboard clamshells (p. ES-16; pp. 2-60 through 2-63).
- The report will disappoint gourmet coffee customers who believe they are doing something “good for the environment” by choosing to use two plastic-coated paperboard cups for one hot beverage instead of a single polystyrene foam cup. According to the data (derived from pp. 2-7, 2-23, 2-43, and 2-60) for the average plastic-coated paperboard cup and average polystyrene foam cup, this practice of “double-cupping” results in over twice as much energy use and solid waste by volume and over five times as much solid waste by weight as the use of a single polystyrene cup.
- An average-weight polystyrene hot beverage cup requires about one third less energy to produce as an average-weight polyethylene (PE) plastic-coated paperboard hot beverage cup with a corrugated cup sleeve (Table 2-2, p. 2-7).
- An average-weight polyethylene (PE) plastic-coated paperboard hot beverage cup produces almost three times as much total waste by weight as an average-weight polystyrene hot beverage cup (Table 2-10, p. 2-23).
- An average-weight polyethylene (PE) plastic-coated paperboard hot beverage cup with a corrugated cup sleeve produces almost five times as much total waste by weight as an average-weight polystyrene hot beverage cup (Table 2-10, p. 2-23).
- An average-weight polystyrene cold beverage cup requires approximately half as much energy to produce as a representative-weight wax-coated paperboard cold beverage cup (Table 2-3, p. 2-8).
- An average-weight polyethylene (PE) plastic-coated paperboard cold beverage cup produces almost two and one-half times as much total waste by weight as an average-weight polystyrene cold beverage cup (Table 2-11, p. 2-24).
- A representative-weight wax-coated paperboard cold beverage cup produces almost five times as much total waste by weight as an average-weight polystyrene cold beverage cup (Table 2-11, p. 2-24).

Sources