Extruded Plastics

US Industry Study with Forecasts for 2013 & 2018

Study #2566 | December 2009 | $4700 | 273 pages

www.freedoniagroup.com
**Table of Contents**

**EXECUTIVE SUMMARY**

**MARKET ENVIRONMENT**

General .................................................. 4  
Macroeconomic Outlook .............................. 4  
Demographic Trends ................................... 9  
Consumer Income & Spending ..................... 12  
Manufacturing Outlook .............................. 14  
Plastic Resin Overview ............................... 17  
Market Trends .......................................... 20  
Extrusion Machinery & Technology ............... 22  
Plastic Processing Methods .......................... 24  
Injection Molding ...................................... 26  
Blow Molding .......................................... 27  
Other Processes ....................................... 27  
Pricing Trends .......................................... 29  
Regulatory Considerations ........................... 31  
Recycling ................................................ 34  
International Activity ............................... 34  

**RESINS**

General .................................................. 36  
Resins ................................................... 37  
Polyvinyl Chloride .................................... 39  
Profiles .................................................. 40  
Pipe ....................................................... 42  
Siding .................................................... 43  
Windows & Doors ..................................... 46  
Molding & Trim ........................................ 47  
Fencing, Decking & Other ......................... 48  
Film ....................................................... 50  
Other ...................................................... 51  
Low Density Polyethylene ........................... 55  
Film ....................................................... 56  
Other ...................................................... 60  
High Density Polyethylene .......................... 62  
Pipe ....................................................... 64  
Film ....................................................... 66  
Sheet & Other ......................................... 68  
Poly styrene ............................................. 69  
Solid ...................................................... 71  
Sheet ...................................................... 72  
Film ....................................................... 73  
Other ...................................................... 74  
Foamed ................................................... 74  
Polypropylene .......................................... 76  
Film ....................................................... 78  

**MARKETS**

Sheet ...................................................... 80  
Wire & Cable ........................................... 81  
Other ...................................................... 81  
Polyester ................................................ 82  
Film ...................................................... 83  
Sheet & Other ......................................... 86  
Other ...................................................... 87  
Applications ......................................... 88  
Resins .................................................... 90  

**Other Markets** .................................... 154  
Resins .................................................... 155  
Markets .................................................. 157  
Motor Vehicles ........................................ 158  
Industrial .............................................. 159  
Electrical & Electronic ............................. 160  
Medical .................................................. 161  
Other ...................................................... 162  

**INDUSTRY STRUCTURE**

General .................................................. 163  
Market Share .......................................... 166  
Mergers & Acquisitions .............................. 172  
Marketing Strategies ................................. 177  
Channels of Distribution ............................. 178  
Research & Development ............................. 180  
Competitive Strategies ............................... 181  
Cooperative Agreements ............................. 183  

**COMPANY PROFILES**

Advanced Drainage Systems ........................ 187  
AEP Industries ......................................... 189  
Alcoa Incorporated .................................... 191  
Andersen Corporation ................................ 192  
Arkema SA .............................................. 194  
Associated Materials ................................ 196  
Atrium Companies .................................... 198  
Bemis Company ........................................ 201  
Berry Plastics ......................................... 203  
Charlotte Pipe & Foundry ........................... 208  
Chevron Phillips Chemical ......................... 209  
CPG International .................................... 210  
Crane Group .......................................... 212  
Dart Container ........................................ 214  
Dow Chemical ......................................... 215  
DuPont (EI) de Nemours ............................. 218  
Exterior Profiles ...................................... 222  
Exxon Mobil .......................................... 223  
Formosa Plastics ...................................... 225  
Fortis Plastics ........................................ 228  
Fortune Brands ....................................... 229  
General Electric ...................................... 230  
Georgia Gulf .......................................... 231  
Hilex Poly .............................................. 235  
ICC Industries ......................................... 236  
J-M Manufacturing .................................... 238  

(continued on following page)
Table of Contents

COMPANY PROFILES

(continued from previous page)

Jeld-Wen Incorporated.................................. 240
Johnson (SC) & Son................................. 241
Lane Enterprises .................................. 242
Owens Corning........................................ 243
Pactron Corporation................................. 244
Ply Gem Holdings.................................... 246
Printpack Incorporated............................... 248
ProVia Door........................................... 250
Reynolds Packaging................................. 251
Rio Tinto Group..................................... 253
RTP Company......................................... 255
Saint-Gobain.......................................... 256
Saudi Basic Industries............................. 259
Sealed Air ............................................. 261
Serious Materials.................................... 262
Sigma Plastics........................................ 263
Spartech Corporation................................. 268
Survivor Windows II ................................ 271
Westlake Chemical.................................. 272

List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table ...................................... 3

MARKET ENVIRONMENT

1 Macroeconomic Indicators ......................... 9
2 Population & Households ........................ 12
3 Personal Consumption Expenditures ........... 14
4 Manufacturers’ Shipments ........................ 17
5 Plastic Resin Supply & Demand ................. 19
Chrt Plastic Resin Demand by Type, 2008 .20
6 Extruded Plastics Market, 1998 - 2008 ........ 21
Chrt Extruded Plastics Market, 1998 - 2008 ....... 22
7 Thermoplastic Resin Demand by Process ....... 25
Chrt Thermoplastic Resin Demand by Process, 2008 .. 26
8 Extruded Resin Pricing ............................ 31

MARKETS

1 Extruded Plastics Demand by Market ....... 94
Chrt Extruded Plastics Demand by Market, 2008 ... 94
2 Packaging Overview .............................. 98
3 Packaging Market for Extruded Plastics by Resin .......... 100

RESINS

1 Extruded Plastics Demand in Pounds & Dollars .......... 37
Chrt Extruded Plastics Demand by Resin, 2008 .......... 39
2 Extruded Plastics Demand by Resin ... 38
3 Extruded PVC Demand by Application 40
4 Extruded PVC Demand in Profiles ...... 41
Chrt Extruded PVC Demand in Profiles, 2008 .......... 42
5 Extruded PVC Film Demand ............... 51
6 Extruded PVC Demand in Other Products ...... 54
7 Extruded LDPE Demand by Type & Application .......... 56
8 Extruded LDPE Demand in Film ........ 59
Chrt Extruded LDPE Demand in Film, 2008 .......... 60
9 Extruded LDPE Demand in Other Products .......... 61
Chrt Extruded LDPE Demand in Other Products, 2008 .... 62
10 Extruded HDPE Demand by Application .. 63
Chrt Extruded HDPE Demand by Application, 2008 .... 64
11 Extruded Polystyrene Demand by Type ........ 71
12 Extruded Solid Polystyrene Demand by Application .... 72
13 Extruded Foamed Polystyrene Demand by Application .... 76
14 Extruded Polypropylene Demand by Application .......... 77
Chrt Extruded Polypropylene Demand by Application, 2008 .... 78
15 Extruded Polyester Demand by Application .......... 83
16 Other Extruded Plastics Demand by Application .......... 88

Chrt Packaging Market for Extruded Plastics by Resin, 2008 .......... 101
4 Packaging Market for Extruded Plastics by Application .......... 102
5 Packaging Film Market for Extruded Plastics .......... 103
6 Other Packaging Markets for Extruded Plastics .......... 109
7 Construction Expenditures ................... 116
8 Construction Market for Extruded Plastics by Resin .......... 118
9 Construction Market for Extruded Plastics by Application .......... 119
Chrt Construction Market for Extruded Plastics by Resin, 2008 .......... 118
10 Pipe Market for Extruded Plastics by Resin .......... 121
11 Pipe Market for Extruded Plastics by Application .......... 124
Chrt Pipe Market for Extruded Plastics by Application, 2008 .......... 125
12 Siding Market for Extruded Plastics by Market & End Use ...... 129
13 Other Construction Markets for Extruded Plastics .......... 134
Chrt Other Construction Markets for Extruded Plastics, 2008 .......... 135
14 Consumer Goods Market for Extruded Plastics by Resin .......... 151
Chrt Consumer Goods Market for Extruded Plastics by Resin, 2008 .......... 151
15 Consumer Goods Market for Extruded Plastics by Application .. 154
16 Other Markets for Extruded Plastics by Resin .......... 156
Chrt Other Markets for Extruded Plastics by Resin, 2008 .......... 156
17 Other Markets for Extruded Plastics by Application .......... 157
Chrt Other Markets for Extruded Plastics by Application, 2008 .......... 158

INDUSTRY STRUCTURE

1 US Extruded Plastics Sales by Company, 2008 .......... 164
2 Selected Acquisitions & Divestitures 175
3 Selected Cooperative Agreements ... 185
US demand to expand 2.6% yearly through 2013

Demand for extruded plastics in the US is forecast to expand 2.6 percent yearly to nearly 34 billion pounds in 2013, valued at more than $23 billion (resin content only). Resins will account for 40 percent of the final product cost of $59.2 billion. The key factor as extruded plastics rebound from the demand declines of 2007 and 2008 will be a turnaround in the housing market, a major outlet for extruded plastic products such as siding and pipe. Additional growth stimulants will include extrusion’s processing ease, cost efficiency and high throughput. Resin and machinery improvements will also expand applications by enhancing product performance, quality and throughput.

Key construction market to grow the fastest

The construction market will rise 3.4 percent per annum to 13.5 billion pounds in 2013. A resurgent residential building construction segment will portend good growth for products such as siding, pipe, windows and doors, molding and trim, and fencing and decking. Demand for extruded plastic packaging will increase 2.4 percent yearly to 13.3 billion pounds in 2013, fostered by growth in disposable packaging products such as cups, bowls and clamshells. Other extruded plastics markets include motor vehicles and industrial, electrical and electronics, and medical uses. Best growth is expected for motor vehicles as production levels rebound from the declines experienced between 2003 and 2008.

Extruded PVC, PP among best growth opportunities

Demand for extruded polyvinyl chloride (PVC) is expected to rise 3.0 percent annually to 10.4 billion pounds in 2013. Good opportunities for PVC are anticipated in high volume construction uses such as siding and pipe. Slower advances for extruded low density polyethylene (LDPE) will reflect saturated film and sheet applications in the packaging arena. The fastest growth in demand is expected for polypropylene (PP), mainly for extruded sheet used in the manufacture of disposable trays, cups, bowls and other packaging.

Demand for extruded high density polyethylene is projected to grow 2.5 percent per year to 5.6 billion pounds in 2013, driven by rapid growth in the potable water and corrugated drain and sewer pipe market. Slower growth is expected for foamed polystyrene due to competition from polyolefin resins in film and other uses. Nevertheless, polystyrene will remain a major player in disposable packaging applications such as foamed cups, plates and other containers due to its light weight and low cost. The fastest foamed polystyrene growth is anticipated in building and other insulation applications.
MARKETS

Solid: Demand for extruded plastics in other solid packaging markets will grow 2.8 percent per annum to 2.4 billion pounds in 2013, stimulated by economic growth and rising disposable personal income levels. Solid packaging categories include bowls, trays, clamshells, blister packs, squeezable tubes and egg cartons, as well as various lids and domes. These packages are a number of advantages over competing products, including levels of durability and strength that exceed paperboard, and lighter weight and more modest manufacturing costs than glass. Technological innovations related to heat resistance, barrier properties, coextrusion, blending and compounding will also serve to bolster demand.

Extruded solid plastic packaging advances will also be stimulated by the increased presence of smaller snack and other food and nonfood containers. Increases in extruded tub, cup and bowl demand will be largely due to factors such as the growing popularity of single-serving packages of fruit, pudding, soups and snack items, as well as increasing consumption of dairy products (such as yogurt and cottage cheese) traditionally packaged in plastic cups and tubs. Additionally, newer applications for plastic tubs, cups and bowls are emerging, such as ready-to-eat pasta meals, candy, cereal, pre-cut fruit and baby food. Extruded food tray demand will be bolstered by increased use of dual-ovenable trays and trays intended for case-ready meats.

Plastic squeeze tubes, which may be extruded, have inherent performance characteristics like shape retention, easy portability, design flexibility and relatively small size. Squeeze tubes have captured share from plastic bottles in a number of applications because of the easier dispensing and handling, and lower material usage -- attributes that have made squeeze tubes more convenient for consumers and less expensive for manufacturers of products such as cosmetics and toiletries.
Sample Profile, Table & Forecast

TABLE III-8
EXTRUDED LDPE DEMAND IN FILM
(million pounds)

<table>
<thead>
<tr>
<th>Item</th>
<th>1998</th>
<th>2003</th>
<th>2008</th>
<th>2013</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic Packaging Shpts (bil 2000$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lbs LDPE film/$ plastic pkg</td>
<td>24.5</td>
<td>21.6</td>
<td>21.0</td>
<td>20.8</td>
<td>20.5</td>
</tr>
<tr>
<td>Extruded LDPE Film Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfood Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonpackaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% film</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extruded LDPE Demand</td>
<td>7785</td>
<td>9395</td>
<td>8815</td>
<td>9940</td>
<td>11025</td>
</tr>
</tbody>
</table>

“Secondary packaging will exhibit the best growth prospects of all LDPE film and expand 3.0 percent per annum to 3.0 billion pounds in 2013. Advances will reflect opportunities in stretch and shrink wrap, as well as retail bags. Stretch wrap demand will be stimulated by LDPE’s high elongation rate (ability to stretch), puncture resistance and competitive cost structure. Shrink wrap advances will result from ...”

--Section III, pg. 58

Copyright 2009 The Freedonia Group, Inc.

ORDER NOW, CLICK HERE!
## Corporate Use License

Now every decision maker in your organization can act on the key intelligence found in all Freedonia studies. For an additional $2600, companies receive unlimited use of an electronic version (PDF) of the study. Place it on your intranet, e-mail it to coworkers around the world, or print it as many times as you like.

### Order Form

#### Extruded Plastics

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Use License (add to study price)</td>
<td>$2600</td>
</tr>
<tr>
<td>Additional Print Copies</td>
<td>+ $2600</td>
</tr>
</tbody>
</table>

**Total (including selected option):** $4700

- Enclosed is my check (5% discount) drawn on a US bank and payable to The Freedonia Group. For wire transfers please contact our customer service department at info@freedoniagroup.com. Credit cards accepted.

#### Orders Outside of the US

Checks must be made payable in US funds, drawn against a US bank and mailed directly to The Freedonia Group. For wire transfers please contact our customer service department at info@freedoniagroup.com. Credit cards accepted.

### Credit Card Orders

For convenience, Freedonia accepts American Express, MasterCard or Visa. Credit card purchases must include account number, expiration date and authorized signature.

### Save 15%

If you order three (3) different titles at the same time, you can receive a 15% discount. If your order is accompanied by a check or wire transfer, you may take a 5% cash discount (discounts do not apply to Corporate Use Licenses).

### Individual Use License Agreement

The undersigned hereby represents that the above captioned study will be used by only ___ individual(s) who are employees of the company and that the study will not be loaded on a network for multiple users. In the event that usage of the study changes, the Company will promptly notify Freedonia of such change and will pay to Freedonia the appropriate fee based on Freedonia’s standard fee schedule then in effect. Note: Entire company corporate use license, add $2600; one additional user, add $600; two additional users, add $1200; three additional users, add $1800.

### Corporate Use License Agreement

The above captioned study may be stored on the company’s intranet or shared directory, available to company employees. Copies of the study may be made, but the undersigned represents that distribution of the study will be limited to employees of the company.

---

**Note:** Please check appropriate option and sign below to order an electronic version of the study.
Other Studies

Thermoplastic Compounding by Independents
This study analyzes the US independent thermoplastic compounding industry. It presents historical demand data (1998, 2003, 2008) and forecasts to 2013 and 2018 by thermoplastic resin (e.g., engineered thermoplastics, polyvinyl chloride, polypolypropylene, polyethylene, thermoset elastomers, polystyrene) and market (e.g., construction, motor vehicles, consumer and institutional, electrical and electronic). The study also considers market environment factors, evaluates company market share and profiles industry competitors.

World Thermoplastic Elastomers
Global TPE demand will reach 3.2 billion pounds in 2013, forced thermosets will remain the largest resin type, and nanomaterial reinforcements grow faster. Reinforcement, resin and market. It also evaluates company market share and profiles industry competitors.

Foamed Plastics
US foamed plastics demand will reach 8.4 billion pounds in 2013 as key construction and motor vehicle markets recover. Foamed urethane will remain the largest segment while foamed LDPE grow the fastest. Construction will provide the best opportunities based on growth in insulation and carpet underlay applications. This study analyzes the $22.5 billion US foamed plastics industry, with forecasts for 2013 and 2018 by market, type, world region and for 13 countries. It also evaluates market share and profiles industry players.

Fluoropolymers
US demand for fluoropolymers will rise 4.5% annually through 2013. Gains will be driven in part by a turnaround in key markets such as motor vehicles and wire and cable, and rising demand in fast-growing emerging markets such as advanced batteries, fuel cells and photovoltaic modules. PTFE will remain the largest type while fluoroelastomers will grow the fastest. This study analyzes the $1.4 billion US fluoropolymer industry, with forecasts for 2013 and 2018 by market and product. It also evaluates market share and profiles industry players.

Reinforced Plastics
US demand for reinforced plastics will reach 3.6 billion pounds in 2013. Glass fibers will remain the dominant reinforcement material while carbon fiber and nanomaterial reinforcements grow faster. Reinforced thermosets will remain the largest resin type, with growth slightly outpaced by thermoplastics. This study analyzes the 3.2 billion pound US reinforced plastics industry, with forecasts for 2013 and 2018 by reinforcement, resin and market. It also evaluates market share and profiles industry players.

About The Freedonia Group

The Freedonia Group, Inc., is a leading international industry market research company that provides its clients with information and analysis needed to make informed strategic decisions for their businesses. Studies help clients identify business opportunities, develop strategies, make investment decisions and evaluate opportunities and threats. Freedonia research is designed to deliver unbiased views and reliable outlooks to assist clients in making the right decisions. Freedonia capitalizes on the resources of its proprietary in-house research team of experienced economists, professional analysts, industry researchers and editorial groups. Freedonia covers a diverse group of industries throughout the United States, the emerging China market, and other world markets. Industries analyzed by Freedonia include:

- Chemicals
- Plastics
- Life Sciences
- Packaging
- Building Materials
- Security & Electronics
- Industrial Components & Equipment
- Automotive & Transportation Equipment
- Household Goods
- Energy/Power Equipment

Click here to learn more about Freedonia

Freedonia Custom Research

Freedonia Custom Research delivers the same high quality, thorough and unbiased assessment of an industry or market as an industry study. Since the research initiative is based upon a company’s specific needs, companies harness Freedonia’s research capabilities and resources to answer unique questions. When you leverage the results of a Freedonia Custom Research engagement, you are able to obtain important answers to specific questions and issues associated with: mergers and acquisitions, new product launches/development, geographic expansion, entry into new markets, strategic business planning, and investment and funding decisions.

Freedonia Custom Research is ideal for companies seeking to make a strategic difference in the status quo and focus on future business growth. Working side by side with clients, Freedonia’s team is able to define a research project that is custom-tailored to answer specific questions and provide the basis from which a company can make informed business decisions.

Click here to learn more about Custom Research

The Freedonia Group, Inc. 767 Beta Drive • Cleveland, OH • 44143-2326 • USA • Web site: www.freedoniagroup.com Tel US: 800.927.5900 or +1 440.684.9600 • Fax: +1 440.646.0484 • e-mail: info@freedoniagroup.com