



# **Lycoming County Stretch-Wrap Plastic Recycling Report**

Prepared for:  
**Lycoming County Resource  
Management Services**

Prepared by:  
 **Gannett Fleming**

# Table of Contents

<b>PROJECT OVERVIEW</b> .....	<b>1</b>
<b>BACKGROUND INFORMATION</b> .....	<b>1</b>
<b>GENERATORS OF STRETCH-WRAP</b> .....	<b>2</b>
<b>STRETCH-WRAP MARKETS</b> .....	<b>2</b>
<b>ECONOMICS OF STRETCH-WRAP RECYCLING</b> .....	<b>4</b>
<b>CONCLUSION</b> .....	<b>5</b>
Storage Requirements at the Warehouse/Distribution Center.....	5
Bale Equipment and Handling Requirements.....	5
<b>RECOMMENDATIONS</b> .....	<b>6</b>

## List of Tables

---

Table 1, General Analysis of Generators of Stretch-Wrap in Lycoming Count .....	2
Table 2, Stretch-Wrap Market Analysis .....	4

# LYCOMING COUNTY STRETCH-WRAP REPORT

## PROJECT OVERVIEW

---

A Pennsylvania Technical Assistance grant was awarded to the Lycoming County Resource Management Services (LCRMS) in February 2000. The project goal was to determine the potential for LCRMS to recycle stretch-wrap that is typically used by industry to secure products to pallets during distribution of their products. A project goal of the LCRMS will be to determine if this product should be included in the county's recycling program.

The following sections of this report consist of:

- Background information on stretch-wrap
- Identify businesses and industry in the Lycoming County region that generate stretch-wrap waste
- Identify standards that have been established for recycling of this material (moisture content, contamination, colored/dyed vs. clear, etc.)
- Stretch-wrap recycling markets
- Product packaging requirements for market
- Economics of stretch-wrap recycling
- Conclusions and recommendations on stretch-wrap recycling

## BACKGROUND INFORMATION

---

Stretch-wrap is a technique used in packaging where an elastic (plastic) film is stretched around a product. This film is self-adhesive and is applied in layers. The film has a high coefficient of friction that prevents packages from sliding when a product is stacked.

Stretch-wrap is composed of low-density polyethylene (LDPE). Favorable properties of stretch-wrap include ease in processing, a strong barrier to moisture, strength and toughness, flexibility, and ease in sealing. Pallet stretch-wrap is used by manufacturers and distributors to bind shipping cartons to pallets for transport to market. Stretch-wrap waste is often a large component of a warehouse or distribution center's waste stream. Recycling stretch-wrap offers an alternative to disposal thus reducing cost for waste disposal for the generators of the waste and saves landfill space at the disposal facility. The package stretch-wrap is easy to identify and arrives at commercial and industrial relatively clean. The material is easy to collect and has considerable market value.

Appendix A displays a stretch-wrap recycling flow chart. The chart depicts the flow of stretch-wrap material through the recycling process, from generator of material to warehouse and production facility (waste generator) to waste recycler (LCRMS) and eventually to market. Stretch-wrap is typically processed into a form that is acceptable to retain maximum market value, usually pelletized LDPE.

## **GENERATORS OF STRETCH-WRAP**

---

Several local industries in Lycoming County that generate large amounts of stretch-wrap were surveyed. Table 1 summarizes these industries and the waste volumes of stretch-wrap generated per month. Of the industries surveyed, the largest stretch-wrap generator was Kellogg's, Inc. The company estimates that 10,000 -17,000 lbs. per month of stretch-wrap is generated at their production facility in Williamsport, PA. Frito-Lay, Inc., also located in Williamsport, PA produces 500 lbs. per month, while Construction Specialties, Inc., located in Muncy, PA produces approximately 400 lbs. per month. Bloomsburg Mills, located in Bloomsburg, PA produces between 7,000 and 8,000 lbs. of stretch-wrap per month. Door Craft of Pennsylvania, located in Sunbury, PA generates 10,000 lbs. of stretch-wrap per month.

**Table 1, General Analysis of Generators of Stretch-Wrap in Lycoming County**

<b>Company</b>	<b>Contact Phone Number</b>	<b>Volume of Stretch Waste (lbs./month)</b>
Frito-Lay	(570)-326-4136	500
Kellogg's	(570)-546-7383	10,000-17,000
Construction Specialties	(570)-546-4646	400
Door Craft of Pennsylvania	(570)-286-5691	10,000
Bloomsburg Mills	(570)-784-4262	7,000-8,000

Construction Specialties, located in Muncy, PA, estimates that stretch-wrap comprises approximately 15-20 percent of their total waste volume generated. Stretch-wrap is typically is wrapped around wooden crates. Twenty 18' x 1,500' rolls of stretch-wrap are used by the company each year. It is estimated that total stretch-wrap waste volume generated is 100 lbs. per week. Construction Specialties does not see an increase in stretch-wrap usage in the future.

Frito-Lay, Inc., located in Williamsport, PA, does not currently recycle stretch-wrap. They produce approximately 500 lbs. of material per month. Volumes of stretch-wrap produced will remain relatively stable in the future.

Kellogg's estimates the volume of stretch-wrap waste generated at their facility in Williamsport, PA averages between 10,000-17,000 lbs. per month.

Bloomsburg Mills, located in Bloomsburg, PA estimates that approximately 7,000-8,000 lbs. of stretch-wrap per month.

Door Craft of Pennsylvania generates approximately 10,000 lbs. of stretch-wrap per month. Their commercial hauler is Danely Disposal and the waste is picked up weekly. Door Craft of Pennsylvania does not see an increase in generation of stretch-wrap in the future. At a minimum, these five companies generate 27,900 lbs. or about 14 tons of stretch-wrap waste.

## **STRETCH-WRAP MARKETS**

---

Six companies from Pennsylvania and New Jersey provided information on stretch-wrap recycling market characteristics and requirements. The market will dictate the price paid for recycled stretch-wrap and specifications of the actual material to be recycled. Table 2 summarizes this information provided on recycled stretch-wrap, including market price, transportation methods, volumes needed for contract, and delivery methods.

**Table 2, Stretch-Wrap Market Analysis**

Company	Location	Phone Number	Market Price	Product Delivery Method	Transportation Method	Volume Accepted	Comments
Maslo Company, Inc.	Conshohocken, PA	(610)-277-6720	Must know tonnage before a price can be quoted	Product must be baled	Shipped by rail or company can pick up plastic	Large volumes can be accepted	Carl indicated a large trailer could be placed on site to hold plastic until pick-up
Ultra Poly Corporation	Portland, PA	(570)-265-5484	\$0.04/lb.	Product must be baled and dry	Company owns trucks and can pick up plastic	Minimum volume = 40,000 lbs.	Alan indicated that is important for the shrink wrap bales to be dense and dry
Timi Plastics, Inc.	Towanda, PA	(570)-265-5484	Must know volume and weight per bale before a price can be quoted	Product must be baled	Company owns trucks and can pick up plastic	Large volumes can be accepted	Dennis indicated that the stretch-wrap market is strong presently, however could drop in the future.
Waste Reduction and Recycling Enterprises	Wilkes Barre, PA	(570)-825-3522	Must know volume and have a shrink wrap sample analyzed to quote price	Product can be baled or company can install a compactor	Company owns trucks and can pick up plastic	Large volumes can be accepted	Rich indicated that it is important to see a sample. This way he can determine if the shrink-wrap is a variety of mixed plastics or primarily one plastic.
Penn Recycling	Williamsport, PA	(570) 326-9041	\$0.05 /lbs.	Product must be baled	Company owns trucks and can pick up plastic	Large volumes can be accepted	George indicated that he would need to see a sample to determine what kind of plastics are present.
Mart Plastics/ Chemicals	Montville, NJ	(973)-263-1902	\$0.05-0.10/lbs.	Product must be baled	Company owns trucks and can pick up plastic	Large volumes can be accepted	Mike indicated that it is important for him to see a sample before he can determine an exact price

Maslo Company, Inc. is located in Conshohocken, PA. Maslo Co. must know the tonnage of stretch-wrap before he can quote a price. The stretch-wrap could be stored on site in a large trailer. Maslo Co. can pick up the product or receive it by rail. They have the facilities to handle a large volume of stretch-wrap, but requires the material to be baled.

Ultra-Poly Corporation, located in Portand, PA, also expressed an interest in accepting LCRMS's stretch-wrap material. The minimum volume that will be accepted is 40,000 lbs. The LDPE must be baled and dry. Market price was \$0.04/lb., with price fluctuations between \$0.01-0.06/lb. The material must be baled to ensure the stretch-wrap is tight, dense, and dry. Ultra-Poly has the facilities to receive a large volume of stretch-wrap and have trucks to pick up the plastic. The recyclable must be baled. Alan estimated the current market price at \$0.04/lb.

Timi Plastics, Inc., located in Towanda, PA, indicated that the market is strong for stretch-wrap, but need volumes from LCRMS before providing a price quote (weight/bale). The company can provide trucks to collect the materials for transport.

Waste Reduction and Recycling Enterprises, located in Wilkes-Barre, PA, accepts stretch-wrap, but need to know volumes and have a sample before providing a price. The material must be clean, any mixing or contamination of plastic will result in a lower price or rejection of the load. Waste Reduction and Recycling can transport and haul the material.

Penn Recycling, Inc., located in Williamsport, PA, indicated that the current market price would be close to \$0.05/lb. and that the material must be baled. Penn Recycling, Inc will collect and haul the stretch-wrap.

Mart Plastics/Chemicals, located in Montville, NJ, will accept baled stretch-wrap, and they estimate the market price at \$0.05-0.10/lb. Mart Plastics will transport material from LCRMS. A sample of the material is required prior to program start-up to determine the type of plastic.

In summary, market price for baled stretch-wrap is between \$0.04-0.10/lb. This market is subject to fluctuate. All companies contacted require the material to be baled and have the vehicles to haul material from LCRMS. In general, LCRMS estimates that a bale of stretch-wrap weighs approximately 800 lbs.

## **ECONOMICS OF STRETCH-WRAP RECYCLING**

---

Costs and revenues associated with recovering the material and the cost savings attributable to avoided disposal are the two primary factors when considering the economics of stretch-wrap. In some evaluations recovery of stretch-wrap is not economically feasible unless the savings from avoided disposal is considered. The market price paid for stretch-wrap is subject to fluctuation. Generally, shrink-wrap processions will not accept poor quality material at any price. New collection containers or storage and development of a training program are costs associated with starting a stretch-wrap recycling program at the generation and intermediate processing stages of the recycling

process. By removing this material from the waste stream money will be saved, landfill capacity increased, and the cost of hauling trash to the disposal site will be avoided. This includes the price to pick up waste per container and the disposal facility tipping fee.

## **CONCLUSION**

---

This report investigated the potential for developing a stretch-wrap recycling program at the LCRMS Recycling Center located at the Lycoming County Landfill near Montgomery, PA. Five local commercial and industrial establishments were surveyed to determine stretch-wrap volumes generated at their facilities and the potential for participation in the program.

- Six potential markets for stretch-wrap were surveyed to determine current market prices, how material must be collected, stored and delivered to their processing facilities
- Companies are interested in developing a stretch-wrap recycling program with LCRMS.

### **Storage Requirements at the Warehouse/Distribution Center**

- Loose stretch-wrap can be collected in Gaylord containers (42" cube)
- Containers typically hold 50 lbs. of loose stretch-wrap material. Approximately 20 containers are required per bale of stretch-wrap.
- Each container requires 12.25 sq. ft. of floor space; 20 containers require 245 sq. ft.
- Storage Requirements of Baled Stretch-Wrap at LCRMS
- Typical bale weight is 900-1200 lbs.; typical dimensions are 3' x 4' x 6'
- There are 38-42 bales per trailer truck
- Space required to store one truckload of bales (stacked 2 high) is 240 sq. ft.

### **Bale Equipment and Handling Requirements**

- If multi-material baler is used, it should be cleaned out when changing from one material to another. Baler must be dirt free so as to eliminate contamination.
- Segregated stretch-wrap should be inspected prior to baling for contaminants.
- Tape, strapping, labels and other contaminants must be removed prior to baling.
- Bales should be stored indoors on pallet to keep them clean and dry. Bales stored outdoors should be placed on concrete pads and covered with tarps to reduce moisture accumulation and eliminate sunlight.

## **RECOMMENDATIONS**

---

The following are recommendations to assist LCRMS develop a stretch-wrap recycling program:

- All of LCRMS's balers are operating at 100% capacity. Therefore, it would be necessary to run a second shift to bale the stretch-wrap or purchase a new baler.
- Survey additional stretch-wrap waste generators to determine if these establishments will participate in a stretch-wrap recycling program.
- Survey additional end users (markets) of stretch-wrap to receive the most competitive price/deal for the material.