

# GREAT AMERICAN GROUP ADVISORY & VALUATION SERVICES

## Chemicals, Plastics, and Packaging Monitor January 2012 - Volume 5

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### Introduction

Welcome to the fifth issue of the *Chemicals, Plastics, and Packaging Monitor* from Great American Group Advisory & Valuation Services (“GA”). This publication will provide you with market value and industry trends for a variety of chemicals and plastic-based products. The enclosed information represents a composite of GA’s industry expertise, well-respected industry publications, liquidation and appraisal experience, and contact with industry personnel. Due to the commodity nature of certain chemicals and plastic resins, timely reporting is necessary to understand an ever-changing marketplace. In addition, pricing trends are impacted by a number of macroeconomic indicators that should be monitored, and GA strives to contextualize these indicators in order to provide a more in-depth perspective of the market as a whole.

The *Chemicals, Plastics, and Packaging Monitor* relates information covering many chemicals and plastics, including industry trends, market pricing, and their relation to our valuation process. GA provides our customer base with a concise document highlighting the chemicals and plastics industry. Please feel free to utilize our contact information shown in this and all *Chemicals, Plastics, and Packaging Monitor* issues. GA welcomes the opportunity to make our expertise available to you in every possible way.



### Trends in Recovery Values

Trend Tracker
NOLVs: <b>Mixed</b>
Sales Trends: <b>Increasing</b>
Gross Margin: <b>Mixed</b>
Inventory: <b>Mixed</b>
Pricing: <b>Mixed</b>

The fourth quarter of 2011 brought little change to the chemicals, plastics, and packaging industries. Recovery values were mixed once again as compared to the third quarter of 2011 and

the previous year, related largely to fluctuating market prices and a company’s ability to adjust its selling price accordingly. Heading into 2012, the reversal of the Seaway Pipeline (detailed on pg. 4) may significantly impact industry costs.

In the valuation of chemicals and plastic resins, GA compares the selling price, market price, or acquisition price per unit of the inventory to the cost per unit. GA has presented observations regarding some of the recent trends in Net Orderly Liquidation Values (“NOLV”), but recognizes that these trends should not be generalized to all companies.

Due to lags in updating standard costs or other factors, recovery values may fluctuate significantly from deal to deal. GA recommends that lenders monitor chemicals and plastics deals quarterly, as market prices can shift dramatically based on oil and natural gas prices.

GA internally tracks recovery ranges for various chemicals and plastic resins, but we are mindful to adhere to your request for a simple reference document. Should you need any further information or wish to discuss recovery ranges for a particular segment, please feel free to contact your GA Business Development Officer.

## ABOUT GREAT AMERICAN GROUP

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GA is a leading provider of asset disposition solutions and valuation and appraisal services to a wide range of retail, wholesale and industrial clients, as well as lenders, capital providers, private equity investors, and professional services firms. In addition to the *Chemicals, Plastics, and Packaging Monitor*, GA also provides clients with industry expertise in the form of monitors for the metals, food, automotive, and building materials industries, among many others.

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## EXPERIENCE

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GA has worked with and appraised numerous companies within the chemicals, plastics, and packaging industries. While our clients remain confidential, they include well-known and significant global, national, and regional producers and distributors of commodity and specialty chemicals, chemical intermediates, plastics, and resins for uses throughout the construction, automotive, oil and gas, food and beverage, manufacturing, and agricultural industries.

GA has appraised companies such as the following:

- A global manufacturer of chemicals and plastics, a refiner of crude oil, and a significant manufacturer of fuel products, with annual sales of nearly \$20 billion;
- One of the largest global manufacturers and distributors of high-performance polymer resins and resin-based products, with locations throughout the world and sales exceeding \$3.5 billion annually;
- A manufacturer of plastic packaging such as containers, closures, tubes, and bottles, with annual revenue of \$3.5 billion;
- Two of the world's largest producers of integrated fibers and polymers, with annual sales of \$1.4 billion and \$3 billion, respectively;
- One of the nation's leading specialty chemical producers, with annual revenue of over \$1.5 billion;
- Manufacturers and distributors of retail packaging and packaging products such as point-of-purchase displays, protective packaging materials, and pressure-sensitive labels for a variety of industries, including a global company with annual sales exceeding \$5 billion;
- Manufacturers of flexible packaging products such as specialty bags, sheets, wraps, wrappers, sleeves, and other packaging products for snack food and candy manufacturers, quick-service restaurants, food-service companies, and grocery stores, including manufacturers with annual sales greater than \$300 million;
- A supplier of fuel, motor oils, lubricants, coolants, and chemicals to automotive, commercial, and industrial markets; and
- A manufacturer of flexible packaging products for various snack food and candy manufacturers.

GA also maintains extensive appraisal experience with a variety of plastic bottle and plastic container manufacturers as well as foam and foam product manufacturers. GA has also appraised a variety of small and middle market commodity and specialty chemical manufacturers and distributors. In addition to our vast liquidation and appraisal experience, GA maintains contacts within the chemicals/plastics industry that we utilize for insight and perspective on recovery values. GA is also involved in the valuation and disposition of chemical, plastic, and packaging machinery and equipment and is currently engaged in the closure of multiple Fortis Plastics, LLC locations.

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# OVERVIEW

## CRUDE OIL SUPPLIES

One of the largest developments to impact the chemicals, plastics, and packaging industries in late 2011 was the purchase of the Seaway Pipeline, which supplies crude oil to the central U.S. Enbridge, Inc. and Enterprise Products Partners LP acquired the pipeline from ConocoPhillips and announced plans to reverse the flow of the pipeline, which is expected to lessen oversupply in the Midwest. Currently, a bottleneck at the Cushing, Oklahoma crude oil hub has resulted in excess supply and low domestic prices as compared to the global benchmark, Brent.

According to a report by *The Wall Street Journal* (“WSJ”), the spread between the Cushing and Brent crude oil benchmarks reached a record of \$27.88 per barrel in October. Since then, the spread has decreased dramatically, with Cushing prices surpassing \$100 per barrel at points in December. Experts report that the reversal of the pipeline will likely reduce oversupply in the Cushing region, which will likely drive domestic crude prices higher to mirror global markets.



Enbridge and Enterprise expect that the reversal of the Seaway Pipeline will bring approximately 150,000 barrels of oil to the Gulf region daily, beginning as early as the second quarter of 2012. As the project develops and additional pump stations are installed, that number could increase to 400,000 barrels per day. In addition to the Seaway Pipeline, TransCanada Corp. is in the process of developing its Keystone pipeline, which will also deliver crude oil to the Gulf region.

The impact on chemical, plastic, and packaging manufacturers is yet to be seen, but will surely be far-reaching, as the price of crude oil affects all aspects of manufacturing, including materials, energy costs, and freight.

## PLASTICS AND PACKAGING

Heading into 2012, industry experts are optimistic about the future of the packaging industry. *Plastics News* reports that export demand was particularly strong through much of 2011, which assisted the industry in outperforming other domestic manufacturing sectors. Export demand was driven largely by weakness in the U.S. dollar, allowing international customers to purchase goods at advantageous rates. However, the dollar gained strength as the year wore on, which will likely impact exports in coming months.



Perhaps more than any other industry, plastics and packaging have been significantly impacted by the recent “green” movement and increasing demand for sustainable resources. The trend is well-illustrated by Coca-Cola, which is pouring millions of dollars into bioplastic technologies to create a sustainable alternative to the polyethylene terephthalate (“PET”) resins currently used to produce soft drink bottles.

Another movement indicative of the current plastics climate is the trend toward reusable bags for groceries. According to a report by *Plastics News*, some retailers and grocers have gone so far as to either ban plastic bags altogether or tax consumers that use them.

In response, the plastic industry has elected the Society of the Plastics Industry to fight such efforts. At the same time, the American Chemistry Council has focused on improving the recycling rate of plastic bags and films. Some experts within the industry believe that an increase in the recycling rate of plastic bags and films will lessen resistance to using the bags in retail environments.

# RECENT APPRAISAL TRENDS

## COMMODITY CHEMICALS

Gross recovery values for commodity chemicals remained relatively consistent in the fourth quarter of 2011 as compared to the third quarter. After a turbulent first half, market prices have remained fairly stable. Gross recovery values remain above year-ago levels.

Sales have increased, driven both by expansion and improvement within the U.S. manufacturing sector, as well as higher commodity costs in the first two to three quarters of 2011, which resulted in higher prices and inflated sales on a dollar basis. Gross margins have remained relatively consistent, a function of stabilizing market prices.

## SPECIALTY/FINE CHEMICALS

Gross recovery values for specialty/fine chemicals were fairly consistent in the fourth quarter of 2011 as compared to the third quarter. As market prices and input costs have stabilized, pricing to customers has been fairly consistent and eliminated much of the volatility witnessed earlier in the year.

Due to the higher cost of commodity chemicals in the first half of the year, manufacturers increased prices; as a result, specialty chemical manufacturers experienced increased sales on a dollar basis in the fourth quarter of 2011.



Gross margins were mixed for industry participants, based largely upon a manufacturer's reaction to fluctuations in market prices. Companies that were able to pass along price increases and hold prices consistent when costs decreased experienced increases in gross margins. Those that had difficulties in increasing prices experienced stable or decreasing gross margins.

## PLASTIC RESINS

Gross recovery values for plastics and resins were mixed in the fourth quarter of 2011 as compared to the third quarter of 2011. Going forward, recovery values may be negatively impacted by falling market prices for many plastics, particularly for manufacturers that do not regularly update standards.



Plastic and resin producers continued to experience relatively flat sales in the fourth quarter. Gross margins were mixed for the quarter. Certain plastics increased in price, while others decreased, based on a wide variety of factors, including input costs, supply, demand, and efficiencies. Gross margins were dependent upon a company's ability to pass fluctuating costs along to customers in the form of price increases.

# RECENT APPRAISAL TRENDS

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## PACKAGING

Recovery values for packaging products have been flat or increased up to two points in the fourth quarter of 2011 as compared to the third quarter. Improvements in recovery values were largely driven by gross margins, as market prices decreased for some plastics, while many companies held selling prices consistent.

In general, sales have increased slightly for the quarter, which was once again driven by the improvement in downstream U.S. manufacturing levels, as well as inflated market prices earlier in the year that drove up selling prices, positively impacting sales on a dollar basis.

Gross margins have increased for many companies, a result of falling commodity costs during the last two quarters of 2011. Plastic packaging manufacturers may maintain pricing contracts with customers that allow for the pass-through of resin costs or establish a fixed gross margin. However, there is typically a lag period between fluctuations in market prices and when a company is able to adjust its own pricing, which results in short-term swings in gross margins. In this instance, selling prices remained high after commodity costs fell.



## MONITORING POINTS

Monitoring Point	Impact
Monitor oil and natural gas prices.	As oil and natural gas are the primary feedstocks for a majority of chemicals and plastics, any shifts in pricing would impact downstream prices.
Monitor the Seaway Pipeline and its impact on domestic oil prices.	As the Seaway Pipeline flow has been reversed, excess supply in the central United States will be relieved, which may cause domestic crude prices to remain elevated and closer to global standards, impacting costs for many manufacturers.
Monitor inventory levels.	As the majority of commodity chemicals and plastics operations run continuously, significantly high inventory levels could indicate a lack of demand, while significantly low inventory levels could indicate production issues or inventory shortages.
Monitor inventory costing.	Due to the potential for dramatic price shifts, the frequency of updates to standard costs and reserve amounts should be monitored. Changes in market prices may not be reflected in the recovery values if inventory costs are not updated.
Monitor the state of the global chemicals and plastics industry.	The chemicals and plastics industry is significantly impacted by new capacities and global demand. Should expected capacity come online in the Middle East, or should Asian demand not meet expectations, overall market dynamics would be impacted.
Monitor packaging market conditions.	A downturn in the packaging manufacturing industry, or in customer markets such as food service and consumer goods, could have a negative impact on sales. In addition, increased competitive pricing pressures, and/or a decrease in market share could have a negative impact on sales, gross margin, and weeks of supply.
Monitor ICIS, CMAI, <i>Plastics News</i> , and CME for plastic and chemical market prices, as well as the company's acquisition costs and gross margin.	An increase in market price and/or acquisition costs without a corresponding increase in product selling prices would decrease the gross margin. The decline of market prices below the inventory at cost would have a negative impact on recovery values.

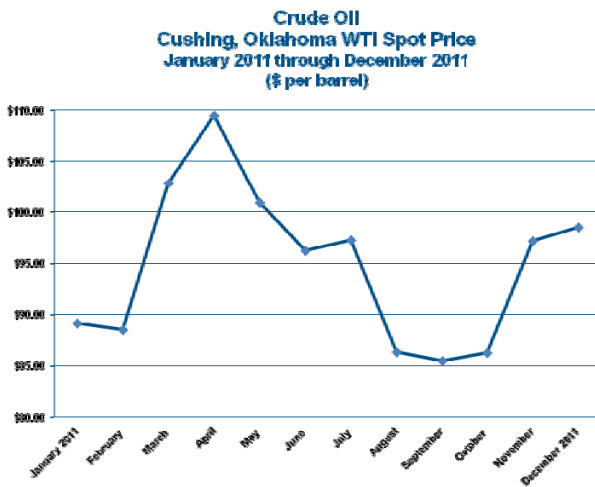
# PRICING TRENDS - FEEDSTOCKS

## FEEDSTOCKS OVERVIEW

A majority of chemicals and plastics are derived from petroleum or natural gas. Any fluctuations in the prices of these commodities impact the downstream chemicals and plastics sectors.

### PETROLEUM

According to data from the Energy Information Administration (“EIA”), West Texas Intermediate (“WTI”) crude oil prices fell to the year’s lowest point in September, averaging \$85.52 per barrel. Since then, prices have begun to climb back toward the \$100 mark, settling at \$98.53 per barrel in December. The increase is likely related to news of the impending reversal of the Seaway Pipeline, which will decrease excess supply in the central U.S. and bring prices more in-line with the global Brent standard.



According to the EIA, U.S. crude oil inventory for the week ended December 30, 2011 totaled 329.7 million barrels, an increase of 2.2 million barrels from the week ended December 23. Inventory levels remain “in the upper limit of the average range for this time of year.”

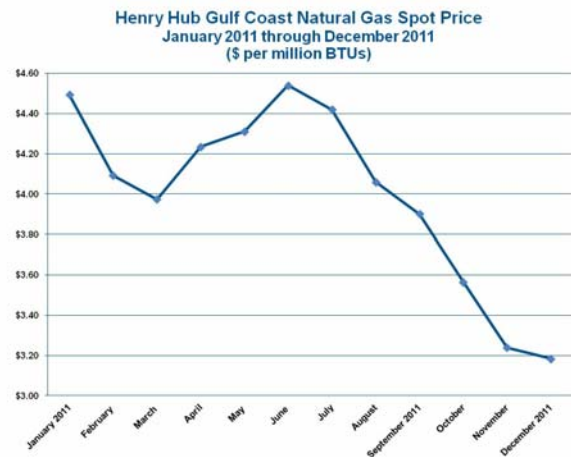
## NATURAL GAS

According to estimates from the EIA, working gas in underground storage totaled 3,472 billion cubic feet (“Bcf”) as of December 30, 2011, which represents a 76 Bcf net decrease from the previous week.

The following table illustrates working gas in underground storage in the lower 48 states (Units in Bcf):

Region	12/30/11	12/30/10	% Change
East	1,830	1,602	14.2%
West	447	430	4.0%
Producing	1,195	1,084	10.2%
<b>Total</b>	<b>3,472</b>	<b>3,116</b>	<b>11.4%</b>

For the week ended December 30, 2011, Henry Hub Gulf Coast natural gas spot prices increased \$0.005 from the previous week, to \$3.04 per million BTUs. On a monthly basis, natural gas peaked at \$4.54 per million BTUs in June. Since then, prices have dropped dramatically each month to reach the year’s low of \$3.18 per million BTUs in December.



# PRICING TRENDS - CHEMICALS

## CHEMICALS OVERVIEW

The American Chemistry Council (“ACC”) reported in its *2011 Year-End Situation and Outlook* report that the mid-term outlook for the chemicals sector is strong. Improvement is expected to be gradual in 2012 and accelerate in 2013 as the economy continues its slow recovery. The ACC reports that recovery will be driven by improvement in downstream manufacturing sectors, as well as the prevalence of low-cost shale gas coming online throughout the U.S.



Following a slight gain in October, overall U.S. chemical production was flat in November 2011 versus the previous month, according to the ACC. Year-over-year, production increased 2.7%, driven by gains in a number of manufacturing sectors, as manufacturers are the largest consumers of chemicals and related products.

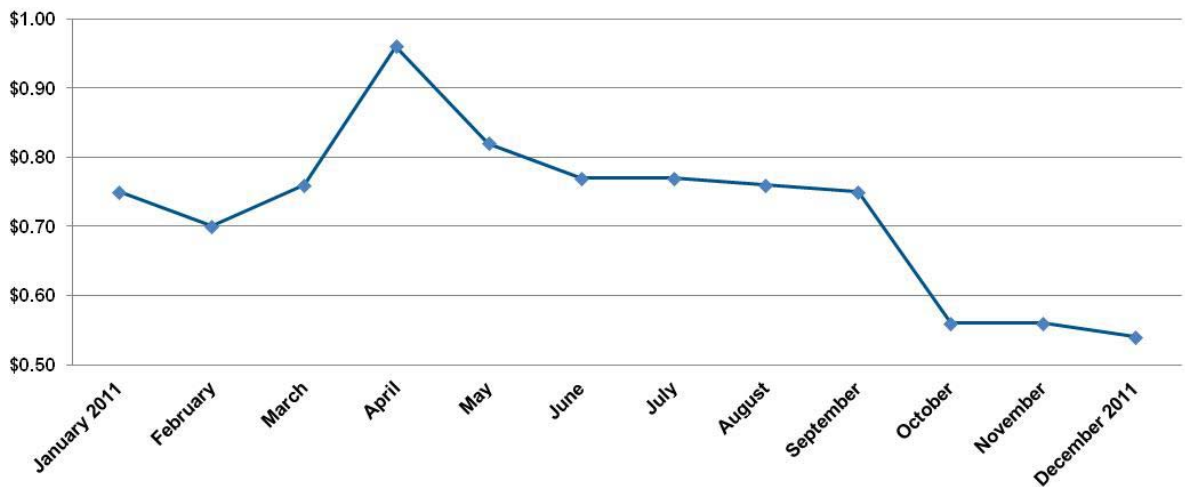
## MONO ETHYLENE GLYCOL (“MEG”) and PURIFIED TEREPHTHALIC ACID (“PTA”)

MEG and PTA prices are fairly reliant upon demand and trading conditions in Asia. Currently, prices are above year-earlier levels, due largely to increased demand for polyester. MEG and PTA are a key feedstock of polyester, including PET and other bottle resins. As major PET consumers, such as Coca-Cola and Pepsi, strive to produce bottles from renewable bioplastics, future demand for MEG and PTA may be impacted.

## PROPYLENE

Consistent with previous reports, propylene supplies remain fairly limited due to the domestic shift toward processing natural gas rather than crude oil. Natural gas produces less propylene as a byproduct, resulting in market constriction. After a significant drop between September and October due to weak demand, propylene prices have remained remarkably stable over the past quarter, hovering in the mid- $\$0.50$  per pound range.

**Propylene - Monthly Spot Bulk Prices**  
January 2011 through December 2011  
(\$ per lb)



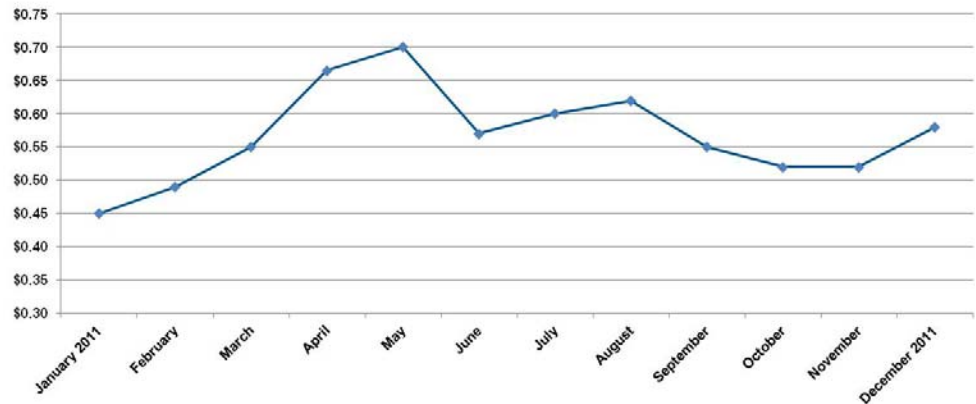
# PRICING TRENDS - CHEMICALS

## ETHYLENE

Ethylene prices peaked late in May. Through the summer and fall, prices remained fairly stable or declined slightly, bottoming out in October and November due to plentiful supply and relatively stable demand. In December, prices increased slightly. As mentioned in previous monitors, certain manufacturers predict that demand will exceed supply in the coming year, which has resulted in interest in new capacity.

In industry news, Chevron Phillips Chemical Co. announced in December that it will construct a new ethane cracker and ethylene derivatives facility in Baytown, Texas at its existing Cedar Bayou facility. The facility will take advantage of low-cost natural gas from a nearby natural gas liquids hub in Mont Belvieu. Chevron has developed plans with Shaw Energy and Chemicals to construct the unit with annual capacity of 3.3 billion pounds. According to the press release, the project is set to be approved in 2013.

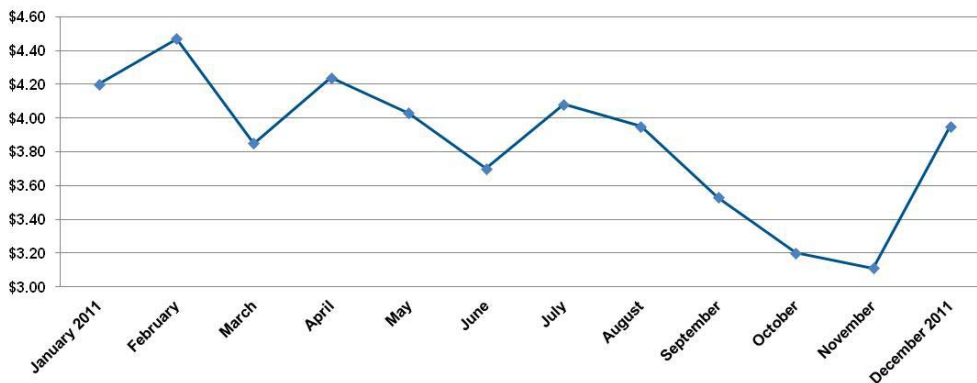
**Ethylene - Monthly Spot Bulk Prices  
January 2011 through December 2011  
(\$ per lb delivered)**



## BENZENE

Benzene prices fell fairly significantly in the third and fourth quarters of 2011, following declining prices for crude oil. In December, as crude prices increased, benzene displayed a sharp spike in pricing. In January, industry experts are reporting that pricing contracts are increasing significantly, most likely in reaction to crude oil costs that once again seem to be on the rise. Slack demand for certain downstream benzene-based products, such as polystyrene, is offset by increased demand from emerging regions of the globe.

**Benzene - Monthly Spot Bulk Prices  
January 2011 through December 2011  
(\$ per gallon FOB)**



According to a report by *Plastemart*, global benzene capacity is set to expand significantly in the coming years, driven primarily by large expansions planned in the Middle East and Asia. *Global Industry Analysts* reports that annual benzene demand will total somewhere around 54 million tons in 2012, largely due to its replacement of MTBE. The U.S. is expected to remain an importer of benzene.

# PRICING TRENDS - PLASTIC RESINS AND POLYMERS

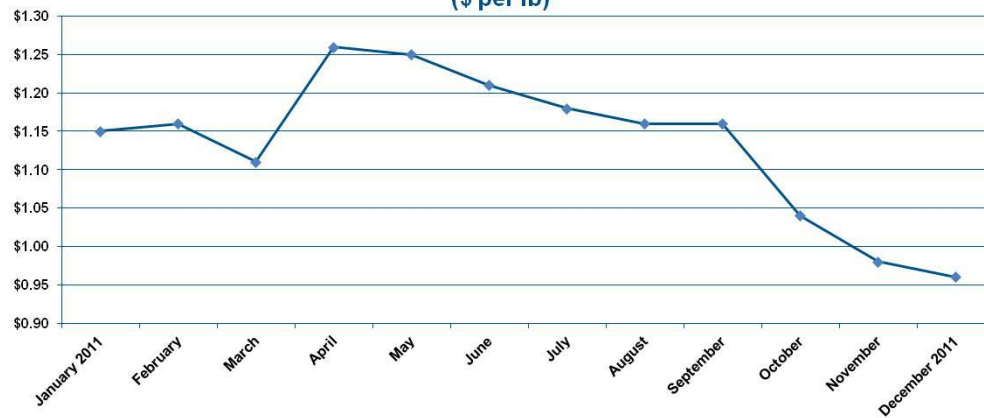
## PLASTIC RESINS AND POLYMERS OVERVIEW

According to a monthly report by the ACC, U.S. plastic resin production decreased 5.4% in October 2011 versus 2010, with production totaling 6.0 billion pounds. Sales and captive use for the month fell by 0.9% to total 6.1 billion pounds of major plastic resins. Year-to-date through November 2011, the industry has produced 62.9 billion pounds, which is 0.5% behind the pace set during the same period of 2010.

## POLYPROPYLENE

Polypropylene prices fell further in November and December, following a trend that began in September. After climbing significantly in the spring, prices performed an about-face and dropped back to historical levels, largely due to falling propylene feedstock costs. Experts believe that prices may increase in 2012, as a shift toward natural gas has resulted in less feedstock propylene.

**Polypropylene - Monthly Spot Bulk Prices**  
January 2011 through December 2011  
(\$ per lb)



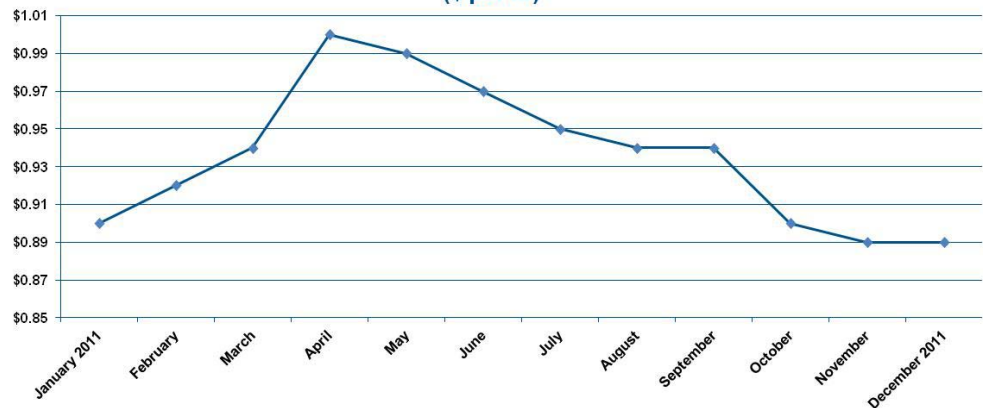
In industry news, Sunoco, Inc. announced in December that it would indefinitely idle its main processing unit at the Marcus Hook, Pennsylvania location due to deteriorating market conditions. The facility currently supplies the largest domestic manufacturer of polypropylene, Braskem, with propylene monomer. According to a press release, Braskem plans to continue to operate the facility.

## POLYETHYLENE

Prices for high density polyethylene have fallen roughly 10% from the highs of April and May. After a year characterized by volatility and fairly significant price swings, many industry participants expect improvements in 2012. In the short term, maintenance outages in early 2012 may constrict supplies and inflate prices.

The aforementioned construction of an ethane cracker by the Chevron Phillips Chemical Co. will have a significant impact on the polyethylene market. Feeding off the additional ethylene supply produced by the cracker, the company will then construct two new PE units, each with projected annual capacity of 1.1 billion pounds. Both units are scheduled to be constructed in the Gulf region, with an estimated operational date of 2017.

**HDPE - Monthly Spot Bulk Prices**  
January 2011 through December 2011  
(\$ per lb)



# PRICING TRENDS - PLASTIC RESINS AND POLYMERS

## POLYVINYL CHLORIDE (“PVC”)

The PVC market is split between positive and negative indicators. Cheap domestic natural gas has made the plastic extremely cost-effective to produce and, as a result, many domestic firms have increased production, making the U.S. a net exporter of the material. At the same time, domestic markets continue to suffer. One of the leading markets for PVC is construction, which showed little improvement over the course of the year. Furthermore, many manufacturers focused on “green” initiatives and sustainability are eliminating or reducing the amount of PVC used in packaging. According to a report by *Plastics News*, Hasbro, Inc. is the latest in a long line of manufacturers that have announced plans to decrease or eliminate PVC usage in packaging.

On a pricing basis, PVC spiked in mid-2011, but has since decreased closer to historical levels. Experts expect prices to remain relatively stable, as demand is fairly consistent and there is no tightness in supply.



## PET

PET prices fell about \$0.05 per pound in early November, driven largely by seasonality, as fewer consumers purchase cold beverages during the fall and winter. Falling input prices also likely impacted PET pricing. Despite the decline, prices remain above historical levels.

In industry news, Coca-Cola continues to head up an industry-wide initiative to move away from PET and introduce renewable bioplastics in its soft drink bottles. The soft drink giant has been developing its “PlantBottle” for years, and recently announced a major investment in improving the technology.

According to a press release, Coca-Cola recently made a multi-million dollar investment in three bioplastic manufacturers. Two of the companies produce bio-based paraxylene, while the third produces a PET alternative, currently dubbed PEF.



## POLYSTYRENE

Following large increases through much of the year, polystyrene prices fell by approximately \$0.06 per pound in October and a further \$0.03 per pound in November. Falling prices are largely related to lower input costs.

The polystyrene industry faced significant hurdles in 2011. California Senator Alan Lowen created a bill aiming to ban plastic foam containers, higher feedstock prices inflated prices significantly, and polypropylene continued to prove a fair replacement material. Going forward, market performance will be impacted by price, which, as noted above, has fallen recently, as well as consumer sentiment regarding polystyrene packaging.

# CHEMICALS AND PLASTICS REFERENCE SHEET

Chemicals and plastics pricing trend changes for the fourth quarter of 2011 versus the third quarter of 2011 are as follows:

	% Change		% Change
<b>Commodity Chemicals</b>		<b>Commodity Plastic Resins</b>	
Propylene	(30%)	Polypropylene	(15%)
Ethylene	5%	Linear Low-Density Polyethylene	0%
Toluene	(5%)	Low-Density Polyethylene	(5%)
Benzene	10%	High-Density Polyethylene	(5%)
Styrene	(10%)	Polystyrene	5%
Methanol	(15%)	PVC	0%
Phenol	(15%)	Recycled PE	0%
Butadiene	(20%)	PET	(5%)
Paraxylene	(10%)	<b>Feedstocks</b>	
		Oil	25%
		Natural Gas	(20%)