



Recycling Works

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Unifi Celebrates the Grand Opening of its REPREVE® Recycling Center

by Matt Ewadinger, RBAC Manager

On May 4, 2011, Unifi Inc. celebrated the official opening of its REPREVE® Recycling Center in Yadkinville. This \$8 million investment will allow the company to expand production capacities of its REPREVE recycled fiber.

REPREVE is a family of recycled polyester and nylon fibers that can be used in a wide range of applications, including apparel, automotive, seating and paneling fabrics. Since its introduction in 2006, REPVEVE has grown from a single recycled polyester fiber into an entire brand of sustainable products. In the last two years

alone, more than 247 million post-consumer PET bottles have been recycled into REPVEVE. Unifi estimates that the facility could recycle more than 400 million bottles into REPVEVE in 2012.

The 50,000 square foot REPVEVE Recycling Center enables Unifi to recycle post-industrial and post-consumer polyester waste, and in the future, fabrics and garments. The goal of the facility is to expand production capacities and capabilities, improve fiber color and drive volume growth for improved economics.

“The opening of the REPVEVE Recycling Center solidifies Unifi’s commitment to be the world’s leader in the production of

(UNIFI continued on page 4)



The \$8 million REPVEVE Recycling Center investment will allow the company to significantly expand production capacities of its REPVEVE recycled fiber.

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Recycling Works

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Recycling Business Assistance Center*

Model Bale Specifications Aim to Increase Plastics Recycling

by Keefe Harrison, Director of Communications, Association of Postconsumer Plastics Recyclers

The ever-expanding variety of new and creative types of plastic packaging can create collection and recovery difficulties for community recycling programs and material recovery facilities (MRFs). The Association of Postconsumer Plastics Recyclers (APR) is working to ease those concerns with the establishment of new model bale specifications for the collection of “bulky rigid plastics” and “tubs and lids.”



Examples of “tubs and lids” include yogurt, margarine, butter and sour cream tubs with lids or tops.*

“These new model bale specifications allow the recycling industry a common vocabulary,” explains APR rigid recycling director Liz Bedard. “By clearly identifying commodities that have a growing domestic market, we can begin to increase the collection and recycling of these valuable plastic materials.”

The bale specifications come on the tail of a year-long study evaluating types of non-bottle plastics bales being generated in North America. “We regularly hear from community leaders that their households are calling for more recycling opportunities for materials like yogurt and margarine tubs. Those containers are often made out of polypropylene, a resin very present in the material stream and with a growing recycling market,” says APR Executive Director Steve Alexander.

Since communities and businesses must be strategic in their decision to expand collection of new materials, APR has initially focused on model bale specifications for non-bottle rigid plastics that have strong domestic markets. “Just as communities are interested in expanding the types of materials they collect, our business and industry partners are also interested additional clean recyclable materials. Bulky plastic items such as 5-gallon buckets are a good and steady source of recoverable and recyclable material,” explains APR Chairman Scott Saunders.

These two specifications are the first in a series of new model specifications for bales that contain non-bottle rigid plastics. APR will continue ongoing work to secure specifications for other material



Examples of “bulky rigid plastics” include buckets, lawn furniture, laundry baskets, curbside recycling bins, toys, milk crates, garbage pails and pet carriers.*

streams that are primed for steady growth. To view the new specifications and other tools to expand plastics recycling, go to <http://plasticsrecycling.org/rigid-plastics/public-access-rigid-plastics-information>.

For more information about the new bale specifications, contact Liz Bedard, APR director of rigid plastics recycling, at cbedard18@gmail.com.

*Photos courtesy of Mecklenburg County Solid Waste and Recycling.

Communities Starting to Move Beyond Plastic Bottles

by Scott Mouw, Chief, Community and Business Assistance Section



For years, local recycling programs in North Carolina told their citizens to only throw “plastic soda bottles” and “milk jugs” into their curbside bins. Over time, many local programs migrated to “all bottles,” accepting a wider range of plastic from the public but still limited to only certain kinds of plastic containers.

Now at least some communities are venturing beyond bottles. With the recent upgrade to Mecklenburg County’s MRF, curbside programs using that facility can now recycle all plastic containers #1 - #5 and #7s and other rigid plastics – see the county’s

material brochure at: <http://charmeck.org/city/charlotte/SWS/CurbIt/Recycling/Documents/ReThink%20Recycling.pdf>

Greensboro also allows residents to recycle bulky rigid containers, including items like buckets, laundry baskets, lawn furniture and flower pots – see: <http://www.greensboro-nc.gov/modules/showdocument.aspx?documentid=10621>

Cary allows recycling of tubs #1 – 7, excluding clam shells and frozen entrée trays – see: <http://www.townofcary.org/Departments/Public Works and Utilities/Garbage and Recycling/Recycling.htm>

Orange County collects non-bottle rigid plastics, including plastic buckets, toys, flower pots, crates and some bulky rigids, at its recycling drop-off centers: <http://www.co.orange.nc.us/recycling/rigidplastics.asp>

Durham also accepts plastics beyond bottles, including tubs and some bulky rigids: http://www.durhamnc.gov/departments/solid/wr_default_new.cfm#Plastic

The trend toward moving beyond bottles is expected to continue in the years ahead. It is being supported by the plastics reclamation industry through the work of the Association of Post-Consumer Plastics Recyclers (APRs) Rigids Committee, which is working to produce MRF bale specifications to facilitate rigid plastic marketing. See *Recycling Works* article “Model Bale Specifications” on page 2 of this issue and visit <http://www.plasticsrecycling.org/rigid-plastics/public-access-rigid-plastics-information>.

NAPCOR is also doing extensive work to develop the recyclability of PET “thermoforms,” commonly and more increasingly generated in items such as convenience food trays and fruit clamshells: <http://www.napcor.com/pdf/TPrecyclePETtherm.pdf>.

Let’s work together
to increase recycling
throughout N.C.

We invite you to sponsor the
Recycle Guys, RE3.org and
Recycle More NC recycling campaigns.

Contact Heather Cashwell for
sponsorship information at
heather.cashwell@ncdenr.gov

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sustainable fibers,” said Roger Berrier, president and COO of Unifi. “This facility was built using the latest state-of-the-art recycling technology providing us with flexibility to further expand the REPREVE brand in new and innovative directions.”

The grand opening took place at the G. Allen Mebane Industrial Complex in Yadkinville and featured a ribbon cutting ceremony, tours and a program of speakers. Speakers included Bill Jasper, chairman and CEO, Roger Berrier, John Mowbray, editor and publisher of EcoTextile News, Gail Strickler, Assistant U.S. Trade Representative for Textiles, and Kim Glas, Deputy Assistant Secretary for Textiles and Apparel and Chairman, CITA.

The Recycling Center has been constructed to convert waste materials into REPREVE recycled yarn and the building itself was built with environmental benefits in mind. Sustainable features include:

- 67 skylights to take advantage of natural sunlight
- Light fixtures controlled by sensor technology to reduce energy use
- Low-flow fixtures and motion sensors anticipated to reduce water use by 34 percent
- Building materials that were bought regionally and contain recycled content



Unifi and federal government officials, along with the editor and publisher of EcoTextile News, cut the ribbon at the grand opening in May 2011.

- An Energy Recovery Kit that captures and re-utilizes heat in the production of REPREVE chip

“The new REPREVE Recycling Center will grow employment in Yadkin County, adding at least 25 new jobs when fully implemented,” added Berrier.

For more information about Unifi, visit www.unifi.com, or to learn more about REPREVE, visit www.repreve.com.

How Is REPREVE® Fiber Made?

The journey culminating in the manufacturing of REPREVE® yarn from 100 percent recycled fiber begins with recycled PET bottles which are chopped, ground, melted and reformulated into 100 percent recycled chips resembling plastic beads.

The REPREVE chips are extruded and textured through a proprietary process. The chips are melted into molten polymer so they can be extruded through tiny openings in a spinneret that looks like a shower head, creating continuous filaments that when processed together make the yarn.

Additional processes enhance the texture of REPREVE yarn giving it essential bulk, crimp and strength properties. Texturing provides essential properties to fabric like stretch, comfort and softness. Fabric mills use REPREVE fibers to manufacture a wide variety of products such as clothing, upholstery, tote bags and banners.



PET bottles are ground, processed into chips, and then processed into yarn.

Plastic Revolutions Expands, Makes Energy Efficiency Upgrades

by Matt Todd, Market Development Specialist

Plastic Revolutions is a full service plastics recycler located in Reidsville. The company has positioned itself for growth and is doubling production capacity in 2011. The company currently employs 70 and operates 24 hours per day, seven days per week.

Plastic Revolutions installed a new plastics wash line in March 2011. This line is now operating and has increased the company's wash capacity to 120,000 pounds per day.

A new extruder is also ready to be installed and should be operational by late July 2011. This added extrusion capacity will increase production at Plastic Revolutions from 40,000 pounds per day to 100,000 pounds per day.

In addition to equipment, Plastic Revolutions is also looking to add 29,000 square feet of loading dock and warehouse space to their 300,000 square foot facility. The building expansion will take place later in 2011.

Not only is Plastic Revolutions increasing production capacity, they are reducing operational costs at the same time. Thanks to an American Reinvestment and Recovery Act energy grant, the company replaced the fluorescent lighting at the facility with energy efficient lighting and replaced 13 old furnaces with two new high-efficiency furnaces. Fifty kilowatts of solar was added on the roof, enabling the company to sell power directly back to Duke Energy.



Workers perform final inspection of solar panels installed by SolarDyne at Plastic Revolutions.

Photo courtesy of SolarDyne at www.SolarDyne.net.



Plastic Revolutions' president John Hagan holds up a sample of plastic regrinds.

This energy efficiency upgrade has led to cost reductions of \$8,000 per month. These savings come at the same time their production capacity has expanded to 10 million pounds per month.

Plastic Revolutions continues to improve operational efficiency. While plastic is the commodity at the heart of their operation, the most important commodity used in the facility is water. They use 20,000 gallons per day of water to process their plastic. They now recycle 100 percent of the wastewater and reuse it in their processing.

One area that Plastic Revolutions sees opportunity is in its waste. They currently haul two 30-yard containers to the landfill per day. Most of this material is sludge from their wastewater treatment and other contamination, but about 30 percent of this material is scrap plastic that sinks in their HDPE wash line – mostly PET.

The company is looking into installing new technology, patented in September, to recover this scrap plastic from their waste stream and convert any dirty ground plastic into synthetic crude oil. This process also includes oil bottles with residual oil in them, which could mean another target for recovery.

For more information on Plastic Revolutions, contact John Hagan at (336) 349-2800 or visit www.plasticrevolutions.com.

Recyclers in the News...



The **Polymer Network (Eden)** began operations in Rockingham County in June 2009. They are currently a collection and redistribution operation that recycles LDPE clear film, clear stretch wrap and rigid PP and HDPE. With baling capacity, the company is working out of a 75,000 square foot facility with five employees.

The Polymer Network sources most of its material from industrial, commercial and retail customers. They collect from department store distribution centers and manage grocery store bags for Kroger and Ingles.

The company's short-term expansion plans include a pelletizing line and a larger facility in North Carolina. With the expansion, the company would provide more value-add for their incoming plastic stream, and grow jobs for up to 30 additional employees.

Contact: Richard Moody, (336) 623-6868 or rich@polymernetwork.net.

Maine Plastics (Apex) is an Illinois company that recycles and resells plastic materials. The company has opened a processing facility in Apex.

Maine Plastics Inc. of Zion, Ill., has begun operations in a 110,000-square foot facility and currently has 13 employees. The company specializes in the processing and resale of plastic resins that are left over in manufacturing processes or from discarded products from the pharmaceutical, automobile and other consumer products industries.

Maine Plastics envisions growing the Apex facility to 15 to 20 employees over the next year as demand grows. A contract with long-term client Becton, Dickinson and Co. prompted the expansion into North Carolina. The Apex plant will have the capacity to handle about 100 million pounds of plastics a month.

Contact: Robert Render, 847-379-9133 or rrender@maineplastics.com.

Electronic Recyclers International (Badin), based in Fresno, Calif., has announced plans to open a new electronics recycling facility at Alcoa's former aluminum smelting plant in Badin.

Alcoa bought a minority stake in Electronic Recyclers in March. ERI had been searching in North and South Carolina, Georgia and Tennessee for an electronics recycling facility.

Alcoa has pledged \$5 million to improve the 165,000-square-foot building, matching ERI's investment in proprietary technology and equipment.

The company plans to hire between 20 and 30 employees this summer and projects to have more than 150 employees by the end of 2012. ERI operations began in July 2011 at a temporary site, with the Badin site operational by January 2012.

Contact: Ron Buckhammer, (559) 442-3982 or ron.buckhammer@electronicrecyclers.com.

Synergy Recycling LLC (Madison) received the Responsible Recycling Practices for Electronics Recyclers (R2) and the Recycling Industry Operating Standard (RIOS) certification in spring 2011. According to Synergy, receiving R2/RIOS certification demonstrates that the company's end-of-life materials are processed and marketed ethically and environmentally.

The company recently installed a multi-million dollar shredding and separation system at its Madison plant. "We're very proud of the high-quality products we're able to generate with our automated systems," says Joe Clayton, director of U.S. sales. "We are able to process 25 tons per hour in one pass."

The R2/RIOS certification supplements the company's existing ISO 9001, ISO 14001 and OHSAS 18001 certifications.

"The R2 and RIOS certifications provide consumers a quick way to understand that Synergy's processes are as safe and reliable as possible," Clayton says. "We've been dedicated to ensuring the top level of security since our inception and we continually strive to maintain and improve data security measures at Synergy."

Contact: Joe Clayton, (919) 619-4856 or jclayton@synergyrecycling.com.

Recycling Works is published by the N.C. Recycling Business Assistance Center, a program of the Division of Environmental Assistance and Outreach of the N.C. Department of Environment and Natural Resources. For more information call (877) 623-6748, or write to DEAO, 1639 Mail Service Center, Raleigh, NC 27699-1639.

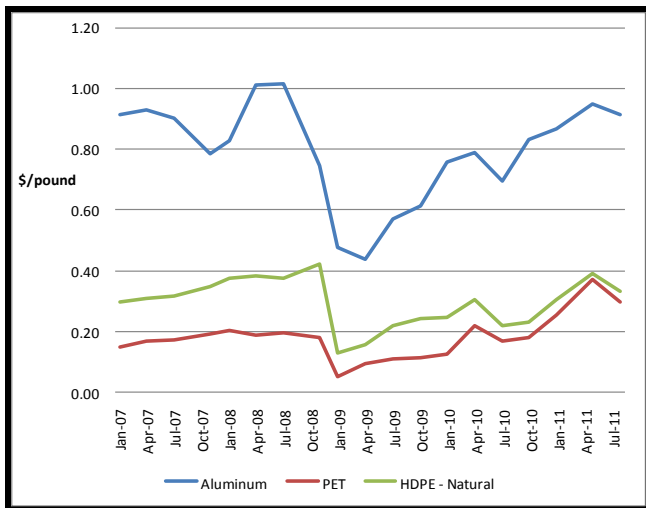
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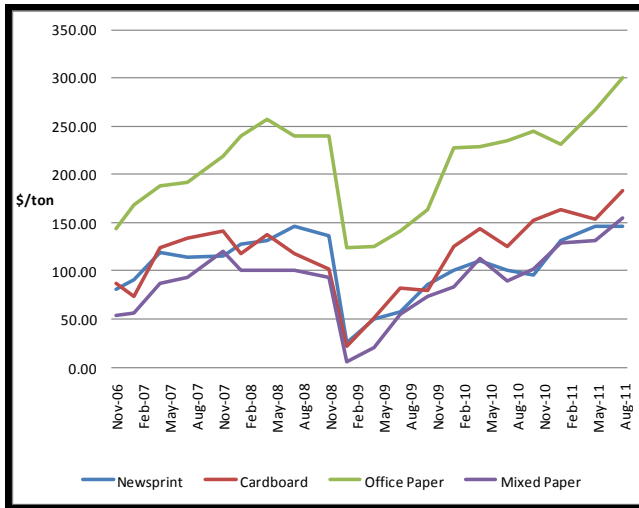


Container Price Trends



Quarterly prices for aluminum cans (loose), PET (baled) and HDPE natural (baled) in dollars per pound.

Paper Price Trends



Quarterly prices for newsprint, cardboard, office paper and mixed paper in dollars per ton, baled.



The Recycling Business Assistance Center (RBAC) is a program of the N.C. Division of Environmental Assistance and Outreach.

Call (877) 623-6748 for free technical assistance and information about preventing, reducing and recycling waste.



North Carolina Market Prices for Recyclables

Prices current as of August 5, 2011

Item	Western Region	Central Region	Eastern Region
METALS			
Aluminum Cans lb. loose	\$0.905	\$0.885	\$0.950
Steel Can, gross ton baled	\$310 gt	\$259	\$250
PLASTICS			
PETE, lb. baled	\$0.28	\$0.32	\$0.29
HDPE, lb. baled Natural	\$0.35	\$0.32	\$0.33
Colored	\$0.18	\$0.18	\$0.18
PAPER			
Newsprint, ton baled	\$150	\$140	\$147.55
Corrugated, ton baled	\$185	\$175	\$190
Office, ton baled	\$320 (SOP)	\$300 (SOP)	\$280 (white ledger)
Magazines, ton baled	*	\$165	**
Mixed, ton baled	\$160	\$150	\$155
GLASS			
Brown, ton crushed delivered	\$18	\$19	\$17
Clear, ton crushed delivered	\$25	\$29	\$21
Green, ton crushed delivered	\$3	\$2	(\$7.50)
*Markets with Mixed Paper			
**Markets with Newsprint			
Note: Prices listed above are compiled by RBAC and are for reference only. These prices are not firm quotes. RBAC obtained pricing information from processors for each category and developed a pricing range.			

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