

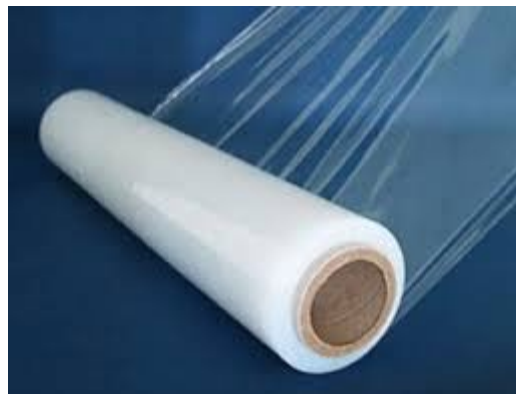


PROSPECTUS

POLYETHYLENE FILM MARKET ANALYSIS, VALUE-IN-USE, & TECHNOLOGIES

12TH EDITION

PUBLISHED JULY 2023



Polyethylene Film Market Study 12th Edition

Highlights

- Published in July 2023. Includes a two-volume, 756-page book set and an electronic version in Excel and Adobe Acrobat formats.
- Interviews were conducted with hundreds of companies throughout North America.
- The study is divided into four major market categories: (1) Food Packaging; (2) Industrial Packaging; (3) Retail Packaging; and (4) Nonpackaging.
- The study includes an executive summary and detailed data on 33 separate end-use markets listed below.

Chapter	Market	Chapter	Market
Food Packaging		Retail Packaging	
2	Baked Goods	19	Consumer Trash Bags
3	Meat and Poultry	20	Merchandise Bags
4	Fresh Produce, Self-Serve and Wet-Pack Bags	21	Household Bags and Wrap
5	Bag-In-Box	22	Laundry, Dry Cleaning and Garment Bags
6	Candy Packaging	23	T-Shirt Bags
7	Deli Bags and Wrap	24	Pouches
8	Carton Liners and Slug Wrap	25	Paper and Personal Care Overwrap
9	Frozen Food Packaging	Nonpackaging	
10	Snack Food Packaging	26	Institutional Trash Bags
11	Cheese Packaging	27	Construction Film
Industrial Packaging		28	Geomembrane Lining Systems
12	Consumer and Industrial Product Liners	29	Juvenile and Adult Hygiene Film
13	Stretch Film	30	Medical Film and Packaging
14	Shrink Film	31	Agricultural Film
15	Heavy Duty Sacks	32	Drop Cloths, Tarps and Covers
16	Sheet and Tubing	33	E-Commerce Film, Envelopes and Mailers
17	Bubble Packaging	34	Miscellaneous
18	Multi-Wall Sacks		

Every chapter for each end-use market will provide in-depth coverage on the following topics:

- Market size by total resin consumption and by resin type.
- Major processors and their locations.
- Total resin consumption and growth rates for each PE film extruder by market/chapter.
- Value-in-use analysis depicting the average selling price, which includes the margin, overhead and other costs related to manufacturing the various products.
- Detailed information on the factors that affect the growth or decline of each market provided in an Excel spreadsheet by market/chapter. (i.e. economy, material substitution, government regulations, environmental issues, technological trends, imports, production shift from USA to foreign countries, mergers & acquisitions, NAFTA and other world trade issues, etc.)
- Growth rate comparison between the anticipated market growth and the anticipated processor growth per end-use markets. Where there is a difference, there will be qualitative data explaining the difference.
- 2022 capacity utilization and projected capacity utilization in 2023.
- What is your involvement in the solutions for sustainability within your organization?
- Do you believe the additional PE resin capacity coming online in the next few years will help you grow your business?
- What are you doing to meet your sustainability goals?
- Due to resin price/availability, how many different resin formulations do you usually have for an end-use market in order to have flexibility?
- When you purchase a new extrusion line, do you develop a new resin formulation or duplicate the existing resin formulation?
- What sources of market intelligence do you use to help grow your business?
- Is there anything we didn't ask that we should have? Please elaborate.

Selected Exhibits

Total resin by type consumed for Polyethylene Film in U.S. and Canada for 2022 and projected for 2025 in MM lbs.

	2022	2025
Resin (<i>Sample list of resins</i>)	Consumption (MM lbs.)	Consumption (MM lbs.)
LLDPE (linear low-density polyethylene)		
LLDPE-hexene		
LLDPE-butene		
LLDPE-octene		
LLDPE-metallocene		
Total LLDPE		
LDPE (low density polyethylene)		
LDPE-homopolymer		
LDPE-EVA (ethylene vinyl acetate) copolymer		
LDPE-EAA (ethylene acrylic acid) copolymer		
LDPE-EMA (ethylene methyl acrylate) copolymer		
Total LDPE		
HDPE (high density polyethylene)		
HMW-HDPE (high molecular weight)		
MMW-HDPE (medium molecular weight)		
Total HDPE		
MDPE (medium density polyethylene)		
PCR (post consumer resin)		
UHDPE (ultra high density polyethylene)		
ULDPE (ultra low density polyethylene)		
GRAND TOTAL		

Source: Mastio & Company Polyethylene Film Market Study

Total resin consumption for 33 end-use markets for polyethylene film resins in U.S. and Canada for 2022 and projected for 2025 in MM lbs.

TOTAL NORTH AMERICAN PE RESIN CONSUMPTION 2022 AND 2025					
Chapter	Market	2022 Consumption	2025 Consumption	AAGR 19-22 AAGR %	Growth/Decline 2022-2025
2	Baked Goods				
3	Meat & Poultry				
4	Fresh Produce and Self-Serve & Wet-Pack Bags				
5	Bag-In-Box				
6	Candy Packaging				
7	Deli Bags & Wrap				
8	Carton Liners & Slug Wrap				
9	Frozen Food				
10	Snack Food Packaging				
11	Cheese Packaging				
Food Packaging Subtotal					
12	Consumer & Industrial Product				
13	Stretch Film				
14	Shrink Film				
15	Heavy Duty Sacks				
16	Sheet & Tubing				
17	Bubble Packaging				
18	Multi-Wall Sacks				
Industrial Packaging Subtotal					
19	Consumer Trash Bags				
20	Merchandise Bags				
21	Household Bags & Wrap				
22	Laundry, Dry Cleaning, Garment Bags				
23	T-Shirt Bags				
24	Pouches				
25	Paper and Personal Overwrap				
Retail Packaging Subtotal					
26	Institutional Trash Bags				
27	Construction Film				
28	Geomembrane Lining Systems				
29	Juvenile & Adult Hygiene Film				
30	Medical Film & Packaging				
31	Agricultural Film				
32	Drop Cloths, Tarps and Covers				
33	Envelope & Magazine Overwrap				
34	Miscellaneous				
Nonpackaging Subtotal					
Grand Total					

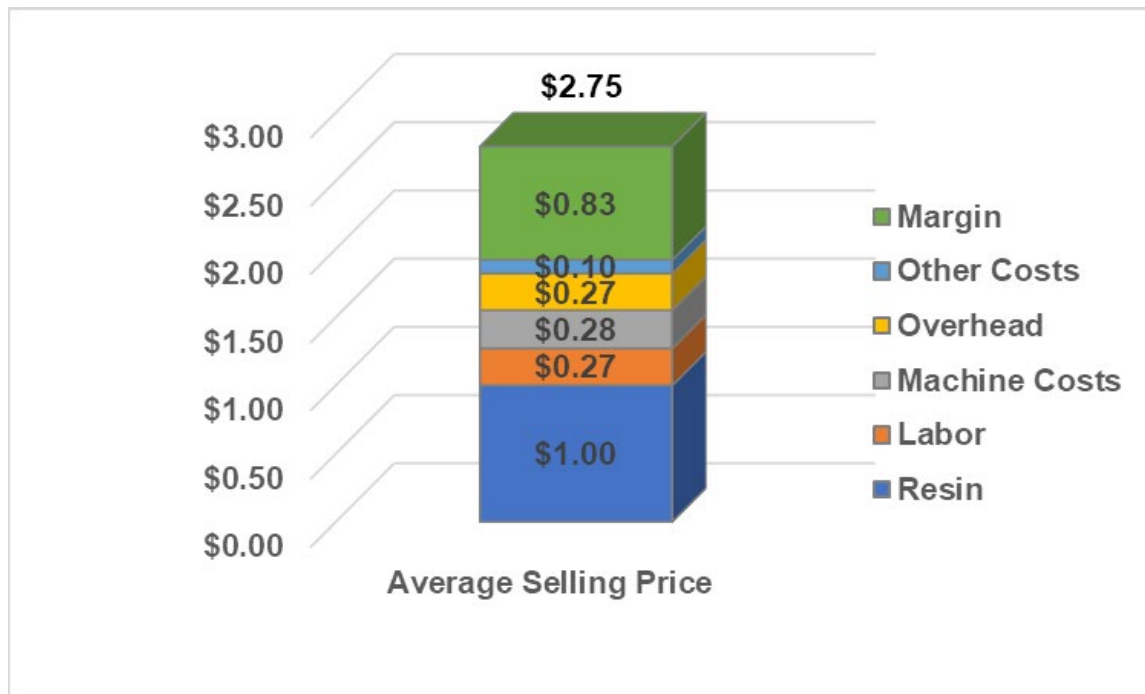
Source: Mastio & Company Polyethylene Film Market Study

Detailed information on the factors that affect the growth or decline of each market by processor.

Processor	Estimated share of the market %	% growth rate you see the market growing over the next three years	% growth rate you see <i>your company</i> growing over the next 3 years in the market	Key factors for decline or growth in each market
Company A	15%	4%	10%	New customers doing business with another supplier.
Company B	10%	3%	2%	Closing one of our facilities.
etc. ↓				

Average Growth Rate **3.5%**

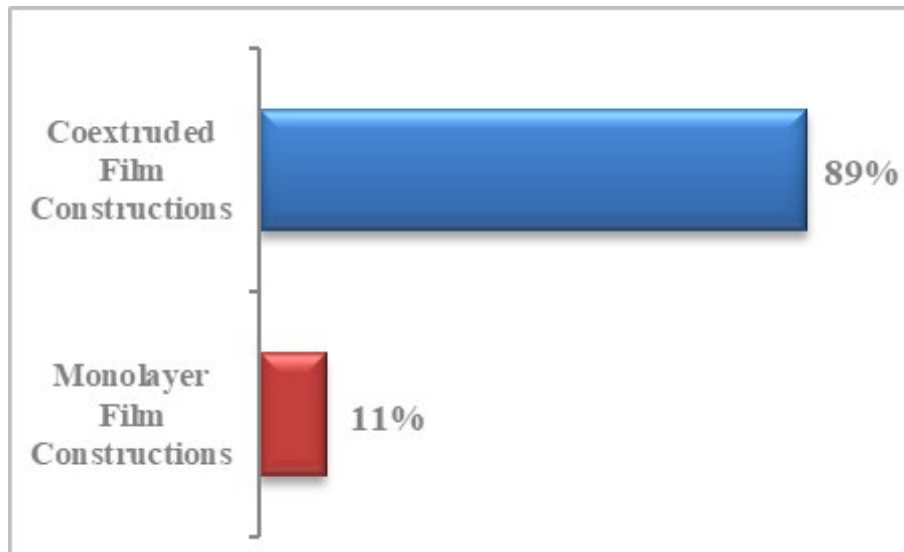
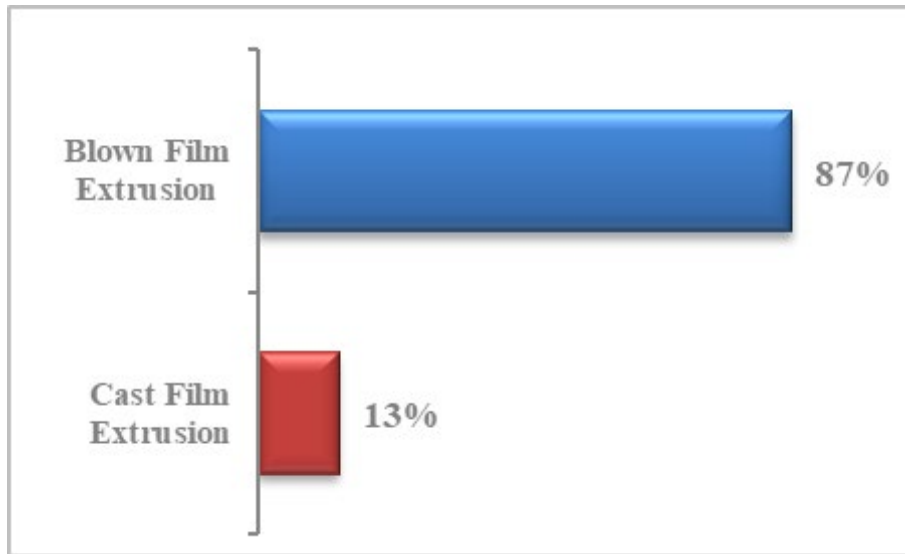
VALUE-IN-USE ANALYSIS FOR A COEXTRUDED EGG PROTEIN PACKAGE



Source: Mastio & Company Polyethylene Film Market Study

Breakdown of resin consumption by process type.

	2022		2020
	Consumption (MM lbs.)	Market Share (%)	Market Share (%)
Film Extrusion Process			
Blown Film Extrusion	529.4	86.9	88.4
Cast Film Extrusion	79.6	13.1	11.6
Totals	609.0	100.0	100.0
Coextruded Film Constructions	543.2	89.2	79.9
Monolayer Film Constructions	65.8	10.8	20.1
Totals	609.0	100.0	100.0



Detailed listing of participants and their location.

Company	Location
Company A	Van Buren, Arkansas
Company B	Oshkosh, Wisconsin
Company C	St. Louis, Missouri
Company D	Paris, Illinois
Company E	Elyria, Ohio
Company F	Jacksonville, Florida

Capacity Utilization –provided in the electronic edition.

Processor	Current Utilization 2022	Anticipated Utilization 2023	Reason for increase or decline
Company A	50%	75%	
Company B	80%	70%	
Company C	75%	80%	
Company D	75%	95%	
Company E	63%	70%	
Company F	93%	87%	

Resin consumption, market share, and AAGR by resin type, 2022 and 2025

Resin	2022		2025		2022-2025 AAGR (%)
	Consumption (MM lbs.)	Market Share (%)	Consumption (MM lbs.)	Market Share (%)	
mLLDPE	128.3	20.4	146.4	20.7	4.4
LLDPE-octene	98.6	15.7	110.7	15.6	3.9
LLDPE-hexene	88.4	14.1	94.5	13.3	2.2
LLDPE-butene	51.9	8.3	56.6	8.0	2.9
LLDPE-super hexene	28.5	4.5	33.0	4.7	5.0
Total LLDPE	395.7	62.9	441.2	62.3	3.7
LDPE-homopolymer	61.7	9.8	73.4	10.4	5.9
LDPE-EVA copolymer	39.3	6.2	42.4	6.0	2.5
LDPE-EAA copolymer	22.9	3.6	26.3	3.7	4.6
Total LDPE	123.9	19.7	142.1	20.1	4.6
HMW-HDPE	14.4	2.3	16.9	2.4	5.4
MMW-HDPE	4.8	0.8	5.2	0.7	2.8
Total HDPE	19.2	3.1	22.1	3.1	4.8
EVOH	29.4	4.7	32.8	4.6	3.7
VLDPE	17.6	2.8	19.5	2.8	3.4
MDPE	0.8	0.1	1.1	0.2	9.9
GRAND TOTAL	628.9	100.0	708.0	100.0	4.0

Alphabetical listing of polyethylene film processors by total resin consumption for each of the 33 end-use markets.

Polyethylene Film Processors and their Primary Markets														
Company	Total Resin Use (MM lbs.)	Market Amounts in MM lbs.												
		2	3	4	5	6	7	8	9	10	11	12	13	14
Company A	91.6	0.6				1.0								
Company B	72.2									0.8	0.4			0.8
Company C	2.7	0.7						0.2	0.2	0.2				
Company D	55.0													
Company E	11.2												0.2	
Company F	5.3													
Company G	71.5													
Company H	55.9											5.9		
Company I	22.0				0.3			0.4		0.1				
Company J	82.0							2.0						
Company K	170.1		168.3	0.9	0.9									
GRAND TOTAL	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx

Source: Mastio & Company Polyethylene Film Market Study

Listing of PE Film extruders by total resin consumption (largest to smallest).

Exhibit	
2022 PE FILM ANNUAL CONSUMPTION BY COMPANY	
Note: Multi-divisional companies have been listed separately along with their parent company in brackets.	
Company	Quantity (MM lbs.)
Company A	1,275.0
Company B	702.0
Company C	601.8
Company D	600.0
Company E	540.0
Company F	484.0
Company G	458.9
Company H	412.1
Company I	402.8
Company J	385.2
Company K	382.0
Company L	360.0
Company M	320.0
Company N	319.6
Company O	315.0
Company P	310.5
Company Q	300.2

Source: Mastio & Company Polyethylene Film Market Study