Monitor Chemicals & Plastics

Inventory & Equipment



STEADIER MARKET CONDITIONS

POST-PANDEMIC MARKET STABILITY

Conditions in 2023 have been less volatile as compared to the last few years

MIXED TRENDS IN OIL AND GAS PRICES

Oil prices showed upward momentum, while natural gas prices were fairly consistent

MIXED APPRAISAL TRENDS

Indicators have been mixed based on a broad range of factors

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MONITOR CHEMICALS & PLASTICS BRILEYFIN.COM OCTOBER 2023 800-454-7328 **380**

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Deals are a moving target with a constantly shifting mix of people, numbers and timing. We are here to simplify this process for you. Our associates are experts at analyzing situations and quantifying values you need on the most complex deals, so you can leverage our extensive industry knowledge to close the deal.

Trend Tracker - Inventory

	Chemicals	Plastics
NOLVs	Mixed ♦	Mixed ♦
Sales Trends	Mixed ♣	Decreasing ▼
Gross Margin	Decreasing ▼	Mixed
Inventory	Decreasing ▼	Decreasing ▼
Selling Prices	Mixed 🔷	Mixed
PP and PE Market Prices	-	PP Decreasing ▼; PE Increasing ▲

NOLVs

- Chemicals: NOLVs increased or decreased up to three percentage points based on fluctuations in a given company's gross margin and weeks of supply, as well as the particular dynamics of the market being served.
- Plastics: NOLVs increased or decreased up to four percentage points based on gross margin and a company's ability to react to fluctuating input costs. NOLVs were also impacted by lower inventory levels, which deleveraged expenses.

SALES TRENDS

- Chemicals: Sales increased or decreased up to 15%. Sales were impacted by the performance of the particular market being served, especially in contrast to sales during the height of the pandemic, as well as variations in selling prices based on fluctuating input costs.
- Plastics: Sales volumes decreased slightly due to difficult market and economic conditions, while sales dollars fell more significantly due to lower market prices for many materials as compared to elevated prices in prior years.

GROSS MARGINS

Chemicals: Gross margins decreased up to 10 percentage points due to a lag in passing higher costs on to customers.

Plastics: Gross margins were mixed based on a given company's efficiency and speed in adjusting its selling prices based on prevailing market and acquisition prices.

INVENTORY

- **Chemicals:** Inventory levels were flat to down up to 10% based on market pricing and general economic uncertainty.
- Plastics: Inventory levels decreased up to 30% based on lower market prices, lower demand for some products, and stabilizing inventory levels as supply chain issues resolved.

SELLING AND MARKET PRICES

Chemicals and plastics: Selling prices for both chemicals and plastics products were mixed based on fluctuations in commodity and other input prices, which vary by product and market. Selling prices are tied to general economic conditions, as well as industry-specific demand levels, which can fluctuate significantly between end markets. Market prices for polypropylene have decreased due primarily to lower feedstock costs, while market prices for polyethylene increased slightly over the past year due largely to strong export demand.

Trend Tracker - Machinery and Equipment

	Plastics
Used Pricing	Decreasing ▼
Used Trade Movement	Decreasing ▼
OEM Pricing	Increasing ▲
Technology Advancement	Increasing ▲
Auction Activity	Increasing ▲

USED PRICING

Used equipment prices are decreasing as buyers are hesitating to purchase equipment based on uncertain economic conditions and high interest rates. Lead times for new equipment are falling, while there is a good supply of new equipment from China in the market.

USED TRADE MOVEMENT

Uncertain economic conditions have caused plastic machinery buyers to delay purchases, resulting in a decrease in used equipment sales activity. Used equipment dealers are seeing a reduced ratio of quotes to purchases. The availability of used equipment for sale has increased over the last several months.

OEM PRICING

OEMs are seeing increased costs and a reduction in orders. In August 2023, the value of shipments of primary plastics machines for injection and extrusion decreased approximately 20% as compared to the prior year. New equipment prices have been impacted by inflation, a lack of skilled workers, and supply shortages.

TECHNOLOGY ADVANCEMENT

As noted in prior monitors, automation is increasingly desirable as processors attempt to shield themselves from a smaller workforce. Due to the lack of skilled labor, many manufacturers have found themselves unable to fill orders and turned to new technology. Electric drive injection molding machines continue to make headway into the marketplace due to their efficiencies and reduced maintenance requirements.

AUCTION ACTIVITY

In recent months, B. Riley has observed an increase in plastics industry auction activity. Companies are struggling to find skilled workers while also contending with higher operating costs, which has caused some operations to either close or reduce their output. Many companies are also operating with a surplus of capacity due to extra material produced during the slowdown of the pandemic. A prolonged downturn in the economy may cause this trend to continue.

Overview

While market conditions for the chemicals and plastics sectors have been calmer in 2023 as compared to the instability of the last few years, the near-term outlook is murky. Certain downstream sectors appear to be on the rebound, while others have struggled with high interest rates, a possible recession, and general economic uncertainty, amongst other factors.

The chemicals and plastics sectors produce a broad, fragmented selection of products serving a very wide range of downstream industries both domestically and globally. As a result, it is difficult to pinpoint single factors impacting all aspects of the industries. One means of analyzing demand for industry products is to look at the health of some of the larger downstream sectors, such as construction and housing activity and automotive production.

Both existing home sales and new construction activity have been sluggish this year, with residential construction in particular showing a decline as compared to last year. The U.S. Census Bureau reports that the seasonally adjusted annual rate ("SAAR") of housing starts totaled 1.3 million units in August 2023. This figure was 14.8% below the SAAR from August 2022. The residential building sector faces a number of challenges, such as steeper mortgage rates for home buyers, a lack of skilled labor, and lingering uncertainty over the state of the economy.

By contrast, the automotive sector has performed well this year. While figures vary by source, most industry experts expect new car sales to top 15 million units this year, a considerable increase from approximately 13.9 million vehicles sold in 2022. The major factor contributing to the higher sales has been a significant improvement in inventory levels. Last year, car dealers were faced with slim inventories due to semiconductor chip shortages

that limited vehicle production. That being said, the ongoing UAW strike could impact the market in the near future.

The profitability of industry operators is impacted by myriad factors, but one of the most important of these factors is the cost of upstream feedstocks, such as crude oil and natural gas.

U.S. crude oil prices have been fairly volatile in recent years. Prices plummeted at the start of the COVID-19 pandemic, followed by a sharp increase to nearly \$115 per barrel by June 2022. Oil prices have been more moderate in 2023, though recent production cuts by global producers, coupled with falling U.S. stockpiles, are now threatening to push prices back over \$100 per barrel.

Natural gas prices, on the other hand, have remained fairly low for most of the year, giving U.S. manufacturers of ethylene- and ethane-based materials a cost advantage on the global stage.

The short-term outlook for the plastic and chemical sectors is uncertain. While industry participants continue to face a number of hurdles, conditions have improved significantly from the prior few years. As always, performance will vary significantly based on a company's market niche. Factors such as interest rates, oil and gas prices, the ongoing war in Ukraine, and the upcoming U.S. election year all bear watching over the next few months.

Feedstocks

FEEDSTOCKS OVERVIEW

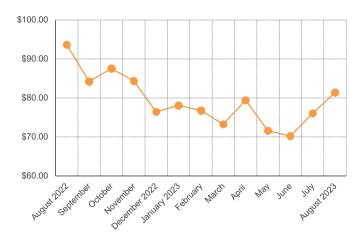
A majority of chemicals and plastics are derived from petroleum or natural gas. Any fluctuations in the prices of these commodities impact the downstream chemicals and plastics sectors.

PETROLEUM

According to data from the Energy Information Administration ("EIA"), market prices for West Texas Intermediate ("WTI") crude oil fell relatively steadily from mid-2022 through mid-2023, bottoming out at a monthly average of \$70.25 per barrel in June 2023.

Prices then reversed direction and began to climb, with the EIA reporting that WTI crude oil prices topped \$90 per barrel in late September. Increases in oil prices over the past few months were driven by reduced stockpiles in the U.S., as well as production cuts made by major oil producers Russia and Saudi Arabia.

Crude Oil Cushing, Oklahoma WTI Spot Price Aug. 2022 through Aug. 2023 (\$ per barrel)



According to the EIA, U.S. commercial crude oil inventory for the week ended September 22, 2023 totaled 416.3 million barrels, a decrease of 2.2 million barrels from the previous week. The EIA notes that inventory levels are about 4% below the five-year average for this time of year.

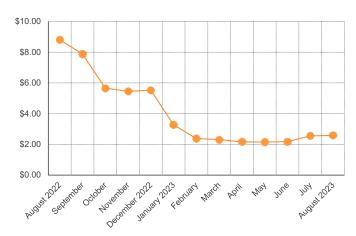
NATURAL GAS

According to estimates from the EIA, working gas in underground storage totaled 3,269 billion cubic feet ("Bcf") for the week ended September 15, 2023, which represents a 14.3% increase from the previous year. The following table illustrates working gas in underground storage in the lower 48 states (units in Bcf):

Region	9/15/23	9/15/22	% Change
East	793	686	15.6%
Midwest	931	839	11.0%
Mountain	228	167	36.5%
Pacific	263	237	11.0%
South Central	1,053	931	13.1%
Total	3,269	2,859	14.3%

Henry Hub natural gas prices averaged \$8.80 per MBTU in August 2022, which was the highest monthly average in 14 years. The high prices were driven by relatively low supplies of natural gas and a long-lasting heat wave in the U.S. that caused elevated electricity usage. Prices then fell from those highs and have remained relatively steady for most of 2023. According to the EIA, natural gas prices at the Henry Hub averaged \$2.62 per MBTU for the week ended September 22, 2023.

Henry Hub Gulf Coast Natural Gas Spot Price Aug. 2022 through Aug. 2023 (\$ per MBTU)



Chemicals

PROPYLENE

Propylene in the U.S. is derived from the processing of naphtha in ethylene steam crackers, as well as the refinement of petroleum into gasoline. Demand for propylene has also resulted in some purposeful propylene manufacturing operations, as opposed to sourcing the material as a byproduct.

Propylene market prices have been fairly volatile this year. Market prices for polymer-grade propylene increased sharply in the first quarter of 2023 due to tight supplies in the market, causing a sharp increase in pricing for downstream polypropylene.

Market prices for the material then decreased sharply in the second quarter of the year due partially to weak demand for downstream polypropylene. Market prices moderated in the third quarter but showed some upward momentum in mid-September.

ETHYLENE

Ethylene is produced in the steam cracking of ethane, as well as the cracking of naphtha. One of the largest downstream uses is the production of polyethylene resin, which is one of the most commonly used plastics across the globe.

In early 2023, ethylene prices exhibited some upward momentum. Domestic demand for polyethylene improved, while export demand was also very strong due to the lower price of U.S.-produced ethylene. On top of this, supplies of ethylene were constricted by unexpected production outages.

As the year went on, market prices for ethylene softened. The market faced headwinds in the form of weak domestic and global economies, as well as new ethylene production capacity in both China and the U.S., resulting in supply outpacing demand.



Plastic Resins

	Polypropylene Price Trend
12-month	Decreasing ▼
Three-month	Decreasing ▼

	Polyethylene Price Trend
12-month	Increasing ▲
Three-month	Consistent -

POLYPROPYLENE

Polypropylene, a polymer which is derived from propylene, is one of the world's most commonly-used plastics.

Polypropylene prices have been somewhat volatile this year due to fluctuations in feedstock costs and uncertain economic conditions both domestically and globally. In the first quarter of 2023, a spike in market prices for feedstock polymer-grade propylene caused market prices for polypropylene to increase fairly significantly.

This was followed by a sharp decrease over the second quarter of 2023 as feedstock prices reversed direction, resulting in an overall decline in prices from the start of the year. Since that point, market prices have remained fairly consistent and are much lower as compared to the elevated pricing that occurred in 2021 and most of 2022.

POLYETHYLENE

Polyethylene, a plastic derived from ethylene feedstock, is another of the world's most widely used plastic materials.

In contrast to polypropylene, market prices for polyethylene resin have been fairly steady for most of 2023. Market prices for the plastic increased slightly in the first quarter, largely due to strong export demand as the U.S., which has an abundant supply of ethane, has a price advantage over most other producing countries.

Market prices for polypropylene fluctuated slightly in the second and third quarters and have increased slightly as compared to January. The increase in pricing was supported by the aforementioned export demand, which has helped to keep domestic supply relatively in line with demand.



Plastic Processing Equipment

Plastics processors rely on demand from assorted downstream markets, ranging from the food packaging industry to automotive manufacturers. The type and mix of consumer products that are in demand continue to shift in response to the economy. Companies serving in-demand markets have generally performed well.

Primary concerns for plastics manufacturers are increasing interest rates, inflation, and a shortage of skilled labor. Plastics processors are also impacted by fluctuations in market prices for plastic resins, which affect profitability and pricing. The war in Ukraine and global politics continue to affect gas and oil prices and, in turn, plastic resin prices; as the primary input in plastics operations, resin prices have a significant effect on plastics processors' profitability and capital expenditures. The value of U.S. plastic shipments increased in 2022, as did the number of people employed in the plastics industry. Over the last two decades, plastics manufacturing activity in the U.S. has increased despite a decrease in overall manufacturing activity.

Values for many used plastic processing machines had increased prior to 2023 due to short supply of late-model machines and increased costs and lead times for new equipment. The secondary market for plastics equipment has slowed over the last few months after years of growth. Higher interest rates are affecting housing starts, and what was looking to be a rising tide of construction has softened. This will impact the production of the many plastics used in construction, which in turn will impact demand for mid-range injection molding machines and extrusion machines.

Injection molding machines manufactured in China continue to have an impact on the resale market. With shipping from Asia stabilizing, equipment from China and other Asian countries is flowing more easily into the U.S. market. The lower cost of this

machinery as compared to counterparts built in the U.S., Europe, or Japan has made this equipment a viable option. New machines produced in China are available at a price point of a four- to six-year-old tier-one brand. These machines come equipped with energy saving servo pump technology, name brand controls, and usable warranties.

The used large-tonnage injection molding machine market is primarily driven by the automotive market. The current UAW strike has the potential to create significant excess in capacity of large injection molding operations. The buyer pool for these machines is small, which can lead to rapid value changes on the used market.

Recycling has seen an increased presence in legislature, the media, and in large corporations. Bio-resins and chemical recycling are prevalent in the news today. Many companies are making and increasing recycled content targets for their products, which bolsters the need for recycling and recycling equipment. In federal and local governments, recycling has become a topic of legislation and concern, with California leading the way. Despite all the attention drawn to recycling, the last few months have seen a slump in the recycling market. Chemical recycling is full of possibilities for limitless recycling. The challenges for chemical recycling include high startup costs and communities unwilling to have chemical recycling in their area.

To remain competitive, U.S. manufacturers need to monitor interest rates and inflation and their effect on the housing and construction industries. Additional areas to watch will be the UAW strikes, labor shortages, repatriation of critical supply chain elements, plastic and chemical legislation, bans on specific plastics products, chemical recycling, inflation, and the adoption of bio-resins.

Monitor Information

The Chemicals and Plastics Monitor relates information covering many chemicals and plastics, including industry trends, market pricing, and their relation to our valuation process. 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 B. Riley Advisory Services strives to contextualize these indicators in order to provide a more in-depth perspective of the market as a whole. Please feel free to utilize our contact information shown in this and all Chemicals & Plastics Monitor issues.

The information contained herein is based on a composite of B. Riley Advisory Services' industry expertise, contact with industry personnel, liquidation and appraisal experience, and data compiled from a variety of well-respected sources believed to be reliable. We do not guarantee the completeness of such information or make any representation as to its accuracy. B. Riley Advisory Services does not make any representation or warranty, expressed or implied, as to the accuracy or completeness of the information contained in this issue. Neither B. Riley Advisory Services nor any of its representatives shall be liable for use of any of the information in this issue or any errors therein or omissions therefrom.



Experience

B. Riley Advisory Services has worked with and appraised numerous companies within the chemicals and plastics 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.

B. Riley Advisory Services 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 and distributor of plastic packaging such as containers, closures, tubes, and bottles, with revenue of \$3.5 billion annually;
- 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;
- A distributor of crop input products to customers in the mid-southern regions of the U.S., including herbicides, various agricultural chemicals, insecticides, defoliant, surfactant, fertilizer, seed, and similar goods;

- One of Europe's leading specialty chemical producers; and
- A producer of specialty chemicals derived from renewable resources serving the pharmaceutical, rubber production, and agricultural markets, among other industries.

B. Riley Advisory Services also maintains extensive appraisal experience with a variety of plastic bottle and plastic container manufacturers, as well as foam and foam product manufacturers. B. Riley Advisory Services has also appraised a variety of small and middle market commodity and specialty chemical manufacturers and distributors. B. Riley Advisory Services has been involved in the asset disposition and valuation of many plastics processing facilities involving injection molding, blow molding, extrusion, thermoforming, and more. Recent transactions include: Cincinnati Milacron. Collins & Aikman, Essel Propack America, Fortis Plastics, Home Products International, Hunjan Group, ILPEA Industries, Interbath, Jodee Plastics, Kamco Plastics, MedPlast, Mullinix Packages, Packaging Plus, Rantoul Products, Royal Dynamics, Thomas Plastics, and United Plastics Group.

Given our experience in both the valuation and disposition of chemicals and plastics processing equipment, B. Riley Advisory Services is uniquely qualified to not only render value opinions, but to also serve your liquidity needs through the sales of surplus and/or idle chemicals and plastics processing assets. In addition to our vast liquidation and appraisal experience, B. Riley Advisory Services maintains contacts within the chemicals/plastics industry that we utilize for insight and perspective on recovery values.

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