PLASTICS AND RUBBER INDUSTRIES
MARKET FORECAST AND ANALYSIS
NAICS 3252, 3261, 3332, 3335, 2821, 3081-3089, 3559, 3069
PLASTICS AND RUBBER INDUSTRIES

Strategic View:
• Mature Industry
• Business Cycle Reaction–Cyclical Industry
• $957,000 construction contract of two railroad bridges created from almost 100% recycled plastics.

Financial Trends:
• U.S. Chemical Revenues in 2010:
  • $616.0 billion, representing a 10.3% year-over-year increase
• Forecast Revenue Growth:
  • $700 billion in 2011, a 13.6% increase; 2012 revenue projected to grow 12% to $784.3 billion
• Operating Expenses:
  • Expected to jump 14.1% in 2011 and 12.5% in 2012.
  • U.S. Chemicals employment compensation dipped 1.2% in 2010 but is projected to recover over 2011 and 2012, climbing 0.6% and 1.1%, respectively.
• Net Profit Margins:
  • Forecast to increase 5.7% in 2011 and 2012.
• U.S. Plastic Exports:
  • Projected to rise 7.7% in 2011 (to $54 billion) and 12.2% in 2012 (to $61 billion).
• Raw Material Prices for Rubber:
  • Increased as much as 30% in the fourth quarter of 2010.

1. Mature Industry - In-line with macroeconomy. Profit margins generally weaker in this industry. Intense competition for market-share.
2. Business Cycle Reaction – industries are those whose profitability tracks the business cycle. The cyclical swings for the industry are often of greater amplitude than economic cycles.
### Macro Drivers:

- **Agricultural Chemical shipments** increased 5.9% in 2010; subsequent growth is forecast to be 6.0% in 2011 and 5.8% in 2012.
- **Paints and Adhesives** (up 3.5% in 2010) are anticipated to add another 4.3% in 2011 and 4.2% in 2012.
- **Rubber and Plastics shipments** gained 7.1% in 2010. Growth for 2011 and 2012 is forecast at 6.2% and 5.2%, respectively.
- **The Automotive industry** is a growth driver, with sales projected to increase 10.3% in 2011 and 8.2% in 2012.
- **Beverage and Bottling industry** revenue tops $45 billion annually.
- **Replacement tires** account for 75% of rubber industry revenue.
- **Sales of durable goods** in 2011 and 2012 are forecast to grow 3.9% and 3%, respectively.
- **Sales of non-durable goods**, meanwhile, are forecast to increase 1.2% in 2011 and 2012.

### Industry Drivers:

- **Plastic manufacturers** are moving toward original design manufacturers to increase the value of services.
- **Basic chemicals shipments**, up 4.1% in 2010, are projected to gain 6.1% and 5% in 2011 and 2012, respectively.
- **The Aerospace products and parts industry** claimed annual revenue of $170 billion in 2010.
- **Rubber and plastics** sales are projected to increase 6.2% in 2011 and 5.2% in 2012.
- **Tire shipments** are expected to grow 2% in 2011 (to 290 million total units). Tire imports, meanwhile, are projected to add 5%.
- **Replacement medium-heavy, on-highway commercial-truck tire** sales are projected to increase to 16 million units in 2011.
- **New vehicle sales** in the U.S. are expected to increase 6% in 2011.
- Analysts anticipate shipments of **original equipment tires** to grow 750,000 units in 2011.
- **Replacement passenger tire sales**, meanwhile, could increase by as much as 3 million units in 2011.
- **Plastic sheet demand** in the U.S. is expected to reach 7.7 billion pounds in 2011.

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**Pricing (% change year ago)**

- PPI - Basic Chemicals
- PPI - Plastics & Synthetic Resins
- PPI - Agricultural Chemicals

**Profitability (% change year ago)**

- Net Income
- Operating Margin
- Net Profit Margin

**Wages (% change year ago)**

- Employment
- Average Hourly Earnings

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Market Trends:

- **Plastic-based electronic devices**—under development at Princeton University—will expand the use of conductive plastics and offer a cost efficient alternative to Indium Tin Oxide (ITO), commonly used in solar panels.
- **Dupont Zytel® PLUS nylon**, introduced in 2010 and used in the automotive industry, can withstand 230-degree temperatures, effectively doubling the lifetime of certain engine elements.
- **Bayer Polymers** is using nanoparticle technology to enhance the performance of their plastic packaging products for food storage.
- **Fraunhofer Institute** in Germany is creating an environmentally safer way to process plastic products without toxic solvents.
- **Bioplastics consumption** in the EU is growing significantly within the food packaging, electronic, and automotive areas as the capacity of each improves.
- **Low rolling-resistance tires** are now required legally on certain tractor-trailers operating in California—a move that is sure to spread across the country as fleets strive to maximize fuel efficiency in the face of climbing gas prices.
- **Da/Pro Rubber, Inc.** has developed innovative forming techniques for Medalist MD-305, a thermoplastic elastomer widely used for seals, gaskets, and other medical applications; through the use of two-component injection molding, these will allow flexibility without permanent curving.
- **Carbon nanotube-derived rubber**—developed in 2010 by the National Institute of Advanced Industrial Science & Technology in Japan—offers high performance in extreme temperatures. Potential applications include vehicles and furnaces.
- **The U.S. Food and Drug Administration (FDA)** is weighing the advantages of reusing food containers while working to eliminate safety concerns.
- **The U.S. Plastic Bag industry**—with sales of 110 billion bags annually—represents a $4 billion market. With numerous plastic-bag bans and taxes on their way to becoming law, however, the industry sees an uncertain future.
- **The American chemistry industry** is a top exporter, with $145 billion in annual U.S. exports (19% of global chemicals).
- **U.S. plastics and rubber products** production in the U.S. totaled $200 billion in 2010.
- **The $674 billion chemicals industry** projects continued growth, supported in large part by feedstock demand from China, India, and Brazil.

Pricing:

- **The U.S. Energy Information Administration (EIA)** expects crude oil spot prices to average $93/barrel in 2011 and $98/barrel in 2012, compared to an $89/barrel average in December 2010.
- **Basic chemicals prices** are forecast to climb 7.3% in 2011 and 6.2% in 2012.
- **Prices for plastics and synthetic resins** anticipate a 3.3% increase in 2011 and an additional 2% in 2012.
- **Agricultural chemicals** are predicted to jump 10.1% in 2011 and 9.4% in 2012.

Source: Bureau of Labor Statistics; Moody's Economy.com; Lexus Nexus; Integra; Deloitte; Department of Commerce, Global Insight, Inc.; Harvard Business Review; Hoovers; Integra; McKinsey Quarterly; ING Foreign Exchange Wholesale Banking; Economist Intelligence Unit; Edgar; Federal Reserve Bank; Standard & Poor's; Security Price Index;: Wall Street Journal; Consumer Confidence Board; EcoTrends 2008; USDA; ThomasNet News; Steel.org; The American Iron and Steel Institute; The Metals Service Center Institute; The McGraw-Hill Companies (Platts.com); Metal Miner; The Aluminum Association; Market Watch- Vishay Release; Rio Tinto.com; Freedonia Group; PRLog.org; ACSPublications-WORLD CHEMICAL OUTLOOK ;JMF.; Report Linker.; What Investment; Reuters.com; Visiongain.com; USGS; CRUgroup; ResearchWikis.com; Aluminum.org; Bloomberg;

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