TRICORBRAUN

Sustainability Times

Volume 2, No. 1 January/February 2008

Sustainable Efforts

Rising criticism of bottled water requires response

Water is an essential part of a healthy diet, but increasingly strident critics are casting bottled water as an environmental villain due to waste generation, low recycling rates, energy consumption related to production, packaging and shipping, and negative impact on local streams and groundwater. In addition, opponents contend bottled water costs significantly more than tap water, which makes it unaffordable for the people who need it the most – those in developing countries where access to potable water is limited.

The rising level of criticism against bottled water points out the need for suppliers of all consumer packaged goods to be environmentally proactive. Not only do packagers need to select the most environmentally friendly packaging possible, but

Industry tries to improve 'green' image

Producers of bottled water and industry trade associations are working to counter critics by providing educational information and finding ways to lessen the product's environmental impact.

- Polyethylene terephthalate (PET) water bottles account for less than one-third of 1% of waste produced in the US in 2005.*
- *The PET beverage container recycling rate is rising.***
- PepsiCo, Purchase, NY, and Coca-Cola Co., Atlanta, GA, have changed the labels of their respective brands, Aquafina and Dasani, to advise consumers the source of the product is municipal water supplies.
- *Coca-Cola is investing heavily in recycling including a joint venture in a PET recycling plant. It also is working to increase the level of recycled content in its PET containers and has made a commitment to recycle 100% of its PET containers.*
- Lightweighting of containers and closures is accelerating. Industry-wide, bottled water containers consume 40% less resin since 2002.* Nestle Waters North America Inc., Greenwich, CT, plans to convert its entire lineup to its lightweight half-liter Eco-Shape container. At 12.5 grams, the bottle weighs about 30% less than other half-liter bottles on the market.
- *Fiji Water, Los Angeles, CA, is working to become carbon negative in 2008 through use of wind power, purchase of carbon offsets, participation in carbon-reducing projects in Fiji, use of bio-diesel fuel to transport product. Fiji Water plans to reduce packaging 20% by 2011, increase use of recycled content, and advocates including bottled water in container deposit programs.*
- A 9-ounce Y-shaped bottle has been adopted by Y Water, Los Angeles, CA, for four flavors of vitamin-infused, flavored organic water for kids so interlocking containers can be reused as toys.

* International Bottled Water Association website, www.bottledwater.org
** TricorBraun Sustainability Times, November/December 2007

perhaps, more importantly, they need to publicize their efforts and educate consumers about what's environmentally right with their packaging. Already, bottled water is seen in such a negative light by some that a few upscale restaurants and some local governments like San Francisco, CA, no longer purchase or serve bottled water. Several consumer and religious groups including the Franciscan Federation, Washington, DC, are calling for consumers to choose tap water over bottled.

Bottled water even is being discussed in the funny papers. The Judge Parker comic strip presented statistics about the resources consumed by bottled water packaging in strips that ran 12-16 November 2007. The final strip in the series had the young Sophie concluding reusable packaging was needed, perhaps an edible container.

In Chicago, IL, the city has levied a $0.05/container tax on bottled water. Retailers must pay the tax, which increases the price per case 30%. The law took effect on 1 January 2008 and will generate an estimated $10.5 million for the city's general coffers. It could be short-lived, however, if a lawsuit brought by the American Beverage Association (ABA), Washington, DC; Illinois Retail Merchants Association, Chicago, IL; Illinois Food Retailers Association, Lombard, IL; International Bottled Water Association, Alexandria, VA; is successful.

The suit contends the city lacks the authority to impose the tax and argues it poses a threat to the Chicago economy, including retailers, retail jobs and consumers, particularly low-income consumers who spend a larger percentage of their income on food. In addition, since the tax singles out water, the lawsuit claims it violates the Uniformity Clause of the Illinois Constitution.

"We're going to stand up for our customers, both retailers and consumers who are being forced to pay a tax on a healthy product like bottled water," says Susan Neely, president of ABA, which represents the nonalcoholic beverage industry including bottled water producers. "We're not just going to take a tax like this without raising a challenge. It's disconcerting that government spending is leading government officials to start taxing products that are good for you simply to cover their budget deficits."

True Artesian selects glass over PLA

After considering containers made of biodegradable polylactic acid (PLA), True Artesian Bottling Co., Alanson, MI, decides to launch its spring water in 1-liter glass bottles.

According to a report in the December 2007 issue of *Inside Glass Packaging* (www.gpimail.org/news/2007/dec/mail.htm), a monthly newsletter published by the Glass Packaging Institute, Washington, DC, the shift to glass was prompted by issues with the PLA bottles including deformation over time, inadequate barrier properties, sensitivity to heat and concerns about the potentially negative effects of mixing PLA in the polyethylene terephthalate waste stream.

The article notes glass containers can be recycled repeatedly and suit the upscale profile of the product, which is scheduled to be introduced in spring 2008 in restaurants and hotels. The company also plans to supply private-label customers.

Label tells UK consumers how recyclable package is

Retailers in the United Kingdom (UK) hope adding recycling information to labels will help consumers reduce waste and increase their level of recycling.

Standardized messages proposed by the British Retail Consortium (BRC), London, UK, advise consumers that the package is "Widely recycled – Recycled by 65 per cent or more of local authorities" or "Not currently recycled – Recycled by less than 20 per cent of local authorities" or advises them to "Check locally – Recycled by 20 to 65 per cent of local authorities."

Retailers planning to use the on-pack recycling advisories include Alliance Boots, ASDA, B&Q, Marks & Spencer, Sainsbury's Supermarkets, Tesco Supermarkets Ltd.,

The Co-Operative Group and Waitrose. The effort in collaboration with manufacturers, government entities and The Waste and Resources Action Programme, Banbury, UK, is designed to overcome challenges posed by differences in local recycling practices.

Recycling/Recycled Content

Will we see new bottle bills passed in 2008?

After years of discussion at state and federal levels about container deposit legislation, 2008 could be a turning point even though similar bills have failed in the past.

In November 2007, U.S. Representative Edward J. Markey (D-MA) introduced a bill to amend the federal Solid Waste Disposal Act and create a national container deposit system. If passed as currently written, the Bottle Recycling Climate Protection Act of 2007 (H.R. 4238), currently being studied by the House Committee on Energy and Commerce, would require a $0.05 deposit on metal, glass and plastic containers as well as bottles made of a combination of these materials for beverages such as water, mineral water, soda water, flavored water, sports drinks, juice, iced tea, wine coolers, beer, other malt beverages and carbonated soft drinks. Carton packaging and milk and dairy-based beverages would be exempt. Funds generated would be used for state pollution prevention, recycling programs and other purposes.

In New Jersey, Assemblywoman Valerie Huttle (D-District 37) has introduced The Smart Container Act (A121). It would require a $0.10 deposit on most plastic, metal and glass beverage containers under 24 ounces and a $0.20 deposit on larger containers (24 ounces to a gallon). The bill, which has been referred to the Assembly Environment and Solid Waste Committee, also exempts milk and dairy beverages, but includes beer, malt beverages, wine, carbonated soft drinks, juices, teas and water.

China proposes stringent package recycling law

China is considering a stringent packaging waste and recycling law. According to a report from PackWebasia.com, Singapore, the law would require all packaging to be recoverable, as well as either recyclable or degradable and gives brand owners the task of collecting post-consumer packaging waste.

The law also mandates lightweighting and establishes a three-tier classification system that defines packaging materials and production processes as Encouraged, Restricted or Obsolete (banned). As the law is currently written, the Obsolete category includes styrene. Thus, if the law is passed, packagers will have to replace any styrene packaging regardless of whether the product is destined for the domestic market or export.

Requirements of the legislation, Method for Administration of Recycling Packaging Materials, will affect the packaging supply chain including brand owners, printers, converters, equipment suppliers, materials manufacturers and recyclers. The law also would provide incentives for research in materials and technology, establish waste recovery and recycling systems, regulate transport and storage of recyclable and recycled materials, set harsh penalties for noncompliance, and organize an enforcement team. In a first for China, whistleblower provisions give citizens the right to report waste of resources, environmental damage and excessive packaging.

An annotated English translation of the proposed law is available in a report, China's New Packaging Legislation…, published by EP Resources Pte. Ltd., the owner of PackWebasia. The report, which sells online (www.PackWebasia.com) for US$1,500, also includes analysis from sources inside China, description of industry structure, major end-use markets, assessment of impact on stakeholders, and a Catalogue of Encouraged, Restricted and Obsolete Materials.

Renewable Materials

PHA bioplastic requires less energy, reduces GHG

An independent life-cycle assessment by Dr. Bruce Dale, professor of Chemical Engineering at Michigan State University, East Lansing, MI, indicates Mirel™ polyhydroxyalkanoate (PHA) bioplastic has several advantages over petroleum-based plastics.

Mirel PHA reduces greenhouse gas (GHG) emissions 200% and fossil fuel consumption 95% because its production by Telles, a joint venture between Metabolix Inc., Cambridge, MA, and Archer Daniels Midland Co., Decatur, IL, relies on renewable raw materials like corn and renewable energy sources. In fact, the study shows production of Mirel resin consumes only 2.5 Megajoules of nonrenewable energy/kilogram (MJ/kg) versus 70 MJ/kg for traditional olefins such as polypropylene and polyethylene and is actually carbon negative (-2.2 kg of carbon dioxide equivalent to kg of base oil) compared to +2.0 GHG emissions for polyolefins.

Heat-resistant Mirel PHA resins biodegrade in soil, home compost, industrial compost and fresh/salt water and will be available in commercial quantities by the end of 2008 when Telles starts up a 110-million-pound/year production plant in Clinton, IA.

Tests confirm compostability of biopolymers

Testing confirms compostable materials based on sugar cane, starch or polylactic acid (PLA) meet degradation standards defined in ASTM D6400.

The study undertaken by the California State University Chico Research Foundation, Chico, CA, for the California Environmental Protection Agency's Integrated Waste Management Board, Sacramento, CA, compares degradation performance of compostable materials to positive control materials like kraft paper in three settings: laboratory, manure-based compost at university farm and municipal compost facility. The report, available at www.ciwmb.ca.gov/Publications/default.asp?pubid=1245, also describes some of the most commonly available biodegradable and compostable polymers including biodegradable polyesters, starch-based materials and PLA.

In the laboratory test, the sugar cane dinnerware degraded the fastest, followed by the PLA clamshell, PLA cup and cornstarch-based trash bag. Resulting compost supported plant growth and showed no increase in heavy metal content. Farm and commercial compost facility tests showed similar results.

The researchers suggest compostable materials could be economical in "controlled population" settings such as hospitals, schools and cruise lines. In fact, if adopted by several large institutions in California, they estimate compostable materials could divert up to 10,000 tons of waste per year from landfills. The report also notes compostable materials carry a higher purchase price and may not be suitable for applications involving lengthy exposure to moist conditions. In addition, waste collection practices would have to be modified to divert materials to composting facilities.

For those converting to compostable materials, the report recommends purchase orders stipulate certification from the Biodegradable Products Institute, New York, NY, plus clear labeling for easy identification and separation for appropriate disposal.

About the author

Hallie Forcinio has covered packaging-related environmental topics for more than 20 years, first as an editor on *Food & Drug Packaging* magazine and more recently as a freelance packaging journalist. "My interest in the environment dates back to a high school government class," she notes. "I was collecting glass, newspapers and aluminum cans for recycling long before my community had a curbside recycling program."

In addition, to preparing the *TricorBraun Sustainability Times*, she contributes articles to numerous trade publications including *Packaging Machinery Technology*, *Pharmaceutical Technology, Managing Automation* and *Ben Miyares' Packaging Management Update*, the weekly e-newsletter that posts each Monday on Packexpo.com.