

Sustainability Times

Recycling/Recycled Content

Household cleaner converts to 100% RPET

Strengthening potential demand for bottle-to-bottle recycling, Method Products, Inc., San Francisco, CA, transitions to 100% post-consumer recycled (PCR) polyethylene terephthalate (RPET) containers for nine products.

Conversion from virgin PET, believed to be a first for household cleaners, involves three product lines, and reflects the environmental positioning of the Method brand products, which contain biodegradable ingredients. "Because we had been successful with 100% PCR bottles in the U.K., we wanted to explore what could be done in the U.S.," explains Jason Crouch, director of procurement at Method.

Amcor PET Packaging, Manchester, MI, overcomes challenges related to lower intrinsic viscosity of RPET, PCR supply and color quality to supply three sizes of clear 100% RPET containers. After approximately six months of design work and trials, the Amcor PET Packaging plant in Nicholasville, KY, began producing 12-ounce bottles for Daily Granite, Stainless Steel, Wood for Good surface cleaners, 25-ounce bottles for Lemon Ginger, Wood for Good floor cleaners, 28-ounce bottles for Lavender, Pink Grapefruit, Cucumber All-Purpose Cleaners and Ylang Ylang Daily Shower Spray.

"When Method came to us last year [2007] on this project, we were hoping to get to 50% PCR content," says Greg Rosati, business director, personal care, Amcor. "In our trials, we tested 10%, 25%, 50%, 75% and 100%," he recalls. "That's when we discovered that 100% PCR content was not out of the question, but we knew we had a lot of work ahead of us before we could be confident that...bottles meeting all of the criteria could be produced at commercial rates," he concludes.

Compared to 28-ounce virgin PET container, 100% PCR bottle reduces carbon footprint 60%, or 63.14 kilograms of carbon dioxide equivalent.

Bottles made of 100% RPET have been on the market in the U.K. for several months for ready-to-drink refrigerated smoothies from London-based Innocent Ltd. and Ribena fruit drinks from GlaxoSmithKline, which is headquartered in Brentford (see *TricorBraun Sustainability Times*, November/December 2007).

Evian bottles add recycled content

Another advocate of recycled polyethylene terephthalate (RPET), Danone Group's Evian Natural Spring Water, Atlanta, GA, has begun incorporating recycled content in its 750-millilitre and 1-litre containers, the brand's biggest sellers.

Many major carbonated soft drink and bottled water suppliers incorporate low percentages of RPET in their containers. Higher percentages have been limited by technical issues and a limited supply of bottle-grade RPET. However, with several 100% RPET bottles now commercial, technical issues appear to be largely resolved. Increasing supply depends on raising recycling rates and maximizing recycle quality.

Source Reduction

Bottle for noncarbonated products loses weight

Brand owners continue to lightweight packaging to control material costs and shipping expenses and reduce packaging waste (see *TricorBraun Sustainability Times*, November/December 2007).

As part of its Performance with Purpose mission, Pepsi-Cola North America (PCNA), Purchase, NY, has redesigned the 500-millilitre polyethylene terephthalate bottles it uses for cold-filled, noncarbonated beverages.

Lightweighted, monolayer, uncoated containers weigh 20% to 35% less than 23.5-gram (g) containers being replaced and should eliminate at least 20 million pounds of packaging waste per year. Nitrogen flushing of filled containers helps offset loss of rigidity in sidewalls. New bottles also feature 10% smaller label, require 5% less shrink film for multipacks and may contain up to 10% recycled content. In some cases, improved cube allows PCNA to stack pallets two layers higher.

“The challenge was to deliver significantly lighter packaging that would provide the same shelf life as the heavier bottle, withstand the manufacturing and distribution process yet not compromise aesthetics,” says Robert Lewis, vp of Worldwide Beverage Packaging and Equipment Development, PepsiCo. “After a full year of hard work from multiple corners of the company, we hit the trifecta -- a bottle that satisfied the needs of our system, our consumers and the environment.”

Amcor PET Packaging, Ann Arbor, MI, supplies PCNA with 13.2g preforms with 26-millimetre PCO short-skirt neck finish for Aquafina water, as well as 15- and 18.6g bottles for Lipton Iced Tea, Tropicana juice drinks and Aquafina FlavorSplash or Aquafina Alive waters.

Panel-less designs encourage glass-to-PET conversions

Panel-less, hot-fillable polyethylene terephthalate (PET) containers are encouraging food and beverage companies to replace heavier glass containers. Lighter weight also has positive impact on shipping costs, while shatter resistance of PET can open doors to sales in places where glass is prohibited like beaches, entertainment venues.

Panel-less hot-fillable PET bottles are available from several suppliers. Some recent conversions rely on PowerFlex designs from Amcor PET Packaging, Manchester, MI, which features a special diaphragm in the base that flexes to maintain container shape and offset vacuum that forms as hot-filled contents cool. Tradewinds Beverage Co., Cincinnati, OH, for example, switched to shrink sleeve-labeled PowerFlex bottle for multipacks of ready-to-drink tea and experienced a 1,400% sales increase. “We wanted to give consumers an ‘on the go’ bottle,” explains Steve Hatch, vp Sales at Tradewinds.

FUZE Beverage, LLC, Englewood Cliffs, NJ, has switched 19 flavors of FUZE noncarbonated functional beverages to 18.5-ounce PowerFlex bottle that mimics the height and silhouette of its iconic 18-ounce glass container. With thinner sidewalls, the PET container holds an additional 0.5 ounce of product.

Lightweight closure options continue to expand

Bericap Holding GmbH, Budenheim, Germany, which offers a number of lightweighted closure designs, has introduced two more.

New tamper-evident, high-density polyethylene HexaLite closure for still water and other noncarbonated beverage applications weighs about 0.5-gram less than the HexaCap it replaces and saves an additional 1.5 grams in the neck finish of the container. This source reduction of approximately 2 grams per container saves almost 2,000 tons of resin per billion bottles, cuts costs by €3 million (US\$4.6 million) and reduces greenhouse gas (GHG) emissions by an estimated 15,000 tons. Available diameters include 26 millimetre (mm), 29/25mm (outside diameter on thread crest of neck finish/inside diameter of neck finish).

Bericap's second new lightweighted design, the snap-on 38mm Galileo I hinged closure for dairy containers weighs 2.6 grams, about 30% to 40% less than existing options, saving up to 345 tons of resin per 100 million bottles, reducing costs up to €500,000 (US\$773,000), and eliminating up to 2,600 tons of GHG emissions. Applications include aseptic filling. Trials are underway at dairies in India and Italy.

Closure suppliers have been aggressively removing material from closures to conserve material, control costs, reduce container weight and shipping expenses (see *TricorBraun Sustainability Times*, July/August 2007, September/October 2007, November/December 2007).

Concentrates in smaller containers rule store shelves

Wal-Mart Stores, Inc., Bentonville, AR, achieves its goal and completes transition to concentrated liquid laundry detergent in May 2008. Transforming the category, the shift to concentrated products in smaller high-density polyethylene containers involves numerous brands, as well as other retailers.

By 2011 Wal-Mart estimates change to concentrated detergent will save more than 95 million pounds of fossil fuel-based resin, 400 million gallons of water and 125 million pounds of paperboard.

Renewable Materials

Compostable materials offer 'green' label choices

Two products have expanded the compostable label options available to brand owners, joining the EarthFirst polylactide (PLA) label available from Printpack's Seal-It division, Farmingdale, NY (see *TricorBraun Sustainability Times*, March/April 2008).

The Biosleeve PLA shrink sleeve label from Sleever International, Morangis, France, degrades in 45 days at 60 Celsius and meets the ISO 14855-2:2007 degradability/compostability standard. PLA is derived from renewable plant materials such as corn or potatoes and biodegrades into water, carbon dioxide and nontoxic biomass through the action of microorganisms present in composting facilities.

Labels can be printed on two sides in up to 10 colors on a gravure or flexographic press using solvent-free, ultraviolet inks. Application occurs on standard sleeving equipment.

Berkshire Labels, Hungerford, U.K., uses what it describes as the world's first fully biodegradable, compostable adhesive for its BioTAK™ range of pressure-sensitive labels for shelf-stable and chilled products. Label substrate options include white semi-gloss paper; kraft natural unbleached paper; white or clear PLA; white, clear or metallized Natureflex cellulose-based film from Innovia Films Ltd., Wigton, U.K.

Berkshire also produces compostable tape, overlaminating film and retail glue, laminations using the S100 adhesive, which complies with European Standard EN 13432 that specifies 90% biodegradation within 45 days.

Additive makes PET biodegradable

An oxo-biodegradation additive appears to have the potential to make polyethylene terephthalate (PET) containers degradable.

After successful tests in Europe, Diamant Art Corp. subsidiary Diamant Film Inc., Markham, ON, Canada, is supplying the additive for tests by North American bottle makers. Goals of the testing program include determining how the additive-laden resin performs on bottle making equipment and the degradability profile of the bottles.

Food contact clearance awaits test results.

PLA color palette expands

Users of polylactide can now specify tinted containers, closures, film or sheet. Teknor Color Co., Pawtucket, RI, supplies colorants based on one of three carrier resins, PLA, biodegradable petrochemical-based copolyester or polyethylene terephthalate (PET). However, the latter PETek concentrates are only suitable for nondegradable applications.

Sustainable Efforts

Michigan, New York consider expanded bottle bills

A number of states are considering new or expanded bottle bills, which require deposits on certain beverage containers, which are refunded to consumers when empties are returned for recycling. However, only two appear to have potential for passage in 2008.

Michigan, the first U.S. state to pass a bottle bill, could expand its deposit requirements beyond carbonated soft drinks to bottled water and other noncarbonated beverages. A vote on the measure, which would be tacked onto an appropriations bill, could come before the legislature's summer recess. The appropriations bill also includes a provision to prevent refunds from being paid on containers not purchased in Michigan.

In New York, the state Assembly has passed bill A8044, which would expand container deposit requirements to noncarbonated beverages with certain exemptions. It awaits action in the state Senate, which has a companion bill pending (S5850). Exemptions include liquor, wine, infant formula, milk and dairy products, rice and soy milks, dietary supplements, medications, concentrates and soups.

National and business leaders press for climate change

Climate change will be on the agenda in July 2008 at the Group of 8 (G8) summit in Japan. Global business leaders, including Alain Belda, chairman of Alcoa, New York, NY, have asked leaders to commit to halving emissions of greenhouse gases by 2050.

Belda and other members of the World Business Council for Sustainable Development also would like to see a successor treaty to the Kyoto Protocol that involves all major economies. "We know we must address climate change," says Belda. G8 consists of the United States plus Canada, France, Germany, Italy, Japan, Russia, United Kingdom. The European Union also participates.

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.