



# 2009 National Postconsumer Recycled Plastic Bag & Film Report

February 2011

*Prepared for the American Chemistry Council*

## **Introduction**

The 2009 National Postconsumer Recycled Plastic Bag and Film Report is the fifth annual U.S. report on pounds of plastic bags and film recovered for recycling.<sup>1</sup> Research for this report was conducted by Moore Recycling Associates Inc. of Sonoma, California, for the Plastics Division of the American Chemistry Council (ACC) of Washington, DC.

## **Executive Summary**

Plastic bag and film recovery has increased by 31 percent since 2005. This recovery growth is more than nine times greater than the 3.4 percent increase in recovery of all municipal solid waste from 2005 to 2009 according to EPA data. Recovery of postconsumer film (which includes plastic bags and product wraps) grew to an estimated 854,377,000 pounds in 2009.

In order to determine an accurate estimate of pounds of bags and film recovered in 2009, both the domestic and export postconsumer film markets were surveyed. The information for this report is based on recovery data from 20 processors of postconsumer film and 50 companies that export postconsumer film.

The trend of a majority of material being sold to the export market continued in 2009. The composite lumber market continued to be the predominant domestic buyer but consumed a smaller percentage of the available material compared to previous years. There was an increase in the amount of material going into non-lumber domestic end-use markets such as film, sheet, lawn and garden products, pallets, crates, containers, piping, and automotive applications.

The total amount of postconsumer film collected for recycling in 2009 increased by three percent over 2008. Commercial film recovery increased 18 percent in 2009. Recovery of most other film grades decreased based on the reported totals from buyers. Collection of bags through retail programs increased according to some buyers, but this report does not include data directly from the retail sector.

On average, scrap value for postconsumer film was lower in 2009 than in 2008. The scrap value for all grades of film began to improve early in the year, but none reached the historic highs of the summer of 2008 nor the lows of the market crash later in 2008.

---

<sup>1</sup> Generally in this report plastic bags and film will be referred to as "film."

## Findings

### Grades of Film

Recovered film enters the market in various grades, as noted below, and typically includes a combination of baled HDPE, LDPE, and LLDPE resins. Stretch film, collected as commercial film and as a part of mixed film, represents a significant majority of the postconsumer film recovered, while agricultural film represents a small amount at approximately 2 percent. Plastic bags often are commingled with stretch film wrap for efficient collection at retail locations. Processors estimate bags make up approximately 40 percent of the commingled bales purchased from retail programs; this material is also called "mixed film." Curbside film is composed primarily of plastic bags.

**Commercial Film** = Clear, clean PE film including stretch wrap and poly bags

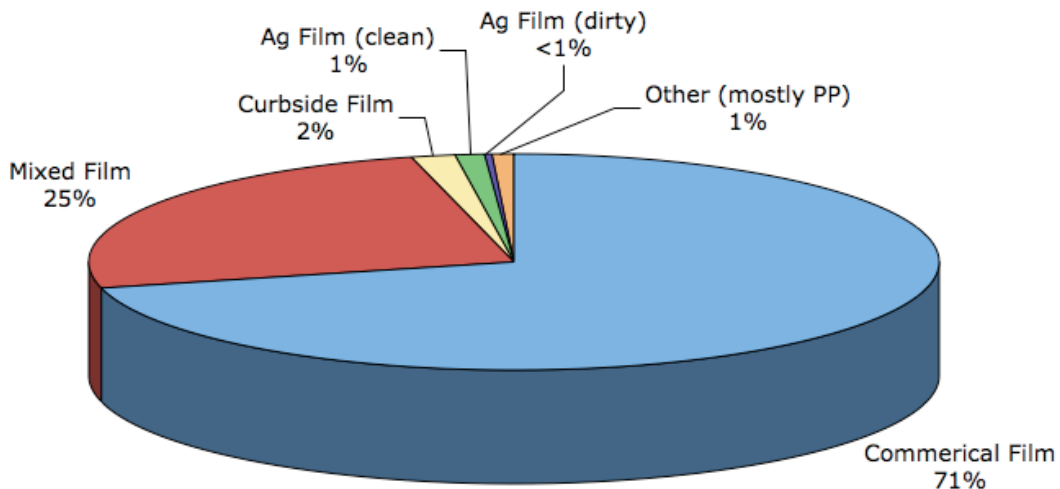
**Mixed Film** = Mixed color, clean PE film including grocery bags

**Curbside Film** = Mixed PE film generated at MRFs

**Dirty Ag Film** = From the ground—up to 50% contamination

**Clean Ag Film** = Dry and from uses that do not touch the ground up to 10% contamination

### Grades of Postconsumer Film Recovered in 2009



## Collection

In 2009, an estimated 854,377,000 pounds of postconsumer film was collected for recycling. The breakdown between the amounts of U.S. sourced film consumed domestically and exported are as follows:

### **Postconsumer Recovered Film**

<b>Year</b>	<b>Total</b>	<b>Exported</b>	<b>Consumed in United States or Canada</b>
2009	854,377,000	490,718,000	363,659,000
2008	832,394,000	469,968,000	362,426,000
2007	830,180,000	462,611,000	367,569,000
2006	812,010,000	221,082,000	590,928,000
2005	652,477,000	183,701,000	468,776,000

Domestic purchases of postconsumer film increased in 2009 for “commercial” and “curbside” film. Commercial film purchased by domestic processors increased by nearly 16 million pounds. The demand for high quality postconsumer resin for use in a wider range of new products drove the increase in commercial film recovery. Domestic purchases of curbside collected film increased by one million pounds, to nearly three million pounds. Curbside collected material is highly variable and costly to process but is worth exploring when the scrap value is close to zero.

With growth in export comes growth in uncertainty as to whether or not all material was captured through the survey. Export purchases decreased for all grades except “commercial” film. The export market purchased 25 percent more commercial film in 2009 over 2008, but purchases of lower grade material nearly stopped for several months after the market crash late in 2008. The export market consumed around 18 million pounds fewer curbside generated film based on survey results.

Thousands of plastic processors in China struggled or went out of business in late 2008 and early 2009; however the demand for clean, clear material continued during the market crash—holding a value of around 10 cents a pound. Commercial film’s value exceeded the scrap value for many other commodities such as cardboard, which fell below 3 cents a pound. Many exporters shifted their focus to the sourcing of clean, clear material or stopped purchasing all together, which left some material recovery facilities unable to sell bales of curbside collected film early in 2009. Scrap prices improved in 2009 for all grades of film—particularly commercial film.

With the continued shift towards export, the challenge of data collection increases. Some exporters said they did not respond because they only handled post-industrial material. Inconsistency in terminology is a challenge within the plastic recycling industry, in particular when dealing with the export market. For example, bales containing bags are often called

commercial film and commercial film is often called post-industrial. This practice may have increased with tighter restriction on imports into China and in turn been a factor in the increase in recovery of commercial material and the decrease in other grades. There is less confusion from domestic users and most domestic processors responded in 2009.

### Capacity and Utilization

While difficult to estimate, capacity to process very clean film in the United States is likely around 800 million pounds. Total domestic processing capacity for postconsumer film plastic is difficult to estimate because of the variability in quality and in processors' ability to handle various grades. There was an increased interest in handling "dirty" material in the United States because the cost of "dirty" material is so low.<sup>2</sup> Dirt causes serious damage to extruders, so while washing is expensive, trying to entirely by-pass preprocessing often leads to expensive equipment repairs and extensive downtime. The film recycling industry is experiencing growing pains as processors search for ways to manage the variability in material within extremely tight economic margins. Consistent supply of film with minimal contamination is essential for the expansion of processing capacity.

There is a much larger capacity to handle very clean film, including post-industrial material. The total recovery of film reported does not include post-industrial material, but as a reference point, Moore Recycling's survey instrument does ask about the amount of post-industrial film plastic purchased from postconsumer film buyers. The survey does not capture the large number of companies that only purchase and process post-industrial film.

Utilization—even more challenging to estimate—is likely below 45 percent, which is down 5 percent from the previous year. The decline is related to the poor economy and depressed housing construction activity, which lowers the demand for products made from recovered film such as lumber and piping.

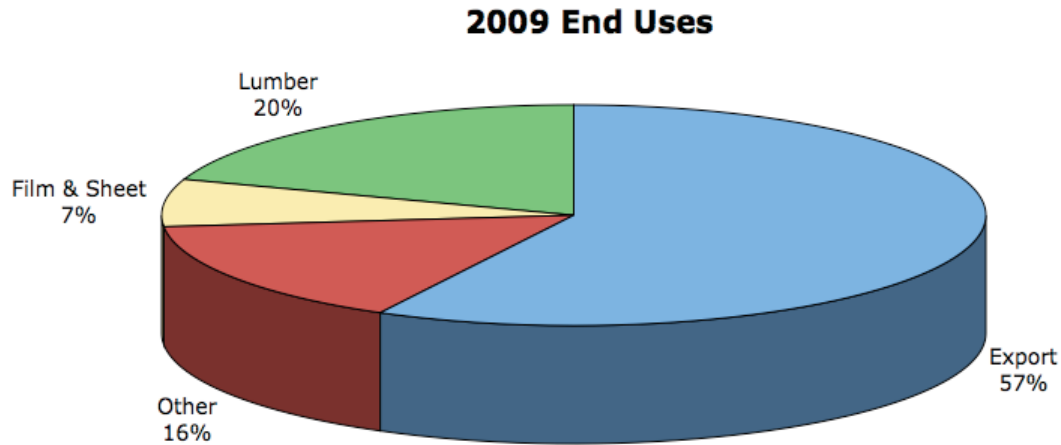
### **End-use Markets**

As previously noted, composite lumber applications were the primary use by the domestic end markets comprising 20 percent of the total film collected in 2009. The export market purchased, by far, the largest share of U.S. recycled film (57 percent), while the amount sold to domestic film and sheet markets grew to 7 percent, compared to 4 percent last year. Nearly 16 percent went into "Other" miscellaneous applications, such as garden products, crates, buckets, pallets, and piping. Some of the material in the "Other" category may also have gone into film, sheet, or composite decking. Not all processors were able to report where their postconsumer resin ended up.<sup>3</sup>

---

<sup>2</sup> Dirty film generally refers to material with more than 10% contamination and 5% moisture. Material from a MRF is considered dirty and generally requires preprocessing.

<sup>3</sup> To protect the confidentiality of respondents, only end-uses in which there are more than 3 companies are listed.



## Film Marketplace

Considering the crash in late 2008, 2009 was a fairly steady year. Prices began to increase slightly in the second quarter of 2009. However, the average price for postconsumer film was significantly lower in 2009 than 2008.<sup>4</sup> Commercial film realized the greatest gain in scrap value, but the average value in 2009 was around 20 percent lower than the average value in 2008.

In the past, more lenient quality requirements from exporters has reduced quality overall, but in 2009, export demand for lower grade material decreased. Suppliers may need to increase their bale quality if they want to continue moving material at a cost effective price.

As noted, many players fell out of the marketplace after the market downturn in late 2008. Lower scrap value, and fewer handlers and processors certainly may have been a factor in the recovery of plastic bags and film.

Businesses produced significant volumes of good quality scrap film, but the cost of collection from small generators is generally greater than the value. To overcome the collection cost challenge, Chapel Hill, NC experimented with “business to business” recycling in which small retailers deliver their scrap film to a larger retailer that already back hauls scrap to their distribution center. The “anchor” store gains the revenue from the material and the small businesses get to divert material from their waste stream (reducing disposal costs by as much as 50%). After the model was proven successful at one shopping center, the program was implemented in two other shopping centers. More than 50 small businesses now recycle their film in Chapel Hill.

---

<sup>4</sup> Pricing was lower for many grades of scrap including plastic, paper and metals.

## Retail Plastic Bags and Film

Retail stores with plastic bag collection programs are located in every U.S. state. By the end of 2010 there were nearly 12,000 film drop off locations throughout the United States. Of these, approximately 545 are government-run (such as city recycling centers). This means the remaining are retailer-based listings. Those more than 11,000 listings include the major grocers (Kroger, Safeway, Supervalu, Whole Foods, etc.) as well as regional grocers (e.g. Food City, Giant, H-E-B). It also includes the national retail stores Lowe's, Target, JCPenney and WalMart.



More consumers are becoming aware of the option to recycle plastic bags as well as remembering their reusable bags. Too few consumers know that they can also recycle other items such as newspaper and dry cleaning bags, and plastic film wrap (e.g., the wrap around paper towels and dry goods).

Some retailers such as certain Whole Foods Markets are posting images of recyclable material beyond bags. Retailers such as Harris Teeter, a large grocer in the Southeast, accept film beyond bags from consumers as well as neighboring businesses through their “business to business” recycling program.

Case studies of model recycling programs are posted on [www.PlasticBagRecycling.org](http://www.PlasticBagRecycling.org).

Recovery rates for plastic film will likely increase as more businesses identify efficient ways to recover their scrap and consumers learn they can recycle many household film products beyond carry out bags. The following poster—which can be downloaded from [www.PlasticBagRecycling.org](http://www.PlasticBagRecycling.org)—provides examples of the increasing types of plastic bags and wraps that can be recycled with grocery bags at participating stores.

# RECYCLE

## CLEAN, DRY, EMPTY PLASTIC BAGS & FILM PACKAGING



- newspaper bags
- dry cleaning bags
- bread bags
- produce bags
- toilet paper, napkin, and paper towel wraps
- furniture wrap
- electronic wrap
- plastic retail bags (hard plastic and string handles removed)
- grocery bags
- zip lock bags (remove hard components)
- cereal box liners
- Tyvek (no glue, labels, other material)
- diaper wrap (packaging)
- plastic shipping envelopes (remove labels)
- case wrap (e.g., snacks, water bottles)
- All clean, dry bags labeled #2 or #4.

**X** NO frozen food bags or prewashed salad mix bags  
**NO** bio-based or degradable bags



For more information visit [www.plasticbagrecycling.org](http://www.plasticbagrecycling.org)

## **Additional Information**

This is the fifth year Moore Recycling Associates Inc. has conducted this survey and produced this report for the Plastics Division of the American Chemistry Council.

The Plastics Division of the American Chemistry Council provides resources to communities, businesses and consumers to assist them in increasing awareness and education of the recycling of plastic bags and film. Information can be found on the online web resource [\*\*www.PlasticBagRecycling.org\*\*](http://www.PlasticBagRecycling.org).

The 2009 National Postconsumer Plastic Bag and Film Report has been prepared to provide information to parties interested in the recycling of plastics, in particular film and bag materials. Facilities developing a recycling process and all entities involved in the chain of collection, processing, distribution, and sale of recycled products have an independent obligation to ascertain that their plans, actions, and practices meet all relevant laws and represent sound business practices for their particular operations. Facilities may vary their approach with respect to particular operations, products, or locations based on specific factual circumstances, the practicality and effectiveness of particular actions and economic and technological feasibilities.

This report is not designed or intended to define or create legal rights or obligations. ACC does not make any warranty or representation, either express or implied, with respect to the accuracy or completeness of the information contained in this report; nor does ACC assume any liability of any kind whatsoever resulting from the use of or reliance upon any information, conclusion, or options contained herein. The American Chemistry Council sponsored this report.