

Made in North Carolina

Recycled-Content Products
Help Fuel the State's Economy



N.C. Department of Environment and Natural Resources
January 2007

Made in North Carolina



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Made in North Carolina is published by the N.C. Recycling Business Assistance Center, a program of the Division of Pollution Prevention and Environmental Assistance of the N.C. Department of Environment and Natural Resources.

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Division of Pollution Prevention and Environmental Assistance

For more information call (919) 715-6500 or (800) 763-0136, or write to DPPEA, 1639 Mail Service Center, Raleigh, NC 27699-1639.



N.C. Recycling Business Assistance Center



The N.C. Recycling Business Assistance Center is a partnership between the N.C. Department of Environment and Natural Resources' Division of Pollution Prevention and Environmental Assistance and the N.C. Department of Commerce. Its mission is to support and grow the state's recycling industry through technical assistance and partnerships. To achieve this objective, RBAC:

- Works one-on-one with recycling companies to assess needs and provide both direct and indirect assistance through partnering agencies.
- Provides business development assistance by identifying potential funding sources, participates in the N.C. Recycling Business Loan Fund and the funding of demonstration projects.
- Promotes partnerships among government and industry to stimulate and facilitate the recovery and reuse of secondary materials.
- Fosters the development of a supply infrastructure that is capable of providing industry with clean, readily usable and available raw materials.

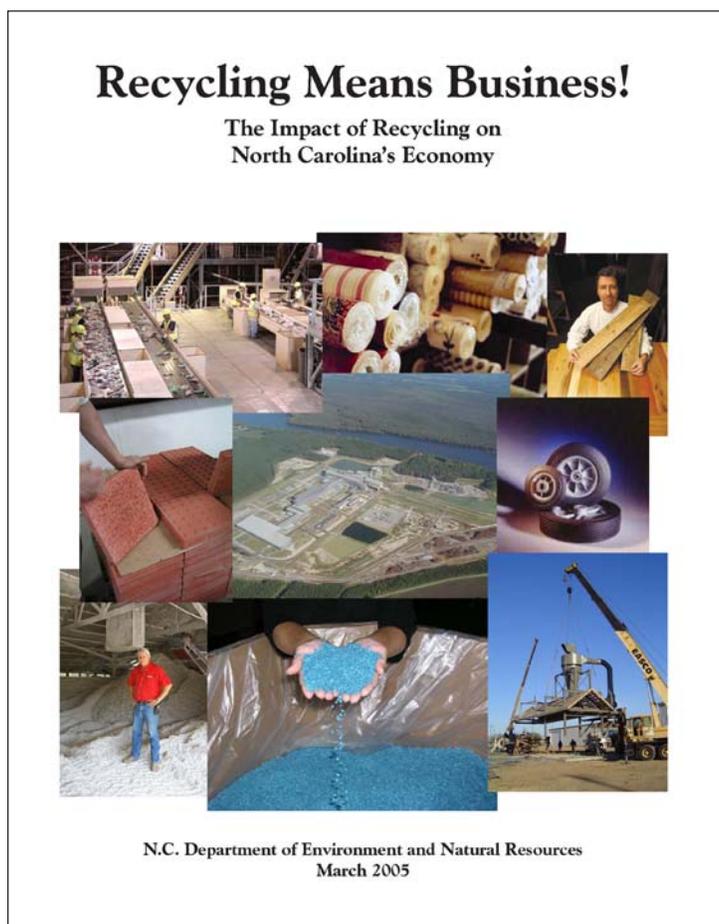
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Foreword

In 2004, the N.C. Division of Pollution Prevention and Environmental Assistance produced a document entitled *Recycling Means Business! The Impact of Recycling on North Carolina's Economy* (shown here), highlighting more than 40 North Carolina businesses that process recycled materials, from sorting to manufacturing new products. These companies range in size from Nucor, a large steel manufacturer with more than 11,500 employees, to Elizabeth City Glass, a glass processor and manufacturer currently employing four people. A number of manufacturers process recyclables from start to finish. Others buy materials such as plastic from other businesses that perform one or more of a variety of industrial activities including: sorting, shredding, chipping, cleaning and pelletizing the materials.



One thing that these and the other recycling businesses listed in the state's recycling markets directory (<http://www.p2pays.org/DMRM/start.aspx>) have in common is their important contributions to North Carolina's economy. While other manufacturing sector jobs have declined over the past decade, recycling jobs in the state have increased 60 percent from 8,700 in 1994 to 14,000 in 2004. In addition, a number of these companies now occupy old textile factories and other industrial plants abandoned by some of the state's more traditional industries.

While *Recycling Means Business!* showcased a cross-section of recycling operations, *Made in North Carolina: Recycled-Content Products Help Fuel the State's Economy*, highlights a number of companies that are manufacturing recycled-content products. Some of those products, like paper and metal, have been made with recycled-content materials for decades, while others, like nursery containers and blow-molded plastic bottles, are only recently being made with recycled-content materials. Regardless of how long these companies have been using recycled materials, manufacturers will increasingly rely on recycled feedstock to produce a wide variety of products.

Introduction

Manufacturing – the process of making value-added products – has long been one of the pillars of North Carolina's economy. But recently that pillar has seemed to crumble in the face of global competition. As documented by the N.C. Employment Security Commission and Raleigh's *The News & Observer*, manufacturing jobs in the state have declined from 820,000 in 1990 to 569,000 in 2005.* This rapid decline is unsettling and it begs the question: how can manufacturing be kept alive in North Carolina?

“Our state's recycled product companies are doing their part to retain manufacturing jobs in North Carolina and the United States.”

One of the answers comes from a surprising source: recycling. Long understood as a way to “keep stuff out of the landfill,” recycling is first and foremost a process that captures discarded commodities for use in manufacturing. Manufacturing relies on access to materials and any company making any kind of product needs to bring in reliable and appropriate feedstocks for processing. Increasingly, manufacturers around the world are relying on recovered commodities as a supply source, and that's true here in North Carolina as well.

The companies profiled in this document are actively ensuring that manufacturing stays a part of North Carolina's economic future. They make a range of products from traditional everyday paper, plastic bottles and flowerpots, to relatively new items such as trash cans and polyester yarn. You probably use one of these products every week if not every day, unaware it was made from the materials placed in the curbside or office recycling bin. The items these manufacturers are producing have great utility, are high quality and can even be things of beauty, like flooring made from recovered heart pine boards.



Our state's recycled product companies are doing their part to retain manufacturing jobs in North Carolina and the United States. They are operating profitable businesses giving people the products they want. They are in step with a global trend to use “secondary” or recovered materials that meet or exceed quality and specification standards. In short, recycled products manufacturing is a success story in North Carolina and one that can help rebuild that central pillar of our economy.

How can we increase that success? The simple answer is: recycle. Households, businesses, churches, construction companies, nonprofit agencies, schools, institutions, industries and individuals across North Carolina can help make both recycling and manufacturing succeed by recognizing that some things are not trash, but the building blocks for a thriving economy. Why would you throw all that away?

*“China aims to innovate, compete for tech jobs,” *The News & Observer*, Sept. 18, 2006.

What Is Buying Recycled And Why Does It Matter?



You know the three Rs – reduce, reuse, recycle. You're familiar with the "chasing arrows" image that tells you if something is recyclable or made of recycled materials. But, can you list the process those arrows represent? The truth is, placing materials in the recycling bin rather than throwing them in the trash is only the first step.



As you can see from the recycling bin in the photo above, curbside recycling programs can be extensive, accepting Nos. 1 and 2 plastic bottles and jars, glass containers, magazines and catalogs, newspapers, cardboard, spiral paper cans, steel cans, telephone books, aluminum cans, junk mail, mixed paper and gift wrap.



Materials collected for recycling are sorted (as workers are doing in the photo on the right), cleaned, processed and sold to companies to use in manufacturing new products. Remanufacture is the second action in the recycling loop, as shown at a mill in the photo below. Not only does the simple act of recycling save space in landfills but it also creates much-needed feedstock for the manufacturing sector.

To complete the "loop" the final step requires consumers to purchase and use recycled content products, such as the ones shown above left. By purchasing recycled products, you are helping to create long-term stable markets for recyclable material collected. The more a recycled-content product is purchased, the more competition improves, the more resources we save and the less waste and pollution we produce. If that doesn't sound convincing, then remember, it is also creates jobs!



Buying Recycled Products

Recycled-content products have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. They often have the added benefit of being more durable, such as a picnic table made from plastic lumber. It is low maintenance, will last much longer than a wooden table and it's made from recycled materials!



Purchasing recycled products is like casting a vote. Requesting more recycled-content products in the marketplace shows manufacturers that consumers care about the way products are made. Many people become good environmental stewards through recycling efforts and have joined the campaign by participating at home and at work. But to complete the full circle, you should begin purchasing products that are made of the materials we recycle.

What to look for

When shopping at your local grocery, hardware and multipurpose stores, look for the recycling symbol(s).



Arrows superimposed on a dark background indicate that the product is made with recycled material.



Arrows superimposed on a white or light background indicate the product can be recycled after it's used.

But don't just rely on symbols. Read product labels like you would food nutrition labels. The use of the recycling logo is not regulated by law. If the label says only "recycle" or "recyclable," it may contain no recycled content. To ensure you are buying a product made from recycled materials check the label for words that indicate the product is made from recycled materials. Make sure you're getting exactly what you're looking for in your purchases.



Recycled Product Examples

The following is a list of EPA's Comprehensive Procurement Guidelines product categories, along with some examples (<http://www.epa.gov/cpg/>).

- *Construction Products*: building insulation, carpet and carpet cushion, cement, concrete, paint, floor tiles, pavers (shown at top of p. 5), roofing materials, shower and restroom dividers/partitions



- *Landscaping Products:* compost, garden and soaker hoses, plastic lumber landscaping timbers and posts
- *Non-paper Office Products:* binders, clipboards, folders, clip portfolios, furniture, recycling containers and waste receptacles, plastic desktop accessories, plastic envelopes, plastic trash bags and toner cartridges
- *Paper and Paper Products:* commercial/industrial sanitary tissue products, miscellaneous papers, newsprint, paperboard and packaging products, printing and writing papers

- *Park and Recreation Products:* park benches and picnic tables, plastic fencing, playground equipment, playground surfaces and running tracks
- *Transportation Products:* parking stops (shown at right), traffic barricades and traffic cones
- *Vehicular Products:* engine coolants, rebuilt vehicular parts, re-refined lubricating oils and retread tires
- *Miscellaneous Products:* awards, plaques, bike racks, industrial drums, mats, pallets and signage



For some purchases, consumers are making a conscious decision to buy the more environmentally-friendly product. Many times we're not even aware that what we're buying has recycled content.



For example, steel is not only one of the most highly-utilized material in manufacturing, it is also the most recycled commodity. Three-quarters of all steel recycled in America is actually made back into a new product—anything from a can to a car. Insulation manufacturers also commonly use recycled materials in their product. Fiber glass insulation, traditionally made with sand, is increasingly made with recycled glass, and cellulose insulation

is made from a variety of recycled paper categories including newsprint, food boxes and phone books.

These unconscious purchases, many highlighted in the following pages, include both plastic and glass bottles, cereal boxes, pipes, flower pots, coat hangers, furniture and upholstery.

Where to Buy Green Products?

You can find recycled-content products at stores across the country for office supplies, building materials and yard supplies. Some examples include plastic lumber at home improvement



stores and a wide variety of paper packaging that contain healthcare, food and household products. Everything you ever wanted to know about recycled-content products and other environmentally preferable products can be found on the N.C. Division of Pollution Prevention and Environmental Assistance's EPP Web site at <http://www.p2pays.org/epp/>.

If you have trouble finding recycled-content products or other environmentally-friendly products, consider filling out a comment card and dropping it into the customer comment boxes where you shop. Local stores want to carry products their customers are looking for - perhaps they are not aware that these products are available or that it could help their environmental image. Businesses need to know what is important to their customers, so help keep them informed.



Create an Incentive

Whether you work in a government office or in the private sector, it's a good idea to create a policy with your purchasing initiatives. Work with upper management and procurement professionals to gain buy-in and create the policy document. Because everyone is involved in purchasing decisions, educate the entire staff on the new purchasing procedures. Contractors need to be made aware of the policy so they, too, can try to purchase more sustainable products and conduct their service in the most sustainable way.



The federal government, as well as many states (including North Carolina), have instituted "buy recycled" or "green purchasing" programs. These programs establish a secure commitment to buying products made with recycled products. Consumers benefit from these programs because the purchasing power of the government drives change in the marketplace and creates competition

that eventually drives down cost. This opens the door for industries to begin using more recyclables to manufacture products.

Box stores are developing sustainability policies that include various efforts, from carrying more environmentally-friendly products and making more sustainable products to developing product stewardship programs. Policies are being developed to encourage suppliers to improve everything from packaging materials to manufacturing more recycled content products.

Reduce, reuse, recycle and be a conscious consumer! Visit <http://www.p2pays.org/epp/> for more information.

Energy Savings And Recycling: Making The Connection

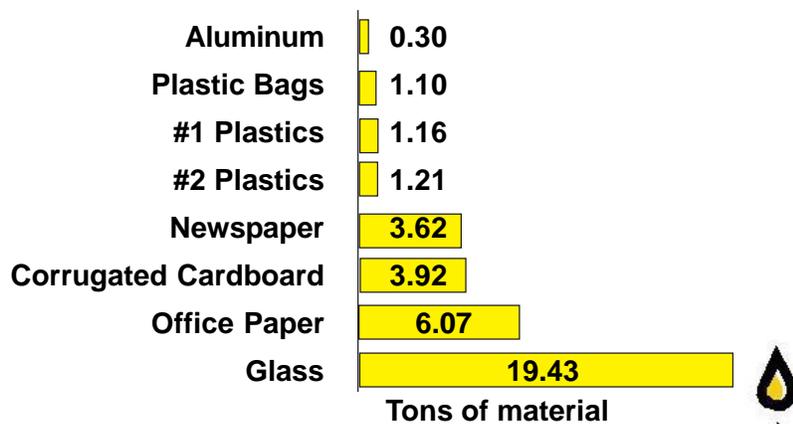
As energy costs continue to rise, it's a good time to revisit the energy savings associated with recycling. Products that enter the waste stream have impacts on energy use at each stage of their life cycle. These stages include: the acquisition of raw materials, the manufacture of raw materials into products, product use by consumers and product disposal.

"A 4.4 percent increase in recycling rates would have the same effect as removing 27 million passenger cars from the roadway each year."

Recycling saves energy. Manufacturing goods from recycled materials typically requires less energy than producing goods from virgin materials. When a product is made with recycled materials, less energy is needed to extract, transport and process raw materials and to manufacture the product. When energy demand decreases, fewer fossil fuels are burned and less carbon dioxide is emitted into the atmosphere.

Energy savings are determined by comparing the difference between manufacturing a product using virgin inputs and manufacturing a product using recycled inputs. For example, recycling aluminum cans results in significant energy savings per ton. These savings reflect the nature of aluminum production; manufacturing aluminum from virgin inputs is energy intensive whereas relatively little energy is required to manufacture cans from recycled aluminum.

Tons required of each material to equal the energy savings of taking one car off the road per year



If the United States recycling rate were to increase from the current 30.6 percent recovery scenario to 35 percent by 2008, energy savings would increase to an estimated 1,720 Trillion Btu – an amount equivalent to the consumption of 13.7 billion gallons of gasoline. A 4.4 percent increase in recycling rates would have the same effect as removing 27 million passenger cars from the roadway each year.*

*"Waste Management and Energy Savings: Benefits by the Numbers," Anne Choate, Luaren Pederson and Jeremy Scharfenberg, ICF Consulting and Henry Ferland, U.S. EPA; Sept. 4, 2005.

Other Benefits To Manufacturers Using Recycled Feedstock

Recycled-content products are manufactured to meet the same specifications as virgin products. Manufacturers realize the same benefits using recycled materials as consumers do when purchasing recycled-content products. They help their communities conserve energy and landfill space, create markets for recyclables the community generates, create jobs and build the economy.



North Carolina offers a few incentives to companies in the recycling industry. Businesses can apply for a tax exemption on equipment and facilities used exclusively for recycling and resource recovery. The N.C. Division of Waste Management manages the Tax Certification Program. North Carolina also offers grants to businesses involved in recycling from collection of materials to processing and manufacturing products, as well as grants to communities to help develop and expand local recycling initiatives. See the RBAC Web site for additional information: <http://www.p2pays.org/rbac/financing.html>.

Made in North Carolina

**Recycled-Content Products
Help Fuel the State's Economy**

COMPANY PROFILES

Artist Colony



Lexington



FAST FACTS

Material Recycled

Polyethylene, polyurethane, polystyrene and polypropylene

Tons Recycled Per Year
234

Employees 39

Established 1978

Company Contact

Chad Sink
(336) 243-2541, ext. 225
www.artistcolonyltd.com

Products Made

Beanbag chairs

Process Description

Post-industrial scrap plastics are brought in by truck-load and ground into a flake material. Plastic flake is filled into sewn beanbags and bags are sealed.

Product Facts

Artist Colony's soft goods are created using recovered foam products and plastic beads. Post-industrial scrap plastic foam materials are processed into chips that become the filler in beanbag chairs. Artist Colony's beanbag chairs come in a variety of shapes and colors.

Where to Buy

Beanbag chairs are sold at department stores, retail furniture stores, catalog retail and e-marketed under the Artist Colony brand.

Other Information

Artist Colony, which has been selling beanbag chairs to furniture outlets since 1980, has found that using recycled feedstocks gives it a financial advantage in the marketplace.

sport balls



basketball



soccer



football



baseball



Barnstar Vintage

Saxapahaw



FAST FACTS

Material Recycled
Salvaged building materials

Employees 2

Established 2004

Company Contact

Tom and Heather LaGarde
(336) 376-5694
tomlagarde@bellsouth.net
www.barnstarvintage.com

Products Made

Custom-made frames, mirrors and indoor and outdoor furniture

Process Description

Frames and mirrors are made with vintage wood and antique tin ceiling tiles. Custom indoor and outdoor furniture is made using barnwood, architecturals, beams, porch posts and other vintage wood.

Where to Buy

Sells products on its Web site (www.barnstarvintage.com), on www.Etsy.com and at local craft fairs.



Caraustar Industries Inc.



Charlotte - 3 facilities

FAST FACTS

Material Recycled
 Books (softcover), old corrugated cardboard, folding cartons, fiber drums, magazines, newspaper, card stock, greenbar, kraft, office mix, residential mix, white office, paper tubes and paperboard

Tons Recycled Per Year
 55,000

Employees 500

Established 1938

Company Contact

Jason Garrison
 (704) 376-7474
 jason.garrison@caraustar.com
 www.caraustar.com



Products Made
 Paperboard and paperboard products

Process Description
 At Caraustar’s fiber recovery facility and paperboard mill in Charlotte, materials collected are processed into 100 percent recycled paperboard, which is sent to various Caraustar converting locations including the nine North Carolina facilities listed in the chart below.

Product Facts
 Markets include pharmaceutical and healthcare, candy and confectionery, specialty dry foods, frozen foods, sporting goods, pet foods, household goods and hardware.

Other Information
 Caraustar has more than 4,500 employees at its 85+ manufacturing facilities worldwide. The company produces more than one million tons of recycled paperboard annually, the largest market share in North America.



Locations	Products
Asheville	tubes and cores
Burlington	rigid set-up boxes and vinyl lids
Charlotte	specialty converted die cut paperboard products
Pineville (2)	folding cartons; prepress and packaging services
Kernersville (2)	adhesives; tubes and cores
Mooresville	specialty converted die cut paperboard products
Randleman	folding cartons



Cascades Tissue Group

Rockingham

Products Made

Bathroom tissue, paper towels, paper hand towels, facial tissue and paper napkins

Process Description

From feedstock to final product, it all happens at this facility. Sorted office paper is sent through a de-inking process to make de-inked pulp. This pulp is used to make paper. The finished paper is converted into many different tissue products that are packaged and distributed around the country.

Product Facts

All products produced by Cascades Tissue Group contain 100 percent recycled content. The company is a major supplier of private-label products for major chains and drugstores. Also, its brands for the commercial and industrial markets can be found in North Carolina. These innovative lines are offered under various brand names such as "New Horizon," "North River," "Decor" and "Perkins."

Where to Buy

N.C. sales representative:

Bill Murphey

Phone: (540) 353-5956

E-mail: bill_murphey@cascades.com

Or go to <http://www.ctgebiz.cascades.com> and click on "English" at the top to find a sales representative in your area.

FAST FACTS

Material Recycled

Sorted office paper

Tons Recycled Per Year

70,000

Employees 150

Established 1983



Company Contact

Mike Kitner

(910) 895-4033

mike_kitner@cascades.com

www.cascades.com

Crumpler Plastic Pipe Inc.



Roseboro



Company Contact

Houston Crumpler
(800) 334-5071
(910) 525-4046
www.cpp-pipe.com

FAST FACTS

Material Recycled
High density polyethylene plastic

Tons Recycled Per Year
6,000 - 10,000

Employees 75

Established 1975



Products Made

3"-48" HDPE corrugated plastic pipes

Product Facts

Pipes can be made with up to 100 percent recycled HDPE content. Product applications include: road culverts, parking lot detention-retention drains, landfill drains, industrial wastewater systems, golf course landscape drains, sewer composting and septic sewers.

Where to Buy

CPP direct sells to departments of transportation, building contractors, wholesalers, independent building supply companies and hardware stores east of the Mississippi, from New Jersey to Florida.

Other Information

The company operates the largest corrugated plastic pipe manufacturing plant under one roof on the eastern seaboard.





Cunningham Brick Company Inc.

Lexington

Products Made

Building brick and brick nuggets

Process Description

Material is blended with clay and shaped into bricks. Bricks are fired in a kiln. Whole bricks are sold directly to consumers, contractors and building supply vendors. Off-spec and broken pieces of brick are converted to brick nuggets and bagged for sale to consumers and the commercial landscaping market.



Product Facts

Cunningham Bricks come in a variety of sizes, including modular, engineer, queen, closure, utility and norman sizes. They are also available in a number of colors and specialized shapes.

Where to Buy

Bricks can be purchased directly from the manufacturer. Brick landscaping nuggets may be purchased from approved landscaping vendors. Brick products are distributed to 37 states and Canada. Cunningham Brick Company Inc. also sells through "big-box" home improvement stores. Bricks are sold under the Cunningham brand name.

FAST FACTS

Material Recycled

Petroleum contaminated soils, manganese powder, textile biosolids and ceramic waste

Tons Recycled Per Year

35,000

Employees 130

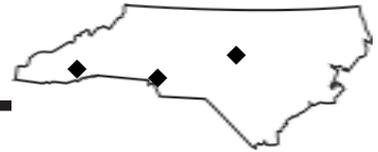
Established 1909



Company Contact

Richard Cunningham
(800) 672-6181
feedback@cunninghambrick.com
www.cunninghambrick.com

DuraLine Imaging Inc.



Flat Rock

Company Contact

Sabrina Farmer
(800) 982-3872
service@duralineimaging.com
www.duralineimaging.com

FAST FACTS

Material Recycled

Ink jet cartridges, toner cartridges, printer ribbons, plastic casings and gears from damaged cartridges

Tons Recycled Per Year
60

Employees 35

Established 1970

Products Made

Remanufactured ink jet cartridges, toner cartridges and printer ribbons

Process Description

Used cartridges are shipped in from drop locations and rebuilt and/or refilled.

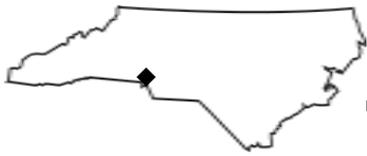
Where to Buy

DuraLine Imaging sells direct to businesses and industries and also by government contract. DuraLine Imaging products may be purchased by calling (800) 982-3872.

Other Information

With more than 3,900 clients served in 2005, DuraLine Imaging is the Carolina's leading printer cartridge remanufacturing firm. At present, more than 50 percent of North Carolina's top 100 employers purchase replacement printer cartridges or other imaging products from DuraLine Imaging. DuraLine also has operations in Cary and Charlotte.





Engineered Recycling Company

Charlotte



Products Made

Nursery containers ranging in size from 1 to 25 gallons

Process Description

Engineered Recycling shreds, grinds, washes, dries and pelletizes post-consumer and post-industrial HDPE. ERC then manufactures colored nursery containers from the pellets it produces.

Product Facts

Product is sold exclusively to the wholesale nursery industry. Distributors are used regionally, but ERC also sells direct to growers in some areas.

Where to Buy

MacKenzie Nursery Supply in Lenoir and Coors Farm Supply in Smithfield.

Other Information

Thanks in part to a N.C. DPPEA Recycling Business Development Grant, Engineered Recycling established a second processing line enabling the company to double its capacity.

FAST FACTS

Material Recycled

High density polyethylene plastic (natural and colored)

Tons Recycled Per Year

10,000

Employees 24

Established 2003

Company Contact

Peter Suttoni
(704) 358-6700
psuttoni@erecycling-usa.com
www.erecycling-usa.com



Heartwood Pine Floors Inc.



Pittsboro



FAST FACTS

Material Recycled

Salvaged and reclaimed wood beams, decking and timber

Tons Recycled Per Year

1,800

Employees 9

Established 1983

Company Contact

Ann Van Orden
(800) 524-7463
(919) 542-4394
email@heartwoodpine.com
www.heartwoodpine.com

Products Made

Precision-milled tongue and groove flooring

Process Description

Heartwood Pine purchases the salvaged wood beams and decking from demolition companies, sorts by quality, de-nails (removes any metal contamination) and processes the wood into top-quality flooring. The flooring is marketed and sold to builders and homeowners for both new construction and remodeling projects.

Product Facts

Wood beams, decking and timber are salvaged from textile mills being dismantled or demolished. The company specializes in 100-plus-year-old heartwood pine and produces 100 percent-recycled content tongue and groove flooring.

Where to Buy

Heartwood Pine's flooring can be purchased directly at the showroom in Pittsboro, or through the company's Web page (www.heartwoodpine.com). The company also advertises in *Fine Home Building* magazine.

Other Information

Heartwood Pine received a grant from N.C. DPPEA in 2005 to purchase and install a band saw giving it the capability to increase the amount of material reclaimed and reduce waste.



Intertech Corporation

Greensboro



Products Made

Blow-molded plastic bottles, sizes 1.5 ounces to 160 ounces. Bottles from 16 ounces to 64 ounces may contain post-consumer resin.

Process Description

Intertech purchases post-consumer resin recycled from milk and water bottles. The PCR is blended with virgin resin and then blow-molded into a variety of high quality plastic containers.

Product Facts

Additional products/services include container decoration by screen printing, labeling and sleeving, and container and mold design/construction.

Where to Buy

Products can be purchased through the company's Web page (www.intertechcorp.com).

Other Information

Intertech also manufactures Funballs, HyGenie ball washing systems and GigglePlay Gazebos (ball pools) for children's play.

FAST FACTS

Material Recycled

High density polyethylene plastic

Tons Recycled Per Year

88

Employees 65

Established 1974

Company Contact

Len Worsham

(800) 364-2255

(336) 621-1891

len@intertechcorp.com

www.intertechcorp.com



Laurel Hill Paper Company



Cordova

FAST FACTS

Material Recycled

Sorted office paper, mixed paper (wastepaper)

Tons Recycled Per Year

25,000

Employees 175

Established 1983

Company Contact

Glen Duncan
(910) 997-4526
gduncan@carolina.rr.com



Products Made

Bath tissue and towels

Process Description

Sorted office paper is sent through a de-inking process to make de-inked pulp. This pulp is used to make paper. The finished paper is converted into many different tissue products.

Product Facts

All products produced by Laurel Hill Paper Company are 100 percent recycled content. Sales are about \$1.5 million per month. Products include bath tissue, center pull towels and jumbo roll tissue.

Where to Buy

Institutional sales only; products can be found in interstate rest areas and prisons. Call Glen Duncan, marketing manager, (910) 997-4526 for purchasing information.





Novozymes North America Inc.

Franklinton



Products Made

Nature's GREEN-RELEAF compost, colored designer mulch and specialty compost blends

Process Description

Recycled feedstocks are dropped off for a fee. Nitrogen rich enzyme residuals are a byproduct from the production of Novozymes' food grade enzymes. Pallets are ground, colored and marketed as designer mulch. Other manufactured wood byproducts are ground to size for compost production. Wood waste, sawdust and ground yard trimmings are mixed with food waste and deactivated enzyme residuals. The mix is processed into high-quality compost by using the turned windrow method of composting. The process takes a minimum of 90 days from start to a cured finished compost product.

Product Facts

The compost is tested by U.S. Compost Council Seal of Testing Assurance Program.

Where to Buy

All of Nature's GREEN-RELEAF products can be purchased in bulk at the facility or through distributors listed at www.naturesgreenreleaf.com/Distributors.htm.

Company Contact

Frank Franciosi
(919) 494-1246
frfr@novozymes.com
www.naturesgreenreleaf.com

FAST FACTS

Material Recycled

Yard trimmings, wooden pallets, sawdust, particle-board, medium density fiberboard, residuals from enzyme production and food waste

Tons Recycled Per Year

20,000

Employees

6

Established

2005

Owens-Illinois Inc.



Lexington



Products Made

Glass bottles and containers

Process Description

Used glass arrives by both truck and rail. After being remelted, recycled glass bottles are trucked to various customers. Bottlers add product, label and market to the consumer.

Product Facts

The Lexington plant produces only beverage containers. The 2.5-3.0 million containers made per day in the plant contain 40 to 50 percent recycled glass and are commonly used for juices, sodas, teas, beer, wine and spirits. Approximately 50 percent of the glass containers made worldwide are manufactured by O-I or its licensees.

Where to Buy

The company's clients range from global multinationals to smaller, regional partners. Common retail items found in grocery and convenience stores are bottled with O-I glass containers.

Other Information

A Fortune 500 company, O-I is one of the world's leading manufacturers of glass packaging products with operations in North America, South America, Europe, Australia and Asia. With more than 30,000 employees worldwide, the company contributes more than \$1 billion annually to national, state and local economies through its purchase of goods and services from U.S. businesses. O-I is an active supporter of the Keep America Beautiful Foundation and the National Recycling Coalition.

FAST FACTS

Material Recycled

Brown and clear glass containers

Tons Recycled Per Year

85,000

Employees 200

Established 1973

Company Contact

Barry Matthews
(336) 764-7242
barry.matthews@us.o-i.com
www.o-i.com





Precision Fibers

Ronda



Products Made

Hydro-seeding mulch, additive for asphalt

Process Description

Loose newspaper is fed onto a conveyor and into a hammermill. The paper is milled into a loose fiber. The loose fiber material is then sent through a cuber. This is the process that forms the fiber into the cube shape that gets packaged. The final product is then packaged and stacked onto pallets. The hydro-mulch product is trucked directly to hydroseeders and paving locations for application purposes.

Product Facts

All products produced by Precision Fibers are 100 percent recycled content.

Where to Buy

Products can be purchased factory direct or through distributors. Call the company for details. Precision Fibers does not compete with its distributors, so if the project is in an area that a distributor services, the customer will be directed to that distributor.

FAST FACTS

Material Recycled
Newspaper

Tons Recycled Per Year
5,000

Employees 27

Established 1994

Company Contact

Amber Spicer
(336) 527-4140
aspicer@charterinternet.com
www.precisionfibers.com



Technimark Inc.



Asheboro



Company Contact

Brad Wellington
(336) 498-4171
bwellington@technimark.com
www.technimark.com

FAST FACTS

Material Recycled

Polypropylene, high density polyethylene

Tons Recycled Per Year

7,000

Employees 500

Established 1983



Products Made

Hangers, plastic feet and legs for furniture

Process Description

Repelletized plastic resin is mixed with virgin resin and melted. The melted material is then injected into a mold to make various plastic products.

Product Facts

Fifty to 100 percent recycled plastic is used for products that are black in color. Products that are any other color use 25 to 50 percent recycled plastic.

Where to Buy

Coat hangers sold at Wal-Mart under the Wal-Mart brand name—Mainstays. Technimark produces plastic feet and legs for furniture that is sold as one of the Klaussner Furniture brand names.

Other Information

Technimark Inc. is a subsidiary of Klaussner Furniture.



Toter Inc.

Statesville

Products Made

Waste collection and material handling carts and containers

Process Description

Toter Inc. purchases virgin and post-consumer resin material that is extruded to produce rotationally molded waste collection and material handling carts and containers. Toter also reprocesses all scrap material that is generated from the production process.

Product Facts

Toter Inc. is the leading manufacturer of waste collection carts in the United States. Made of 25–75 percent recycled content, Toter carts have been used at municipalities throughout the country, including Charlotte and Winston-Salem. Toter products can also be found at stadiums, arenas and convention centers such as Raleigh's RBC Center.

Where to Buy

Toter carts are sold direct to the consumer at Lowe's Home Improvement stores. Contact the company for information about government, institutional or business orders.



Company Contact

Jeff Gilliam
(800) 772-0071
jgilliam@toter.com
www.toter.com

FAST FACTS

Material Recycled

Linear low density polyethylene plastic bag and plastic wrap

Tons Recycled Per Year

10,000

Employees 150

Established 1983



Unifi Inc.



Yadkinville



Products Made

100 percent recycled polyester yarn

Process Description

Waste generated in the polyester-manufacturing process is combined with plastics such as recycled two-liter soda and water bottles. Unifi's Yadkinville facility grinds it into a chip, extrudes, texturizes and forms it into yarn.

Product Facts

The end product, Repreve®, is then used in fabrics suitable for a number of end uses, including contract and home upholstery, and automotive and apparel fabrics. Malden Mills' new line of eco-friendly performance Polartec® fabrics is designed using Unifi's Repreve® yarn.

Where to Buy

Many new styles of Polartec® fabrics are now available using recycled content, including Polartec® Power Dry®, Polartec® Thermal Pro® and Polartec® Wind Pro®. Check your local and online sports stores for brands made with these fabrics.

Other Information

Unifi is headquartered in Greensboro and has additional manufacturing facilities in Yadkinville, Madison, Reidsville and Stoneville. International manufacturing facilities are located in Latin America, Brazil and China. Unifi employs approximately 1,065 in Yadkinville, 2,500 in North Carolina and 3,500 worldwide.

Company Contact

Bett Anderson
(336) 294-4410
Marketing@unifi.com
www.unifi.com

FAST FACTS

Material Recycled

Post-industrial fiber waste and post-consumer plastic soda bottles

Employees 1,065

Established 1971

N.C. Recycling Business Assistance Providers

Recycling-Specific Service Providers

A number of organizations provide a wide variety of technical and business development assistance to North Carolina-based recycling businesses.

Self-Help Credit Union

Self-Help, North Carolina's community development banking group, administers the N.C. Recycling Business Loan Fund. The loan fund nurtures fledgling businesses until they become bankable and graduate to full-service private sector financing. The loans are structured as market-rate debt, and can be used for working capital, inventory, equipment and real estate purchases.



Contact: Brian Schneiderman, special projects officer
(919) 956-4420
brian.schneiderman@self-help.org
www.self-help.org



Carolina Recycling Association

The Carolina Recycling Association is one of the largest state-based recycling associations in the United States, serving North and South Carolina since 1989. CRA represents more than 400 members (individuals, small businesses, multi-national corporations, state government agencies and local governments) who are committed to reducing waste, promoting recycling and buying recycled.

Contact: Kerry Krumsiek, executive director
(919) 545-9050
kerryk@cra-recycle.org
www.cra-recycle.org

N.C. Department of Transportation's Recycled Products and Solid Waste Utilization Task Force

The N.C. DOT's Recycled Products and Solid Waste Utilization Task Force provides leadership and expertise in the selection and recommended use of recycled materials. It conducts research, performs demonstration projects and develops bid procedures and specifications that encourage contractors to develop and utilize recycled products.



Contact: Frankie Draper, special services squad leader
(919) 250-4128
fdraper@dot.state.nc.us
www.ncdot.org/doh/preconstruct/altern/

General Business Assistance Providers

N.C. Department of Commerce

The Department of Commerce, the state's leading agency for economic, community and workforce development, has been a cooperative partner since RBAC's inception. A RBAC staff person has worked with the DOC office as a RBAC/DOC liaison since 1995.

Contact: Ben Rogers
(919) 715-6539
ben.rogers@ncmail.net
www.commerce.state.nc.us



N.C. Small Business & Technology Development Center

SBTDC's mission is to support the growth and development of North Carolina's economy by encouraging entrepreneurship, assisting in the creation and expansion of small businesses and facilitating technology development and transfer for small businesses.

Contact: Dan Blankenship
(919) 715-7272, or (800) 258-0862
dblankenship@sbtcd.org
www.sbtcd.org

N.C. Department of Environment and Natural Resources' Customer Service Center



The Customer Service Center for the Department of Environment and Natural Resources is a single source of information for all of the department's programs. Through its "1-STOP" permit assistance program, the CSC helps customers determine what environmental permits are needed for a particular project as well as permit decision timelines.

Contact: Edythe McKinney, director/
small business ombudsman
(919) 733-0823
edythe.mckinney@ncmail.net
www.envhelp.org



Waste Reduction Partners

Waste Reduction Partners, a team of highly-experienced volunteer engineers, architects and scientists, provides western N.C. businesses and industries with no-cost waste and energy reduction assessments and technical assistance.

Contact: Terry Albrecht, program director
(828) 251-6622
wrp@landofsky.org
www.landofsky.org/wrp

SJF Ventures

SJF Ventures is a venture capital fund that finances and assists expansion stage companies in the clean technologies, business services and consumer products sectors. SJF Advisory Services, an allied nonprofit organization, provides entrepreneurial, workforce and sustainability assistance services to SJF prospect and portfolio companies.



Contact: Rick Larson, managing director
(919) 530-1177
rickl@sjfund.com
www.sjfund.com



N.C. Agricultural Finance Authority

The N.C. Agricultural Finance Authority provides financing to farmers and agribusinesses engaged in the processing and manufacturing of agricultural products, and agribusinesses that support other facets of agriculture such as composting and manure management.

Contact: Dr. Frank Bordeaux, executive director
(919) 790-3949
frank.bordeaux@ncmail.net
www.stateagfinance.com/northcarolina.html

N.C. Rural Economic Development Center and its Institute for Rural Entrepreneurship

The N.C. Rural Economic Development Center seeks to develop, promote and implement economic strategies to improve the quality of life for rural North Carolinians. Housed within the Rural Center, the Institute for Rural Entrepreneurship supports the development of entrepreneurial companies – new and existing – that can grow and generate jobs and wealth in rural communities.



Contact: Leslie Scott, director
(919) 250-4314
lscott@ncruralcenter.org
www.ncruralcenter.org/entrepreneurship



North Carolina State Energy Office

The State Energy Office coordinates programs to help ensure that North Carolina businesses and industries are productive, energy efficient, technologically savvy and competitive.

Contact: Larry Shirley, division director
(919) 733-2230 or (800) 662-7131
energyinfo@ncmail.net
www.energync.net

Acronyms/Definitions

Acronyms

CPO	◆	Computer Printout
EPPs	◆	Environmentally Preferable Products
HDPE	◆	High Density Polyethylene
LDPE	◆	Low Density Polyethylene
LLDPE	◆	Linear Low Density Polyethylene
OCC	◆	Old Corrugated Cardboard
MDF	◆	Medium Density Fiberboard
ONP	◆	Old Newspaper
PE	◆	Polyethylene
PCR	◆	Post Consumer Resin
PETE	◆	Polyethylene Terephthalate
PP	◆	Polypropylene
PS	◆	Polystyrene
PU	◆	Polyurethane
SOP	◆	Sorted Office Paper

Definitions

Biosolids – nutrient-rich organic materials resulting from the treatment of domestic sewage in a treatment facility. When treated and processed, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth.

Blow-Molded – a manufacturing process by which hollow plastic parts are formed. This method is used to make items such as commercial drums and bottles.

Card Stock – a rigid paper used for postcards, manual covers or table tents. Also known as cover paper.

Computer Printout or Greenbar – a high-grade paper almost entirely made of uncoated chemical pulp, although some ground wood is used.

Environmentally Preferable Products – products that have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. The product or service comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal.

Fiber Drum – cylindrical shipping containers made of heavy paper or fiberboard.

Folding Carton – paper product storage and shipping packages of various designs that are delivered ready-to-use in flat form and are first squared up or erected by the user.

Hammermill – a machine with a high-speed rotor equipped with large hammers for pulverizing material into smaller sizes.

High Density Polyethylene – a plastic used to make bottles for milk, juice, water and laundry products.

Kraft Paper – strong paper used for wrapping and to make grocery bags and large envelopes.

Linear Low Density Polyethylene – higher tensile strength and higher impact and puncture resistance than low density polyethylene. It is used for plastic bags and sheets (where it allows using lower thickness than comparable LDPE), plastic wrap, pouches, toys, lids, pipes, buckets and containers, covering of cables, geomembranes and flexible tubing.

Mixed Paper – the term “mixed paper” is used as an inclusive, “catch all” or “what’s left over” category for a wide variety of recovered paper blends including slick advertising inserts, envelopes and other things with gummy surfaces.

Medium Density Fiberboard – a composite wood product similar to particleboard. It's made out of wood waste fibers glued together with resin, heat and pressure. MDF is appropriate for many applications, from cabinetry to molding, because it is smooth, uniform and will not warp.

Newspaper or Newsprint – a lightweight paper, made mainly from mechanical wood pulp, engineered to be bright and opaque for the good print contrast needed by newspapers.

Old Corrugated Cardboard – a box, in its most common form, is manufactured from containerboard, layers of linerboard and one layer of medium. The layers are combined on a corrugator, a machine that presses corrugations into the medium and laminates a layer of linerboard to each side. The sheets are folded, printed and glued or stapled to make a finished box.

Old Magazines – consists of coated magazines, catalogs and similar printed materials.

Paperboard – one of the two subdivisions of paper. The distinction is not great, but paperboard is heavier in basis weight, thicker and more rigid than paper. All sheets 12 points (0.012 inch) or more in thickness are classified as paperboard.

Paper Tubes – consists of paper cores made from either chipboard and/or linerboard, single or multiple plies.

Particle Board – an engineered wood product manufactured from wood particles, such as wood

chips, sawmill shavings or even sawdust, and a synthetic resin or other suitable binder, which is pressed and extruded.

Polyethylene – largest volume plastic manufactured. It is used for packaging films; trash, garment, grocery and shopping bags; molded housewares; toys; containers; pipe; drums; gasoline tanks; coatings and many other products.

Polypropylene – a plastic that has an excellent chemical resistance, is strong and has the lowest density of the plastics used in packaging. It has a high melting point, making it ideal for hot-fill liquids. In film form it may or may not be oriented (stretched). Polypropylene is found in everything from flexible and rigid packaging to fibers and large molded parts for automotive and consumer products.

Polystyrene – is a very versatile plastic that can be rigid or foamed. General purpose polystyrene is clear, hard and brittle. It has a relatively low melting point. Typical applications include protective packaging, containers, lids, cups, bottles, trays and tumblers.

Polyurethane – an extremely versatile plastic in terms of the forms in which it is available: flexible or rigid foams, rubbers, coatings, adhesives and sealants. Polyurethane's major and best known form, however, is a foamed or "cellular" material. Flexible foams are used in furniture, cushioning, carpet underlay, bedding, packaging, textiles and automotive seating and safety padding. Rigid foams are used in building insulation and are found in refrigerators, trucks, boats (for flotation) and in the construction of furniture components.

Post-consumer Material – refers to a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item.

Post-industrial Material – recovered industrial and manufacturing materials that are diverted from municipal solid waste for the purpose of collection, recycling and disposition.

Recycled Content – materials that have been recovered from the solid waste stream, either during the manufacturing process (post-industrial) or after consumer use (post-consumer).

Rotational Molding – consists of a mold mounted on a machine capable of rotating on two axes simultaneously. Solid or liquid resin is placed within the mold and heat is applied. Rotation distributes the plastic into a uniform coating on the inside of the mold until the plastic part cools and sets. This process is used to make hollow configurations and is a relatively simple concept since heat is used to melt and fuse a plastic resin inside a closed mold without using pressure. Common rotationally molded products include shipping drums, storage tanks and some consumer furniture and toys.

Sorted Office Paper – consists of paper, as typically generated by offices, containing primarily white and colored groundwood-free paper, free of unbleached fiber.

Virgin Material – a material that has not been processed or used before.

White Office – consists of paper, as typically generated by offices, containing primarily white groundwood-free paper, free of unbleached fiber.

Yard Trimmings – grass clippings, shrub prunings, leaves, tree branches and other discarded material from yards and gardens.

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