

New Study Gives “Green” Light to PET Bottles over Glass or Aluminum

Better Environmental Footprint

New York, NY (April 6, 2010) -- A newly released life-cycle inventory of single-serving soda containers concludes that PET plastic bottles offer a better environmental footprint than aluminum cans or glass bottles by using less energy, generating less solid waste, and creating significantly fewer greenhouse gases.

The cradle-to-grave study, conducted by Franklin Associates for the PET Resin Association (PETRA), compared total energy, solid waste and greenhouse gas emissions per 100,000 ounces of soft drinks packaged in typical 20-oz PET bottles, 8-oz glass bottles, or 12-oz aluminum cans. The PET bottles showed appreciably lower numbers across the board.

Most notable were the lower greenhouse gas emissions for the PET bottles, which registered 59% less than aluminum and 77% less than glass. Franklin calculated the greenhouse gas emissions for the PET bottles at 1,125 pounds of carbon dioxide equivalents, compared to 2,766 lbs for aluminum and 4,949 lbs for glass.

Total Energy, Solid Waste & Greenhouse Gas Emissions For Soft Drink Containers (per 100,000 oz of soft drink)				
Container	Energy Use <i>(in millions)</i>	Solid Waste <i>(weight) (volume)</i>		Greenhouse Gases <i>(CO₂ equivalents)</i>
PET Bottle	11.0 BTU	302 lbs	0.67 cu yd	1,125 lbs
Aluminum Can	16.0 BTU	767 lbs	0.95 cu yd	2,766 lbs
Glass Bottle	26.6 BTU	4,457 lbs	2.14 cu yd	4,848 lbs.

Source: Table ES-2, Franklin Associates

Energy use for the PET bottles totaled 11.0 million BTU per 100,000 ounces of soft drink, compared to 16.0 million BTU for aluminum and 26.6 million BTU for glass.

Solid wastes for the PET bottles totaled 302 pounds, versus 767 pounds for aluminum, and 4,457 pounds for glass. Solid waste volume was 0.67 cubic yards for PET, 0.95 cubic yards for aluminum, 2.14 cubic yards for glass.

“This study again confirms the excellent environmental profile and value of PET for packaging foods and beverages,” said PETRA Executive Director Ralph Vasami. “Since 2005, PET containers have been the subject of several independent life-cycle analyses and PET has consistently shown itself to be a sound environmental choice whether compared to glass, metal or other plastics.”

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Vasami said that after PETRA received the preliminary LCI report on the soft drink containers, it asked Franklin to go back and recalculate its findings on the basis of 10,000 equally sized 12-oz. containers. Under this scenario, the PET bottles still trumped aluminum or glass in terms of lower greenhouse gas emissions and solid wastes, while total energy use was deemed comparable for all three materials (see table below).

Total Energy, Solid Waste & Greenhouse Gas Emissions For Soft Drink Containers (based on 10,000 12-oz soft drink containers)				
Container	Energy (in millions)	Solid Waste (weight) (volume)		Greenhouse Gases (CO ₂ equivalents)
PET Bottle	20.1 BTU	554 lbs	29.9 cu yd	2.084 lbs
Aluminum Can	19.2 BTU	921 lbs	16.5 cu yd	3,035 lbs
Glass Bottle with Steel Cap	20.2 - 23.4 BTU	3,385 - 3,931 lbs	37.3 - 43.2 cu yd	3,678 - 4,252 lbs
Glass Bottle with Aluminum Cap	22.4 - 25.6 BTU	3,484 - 4,029 lbs	38.3 - 44.1 cu yd	3,988 - 4,562 lbs

Source: Table D-1, Franklin Associates

For both analyses, the life cycle inventory covered extraction of raw materials through container fabrication, as well as post-consumer disposal and recycling. The post-consumer disposal and recycling calculations included transporting to a landfill or incinerator, equipment operations at a landfill, and energy recovered by an incinerator, but excluded incinerator and landfill emissions. Post-fabrication transportation to the filling site, filling, distribution, storage, retail use and consumer use were excluded.

The report is available on the PETRA website at <http://www.petresin.org/news.asp>.

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PETRA (PET Resin Association) is the industry trade group representing North America's producers of PET resin, the polyester polymer that is widely used for food and beverage containers, bottles, films, and other plastic products. PETRA is dedicated to promoting the benefits and value of PET resin and PET products, providing accurate technical and scientific information about PET, and serving as the industry's resource clearinghouse