



Stretch Wrap Alternatives, Reduction, and Recovery

FACT SHEET

Stretch wrap is a plastic film usually made from high density polyethylene (HDPE), low density polyethylene (LDPE), linear low density polyethylene (LLDPE), and/or polypropylene (PP) resins. Stretch wrap is most often used to package products together for internal and external shipping. Warehouse/distribution centers, industrial plants, and large retail stores typically generate large quantities of stretch wrap. Facilities currently landfilling large amounts of stretch wrap should consider waste reduction opportunities to:

- avoid landfill disposal fees.
- earn revenues from recycling sales.
- reduce packaging/shipping costs.
- improve the environmental performance of the facility.

Stretch Wrap Recovery: Overview

This fact sheet outlines these key steps:

- assess use of stretch wrap in facility
- investigate alternatives
- identify recycling markets
- design a collection and handling system specific to your operation
- initiate employee training
- determine stretch wrap recycling costs/benefits

Assess Your Stretch Wrap Use

- Examine all applications of stretch wrap in the facility. Determine the quantity and types of stretch wrap being used, i.e., HDPE, LLDPE, LDPE, PVC and/or PP. Ask your supplier for data sheets on the film to be purchased.
- Note the quality of stretch wrap in the facility. Are there paper or plastic labels attached to the wrap? Is the wrap clear or colored? Is it free of dirt and grease?
- For each application, evaluate ways to reduce the amount of stretch wrap used in the facility. For example stretch wrap machines wrap pallets tighter and with less material. Pallet wrappers also can be trained to optimize film use.

Investigate Alternatives

- **Rubber bands and plastic straps** can be used to secure large products together and bind them to pallets. These items produce less waste by volume than stretch wrap. Another advantage is that rubber bands can be reused while PET and PP strapping can be recycled.
- **Glue** can be used by itself or with stretch wrap or bands. An adhesive can be used to decrease the amount of stretch wrap needed to secure a unit load. When glue is used to secure boxes together, stretch wrap or bands around the top layer of boxes are recommended to help secure the entire load. A light spray of non-toxic glue on the package prior to loading will secure products from lateral

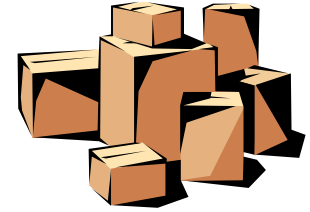
NORTH CAROLINA
DIVISION OF
POLLUTION
PREVENTION AND
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shifting during transport. Glue also can be sprayed directly on a pallet or slip sheet to prevent the unit load from sliding or walking off the shipment platform. Products are easily separated when lifted vertically from the unit load, leaving no waste and no damage to the package or printing on the package. The glue does not interfere with the recycling of packaging such as plastics or cardboard.

- **Reusable shipping containers** such as plastic bins, totes, crates, or palletized containers can be used for internal and external transport. These containers eliminate the need for stretch wrap to secure the products to pallets and also offer more protection to the products being shipped. This protection leads to fewer damaged goods per shipment. Other advantages include easier handling and storage. Although initial costs of these containers usually are higher than single use containers, the average cost per trip of the container is dramatically lower.
- **Work with vendors and customers** to develop ways to reduce stretch wrap consumption. Over the years, some stretch wrap suppliers have created programs to collect used film from their customers. Companies that are not large generators of stretch wrap may find such a program to be the most convenient and economical option.



Identify Markets

- One of the first steps in creating a stretch wrap recycling program is finding a market that will handle or reclaim your recovered material. A list of stretch wrap handlers and reclaimers for North Carolina and surrounding states can be found at the end of this fact sheet. For the most updated market information please visit our Directory of Markets for Recyclable Material at <http://www.p2pays.org/DMRM/>. In addition to these markets, the American Plastics Council maintains a national database of post-consumer plastic handlers. The database can be accessed through a hot-line: 1-800-243-5790.

Consider the following when surveying potential markets:

- **Location.** Market location can significantly affect the economics of a recycling program. Determine who pays for transportation. Keep in mind, the closer the market, the lower the transportation costs.
- **Specifications.** Learn the specifications of the stretch wrap required by each market. Important questions to ask are:
 1. Does the wrap have to be baled?
 2. What resins are accepted?
 3. Are plastic or paper labels allowed on wrap?
 4. Is ink printing on the wrap accepted?
 5. What are the specifications for bale size and strapping?
 6. What are the minimum or maximum load requirements?
 7. What is the current price offered, and how often does this change?
- **Experience.** Make sure the market is a well-established and reputable firm by requesting customer references. Ask how long the firm has been handling and/or reclaiming stretch wrap. Find out if they have worked with a business like yours before and whether they are willing to provide any technical assistance, balers, collection containers, or educational materials.
- **Cooperative Collection and Marketing.** Small-to-medium sized businesses may find it difficult to produce enough stretch wrap waste to make recycling economically worthwhile or to attract a market. Facilities facing this dilemma may consider creating or joining a cooperative collection effort within their community. To initiate such a collection effort, contact stretch wrap recyclers to discuss the idea and determine their willingness to coordinate a cooperative collection

operation in your area. Also, contact the county/city recycling coordinator for assistance in finding other small generators and setting up a local program.

Design a Collection and Handling System

- **Working with Suppliers.** Because stretch wrap may come from different sources, it is important to notify suppliers and tell them about your recycling program. Explain the requirements and specifications your recycling market has established for recovery. Ask them to help by notifying you of any changes in the stretch wrap materials being used for shipment.
- **Collection Containers.** Gathering used stretch wrap in a clean container is a must. The American Plastics council suggests using a 42 x 42 x 42 double-wall or triple-wall cardboard gaylord that typically holds 50 pounds of loose stretch wrap. Other options include roll carts and large plastic bags (bags should be of the same resin type as the stretch wrap being collected). If bags are used, they also may serve as pre-bale storage. The number of containers needed for collection will depend on the number of generation points and the method used for storing accumulated material before baling (i.e. will containers be used for pre-baling storage or will materials be transferred to a holding area, freeing up the collection containers). Allocate enough space for all needed collection containers within the facility. Often markets require a full truckload of baled stretch wrap, so plan for space to store the bales until there is enough to meet the market requirement.
- **Contamination.** It is important that collection containers are clearly labeled Stretch Wrap Only and that employees understand the problem of contamination in the recycling process. Most recyclers will not accept more than two to five percent contamination. The most successful systems place containers adjacent to areas where the wrap is removed, for example, in the receiving area. Such placement tends to decrease the chances of contamination of the plastic from dirt, oils, and trash.
- **Receiving Personnel.** Personnel handling stretch wrap should be trained about specifics of the recycling program. Once the wrap is stripped from pallets, all labels that are not accepted should be removed, and the wrap should be placed immediately in the appropriate recycling container.
- **Baling.** To lower the costs of storage and transportation, stretch wrap should be baled. Most markets will only accept the material in the form of a bale. Facilities that already have a baler for cardboard or plastic can use the same machine to bale stretch wrap. For those facilities that have not invested in a baler, the typical costs for a small vertical baler are between \$7,000 and \$10,000 (a used baler may cost less). Larger capacity horizontal balers used for large multi-material recycling programs range from \$12,000 to \$200,000. Bale sizes and weights vary between balers. Some balers produce a 2 x 3 x 4 bale weighing 300 pounds while other balers produce a 3 x 4 x 6 bale weighing 1,000 pounds. Check with your stretch wrap market about requirements on bale size and weight to determine what baler is appropriate for your operation. To ensure bale integrity, four or five wires should be used to wrap the bale. Once baled, the stretch wrap should be stored indoors on pallets or concrete pads to keep dry and clean. If bales are stored outside, they should be placed on concrete pads and covered with tarpaulins to prevent ultraviolet degradation and moisture accumulation.

Employee Training

Employees determine the success of a stretch wrap recycling program. All employees that deal with stretch wrap should be trained on the specifics of the facility's program and their role in its success. One hour training every six months should be allocated for each employee involved in the recycling program. Also to be included in the costs of training are instructional signs that illustrate and remind employees of the stretch wrap recycling effort. The cost per year for signs depends largely on how many recovery areas exist

in the facility. An average cost of \$170 per year for signage can be used in calculating the net benefits of the recycling program (calculated by assuming \$17 per sign, needing 10 signs). The following points are important to remember during employee training.

- Emphasize the importance of removing string, tape and paper labels as they are serious contaminants.
- Discourage the use of recycling containers as trash receptacles.
- Understand that continuous employee training is the key to a successful recycling program.¹

Stretch Wrap Economics

Stretch wrap recycling presents opportunities for companies to save energy, preserve resources, lower disposal costs, and generate revenue. A well-designed program can produce large economic benefits, while a poorly run program will result in labor inefficiencies and low quality recovered material. Those facilities with low employee turnover will have lower training costs.

Resources

Stretch Wrap Recycling

American Plastics Council

1801 K Street, NW, Suite 701-L
Washington, DC 20006
1-800-243-5790

APC provides assistance with plastics recycling research, access to a database of film recyclers and reclaimers and has published two reports: *Understanding Plastic Film: Its Uses, Benefits and Waste Management Options*, and *Stretch Wrap Recycling: A How to Guide*.

Raymond Communications, Inc.

6429 Auburn Ave.
Riverdale, MD 20737-1614
(301) 345-4237; <http://www.raymond.com/recycle>
Raymond Communications published *Transportation Packaging & The Environment 1997: Regulation, Trends & Case Histories*.

Minnesota Office of Environmental Assistance (MOEA)

520 Lafayette Rd. N; 2nd Floor
St. Paul, MN 55155-4100
1-800-657-3843; fax (612) 215-0246
MOEA has posted a recyclable plastic film fact sheet on their web site at <http://www.moea.state.mn.us> and published the *Reusable Transport Packaging Directory*.

Alternatives to Stretch Wrap

Aero Rubber Company, Inc

7501 West 99th Place
Bridgeview, IL 60455
1-800-662-1009; fax 1-800-662-4400; email sales@aerorubber.com
Aero sells pallet, drum liner, and industrial bands.

Pac Strapping Products, Inc.

307-309 National Rd.

Exton, PA 19341

1-800-523-7752; fax (610) 363-7349

Pac Strapping sells strapping machinery, plastic strapping, steel strapping, and corner protectors.

New England (NE) Baling Wire

40 Strafello Dr., #10, PO Box 241

Avon, MA 02322

1-800-893-1270; fax (508) 588-2211

NE Baling Wire sells steel and plastic strapping along with supplies and packaging supplies.

Key Tech Corporation

12420 Evergreen Dr.

Mukilteo, WA 98275

1-800-460-5471; fax (206) 290-6464

Key Tech sells Lock n Pop[®] adhesive glue that can be used to secure boxes, bagged products, and items to pallets.

Orbis, A Division of Menasha Corporation

5307 Emerson Dr.

Raleigh, NC 27609

(919) 571-2620; fax (919) 571-2624; <http://www.orbis-menasha.com>

Orbis manufactures many different types of plastic and corrugated reusable containers from the hand-held size to bulk size.

Buckhorn

55 West TechneCenter Dr.

Milford, Ohio 45150

1-800-543-4454; fax (513) 831-5474

Buckhorn manufactures plastic containers, pallets, and carts.

Solid Fibre, A Division of Menasha Corporation

352 Sixth Street

Menasha, WI 54952

1-888-997-6543; fax (414) 751-1520

Solid Fibre sells solid fiber containers, totes, slip sheets, and protective packaging.

Mayer Myers Paper Company

101769 South Latham Street, PO Box 410

Memphis, TN 38101-0410

(901) 948-5631; fax (901) 774-7482; <http://www.mayermyers.com>

Mayer Myers provides all types of industrial and commercial products including stretch wrap, adhesives, strapping, boxes, corner protectors, rubber bands, and more.

Balers

Waste Technology Corporation

5400 Rio Grande Ave.

Jacksonville, FL 32254

1-800-231-9286; (904) 358-7013; <http://www.waste-tech.com>

International Baler, International Press and Shear, and Consolidated Baling Machine Company
comprise Waste Tech.

TMS Control Systems, Inc.

1236 Suffolk Court

Cary, NC 27511

(919) 481-0805

Schleicher & Company of America, Inc.

5715 Clyde Rhyne Drive

Sanford, NC 27330

(919) 775-7318; fax (919) 774-8731

Tri-State Process Equipment, Inc.

110 Libert Lane, PO Box 12

Indian Trail, NC 28079

1-800-728-1405; (704) 821-9831

C&M Company

PO Box 16321

Winston Salem, NC 27115

1-800-4BALERS

Used Collection Containers

These containers can be ordered from a box making company for \$15-\$45 each (depending on quantity ordered) or from a recycling broker at a cost of \$4-\$5 (call Maxie May at the Southeast Waste Exchange, or visit Recycler s World for broker sales).

Southeast Waste Exchange

UNCC Urban Institute

Charlotte, NC 28223-0001

(704) 547-2270; fax (704) 547-3178

Recycler s World (RecycleNet Corporation)

PO Box 24107

Guelph, Ontario, Canada N1E6V8

(519) 767-2913; <http://www.recycle.net>