

September, 2020

# The Chemical Reaction



## Introduction

Welcome to The Chemical Reaction, where our team of experts keeps you up to date with all things Chemicals. Find highlights on current events, key trends and much more in the content below. Interested in learning more on a certain subject? Navigate to a report through the links included or reach out to one of our qualified analysts for more information.

### Recent Insights and Informs:

- [Chemical solutions: can bioplastics improve the sustainability of the chemicals value chain?](#)
- [Hurricane Laura's impact on North America's EOEG industry](#)
- [Hurricane Laura's Impact on US Olefins](#)
- [Paper vs plastic: breaking down the debate in flexible packaging sustainability](#)
- [Welcome to the materials transition](#)

### Upcoming Events:<https://www.woodmac.com/events/online-petrochemicals-industry-training/>

- [European Polyester Conference 2020 | 14 October 2020](#)
- [Global Olefins Conference 2020 | 14 October 2020](#)
- [American Thermoplastics Conference 2020 | 20 October 2020](#)
- [Webinar - PET Quarterly Briefing | 28 October 2020](#)
- [Asia Polyester Conference 2020 | 10 November 2020](#)

## Q3 2020



## How did a US hurricane affect global ethylene?

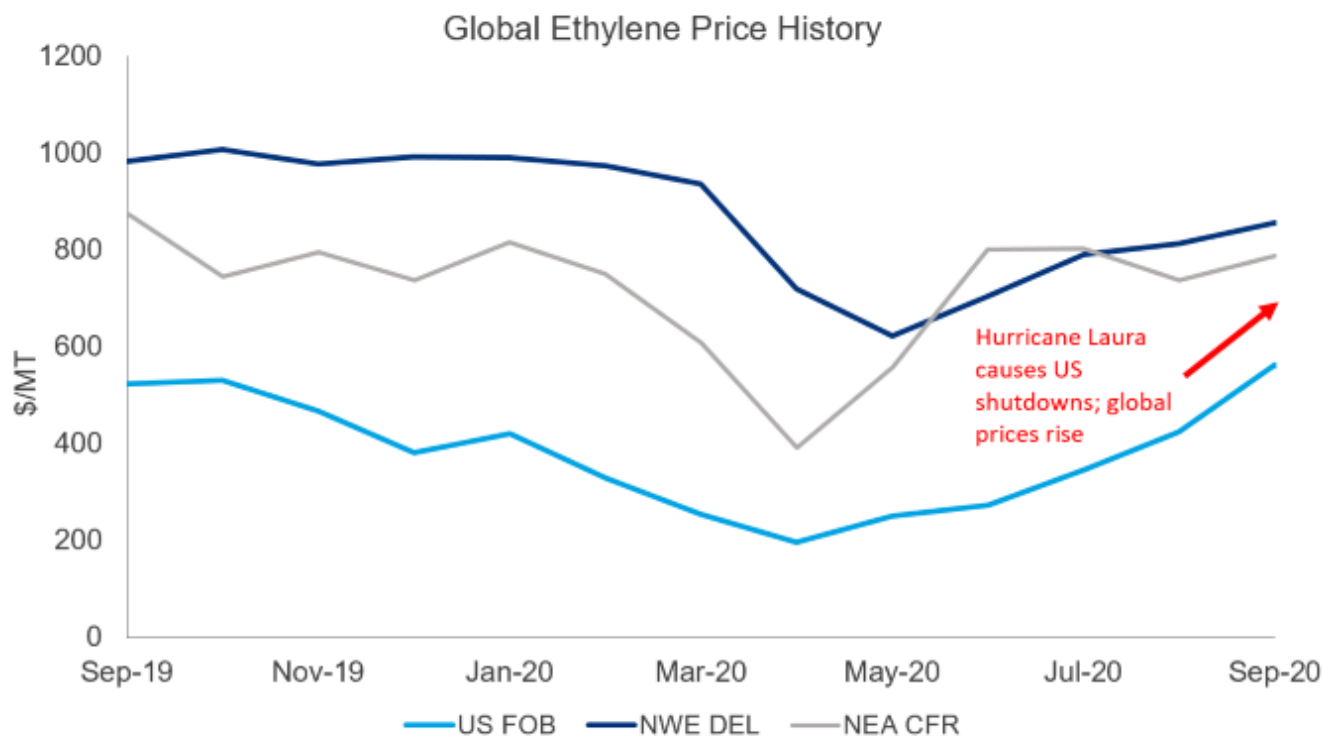
**Tiantian Jin, 30 September 2020**

### Issue

- 20% of US ethylene capacity was affected by Hurricane Laura, which hit southwest Louisiana on 27 August 2020. Several crackers shut operations, and some remain offline due to damaged electrical grids. These outages caused Mont Belvieu (US) spot ethylene prices to rise in early September, but prices began to flatten as the month progressed.
- US ethylene supply disruption quickly rippled to the rest of the world. US price arbitrage to Asia was closed due to the prices surge in early September. Asia's weekly ethylene prices were rising in September, currently standing at a 12-week high on the back of snug supply.



## Global ethylene price history



Source: Wood Mackenzie, the Argus Media group

Source: Wood Mackenzie Chemicals

## Implications

- Asia ethylene supply has been tight in September due to high production losses from cracker maintenance. Disruptions in US ethylene production and port operations limited available US ethylene cargoes to be delivered to Asia. Asian importers had to turn to the Middle East for spot offers. Petro Rabigh has been issuing sales tenders of spot ethylene volumes to balance domestic supply glut.
- One Northeast Asian buyer has secured ethylene volumes for early October delivery at a price equivalent to US\$850/t CFR NEA, the highest price since the week of 1 July.
- Before Hurricane Laura, US ethane prices were at 25 cts/gal due to reduced supply and rising natural gas prices. After hurricane, it has fallen to 20 cts/gal through September due to cracker outages. This is likely to lift ethane cracking margins and benefit international ethane importers, such as Europe, India, and Brazil.

## Outlook

- US ethylene crackers outages are expected to decline in October as industrial power is restored in hurricane-affected areas. This expedites US ethylene supply recover and puts a pressure on US ethylene prices.
- European steam cracker outages are low through Q4 2020, while several Asian crackers are scheduled for maintenance in the upcoming months. European crackers can ramp up production for exports to Asia if the arbitrage window from Europe to Asia opens.
- The global ethylene markets have become more intrinsically linked than ever before following the start of Morgan's Point export terminal. Our newly-launched [ethylene global monthly market overview](#) and [propylene global monthly market overview](#) will provide a closer look at the market dynamics of the Americas, Europe and Asia.



## California Governor signs US's first plastic recycled content requirement bill

**Alexandra Tennant, Michael Bermish, 29 September 2020**

On 24 September 2020, California's Governor Gavin Newsom signed AB793 into law. This makes California the first state in the US to enact a recycled content requirement for plastic beverage containers, including beverages packaged in PET resin. The law establishes a 15% recycled content requirement for 2022, 25% by 2025, and 50% by 2030. Fines associated with the failure to reach these targets will be deposited to the new Recycling Enhancement Penalty Account, which is intended to fund plastic bottles collection, recycling, and processing infrastructure.

Introduced by Assembly members Jacqui Irwin and Phil Ting, this legislation is a major milestone for the circular economy and bolsters demand for recycled plastics in California. It could also set the stage for other states to follow California's lead.

But, not all plastic waste legislations were successful in the recent legislative sessions. For instance, AB1080 and SB54 were unable to secure the necessary votes and failed for the second year in a row. These two legislations focused on reducing 75% waste from single-use plastic packaging by 2032, requiring single-use plastic utensils to be recyclable or compostable, and implementing Extended Producer Responsibility (EPR) regulations.

Analysis of the new California law will be forthcoming in our RPET monthly report.

## Paraxylene and derivatives markets continue to suffer from the pandemic: Q3 2020 outlook preview

**Hugh Hartzog, 29 September 2020**

### Issue

- In Wood Mackenzie's Paraxylene (PX) & Derivatives Q2 2020 global supply and demand outlook, we estimated a 0.5% year-on-year decline in polyester demand in 2020.
- In our forthcoming Q3 2020 outlook, we estimate that polyester demand will fall by 6.1% in 2020 versus 2019.
- Will the polyester demand decline in 2020 represent the short-term demand trough for PX and its derivatives?

### Implications

- Declining polyester demand in 2020 stems from a sharp reduction in polyester fibres consumption in the Western Hemisphere. Weakening fibres demand is unsurprising as Western countries vacillate between retail lockdowns and partial economic re-openings. Additionally, polyester fibres demand has taken a substantial hit as purchasing new garments has not been at the forefront of the consumers' agenda due to the lack of social interaction and declining discretionary income. Automobile production shutdowns and construction lockdowns also negatively impacted polyester fibre demand, though these were partially offset by an increasing demand for PPEs.
- In contrast, the pandemic effect on PET resin has been less severe, particularly in the packaging sector. Panic-buying/pantry-filling behaviour during the first months of the pandemic has elevated purchases of many consumer products, such as water cases and cleaning products packaged in PET resin. In developing countries, limited access to take-out food while working from home also drives demand for oils and condiments sold in PET-based containers. However, the discretionary income reduction on a global basis has negatively impacted single-serve beverages, often served in PET bottles.
- With human's social nature, much of our economic behaviour is driven by our in-person interactions with other people. When those interactions are severely constrained, our behaviour adapts.





### Outlook

- Globally, filament fibre demand is expected to drop by 10.3% in 2020 versus 2019, while staple fibre is forecast to fall 5.8%. PET resin demand only declines by 1.0% in 2020 and global film demand rises 4.8%.
- Despite these downward revisions for 2020, we expect that total polyester demand growth to rebound in 2021 with 7.3% year-on-year growth.
- This refreshed view implies that PTA demand will fall in 2020 by 5.8% and PX global demand will decline by 5.4%. This loss in demand for PX comes at a time of large PX overcapacity, exacerbating challenging production economics for PX producers.

## Chemical solutions: can bioplastics improve the sustainability of the chemicals value chain?

**Ashish Chitalia, Guy Bailey, 24 September 2020**

Welcome to Chemical Solutions Insights series. In this series, Wood Mackenzie will assess the potential of key technological and material developments that could abate the plastics industry's environmental impact.

The plastics industry is striving for a sustainable change. From refiners to consumer-facing brands, the industry is putting both intellectual energy and investment into trying to find solutions that reduce the negative impacts of this linear economy. There is no one, single lever that can be pulled to deliver the necessary changes; instead, it will be the cumulative impact of lots of changes made by consumers and companies that determines whether these efforts will be enough.

In our [first Chemical Solutions insight](#), we will explore the current state of play in bio-degradable bioplastics. Specifically, we will introduce the major bioplastics, evaluate its pros and cons, and then answer what it will take for bioplastics to substitute petrochemical plastics on a significant volume. We conclude the analysis with the Appendix, which includes detailed profiles for individual bio-degradable plastics, where we discuss market size, end-uses, and substitution potential of petrochemical-based plastics.

## Mega-sized styrene capacities in China signal a new era for the global styrene industry

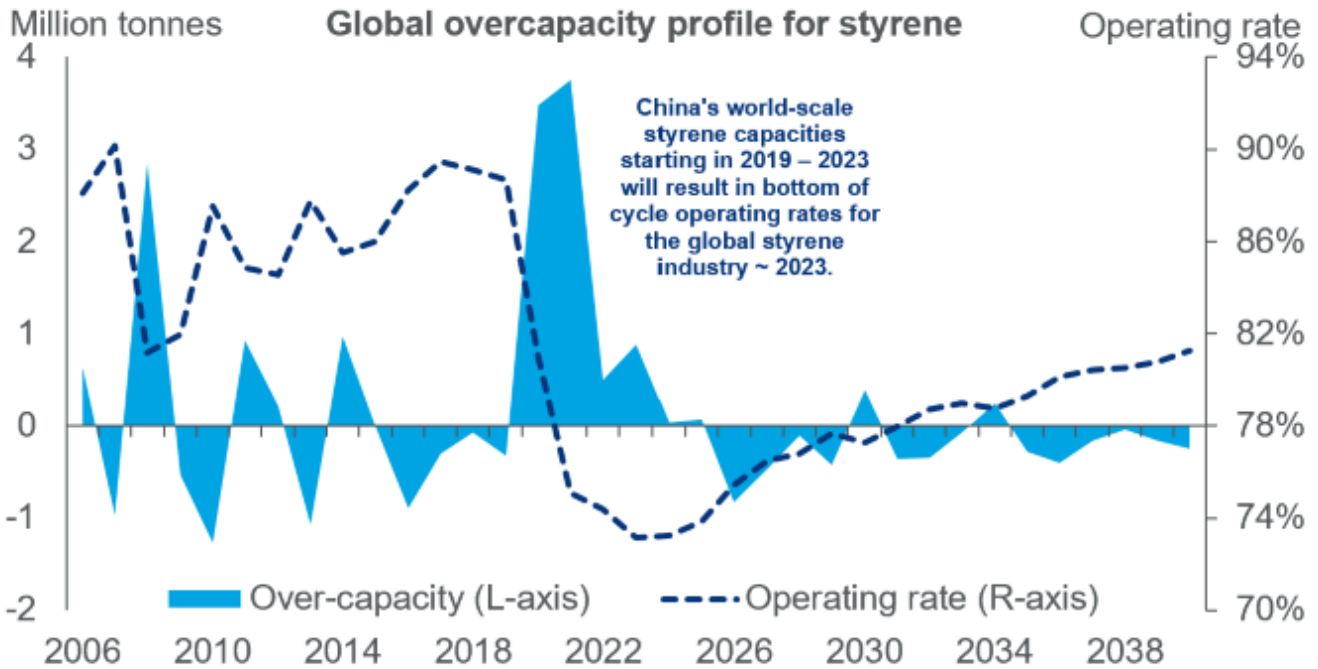
**Shruthi Vangipuram, 18 September 2020**

### Issue

- China is expected to add ~3 million tonnes of styrene capacity in 2020, accounting for ~20% of the nation's total capacity by end of the year.
- Additional 4 million tonnes of new styrene capacity in China is scheduled to come online by 2021.



Styrene capacity growth will far outweigh demand growth until mid-2020's



**NOTE: Over-capacity = global capacity change in year – global demand change in year**

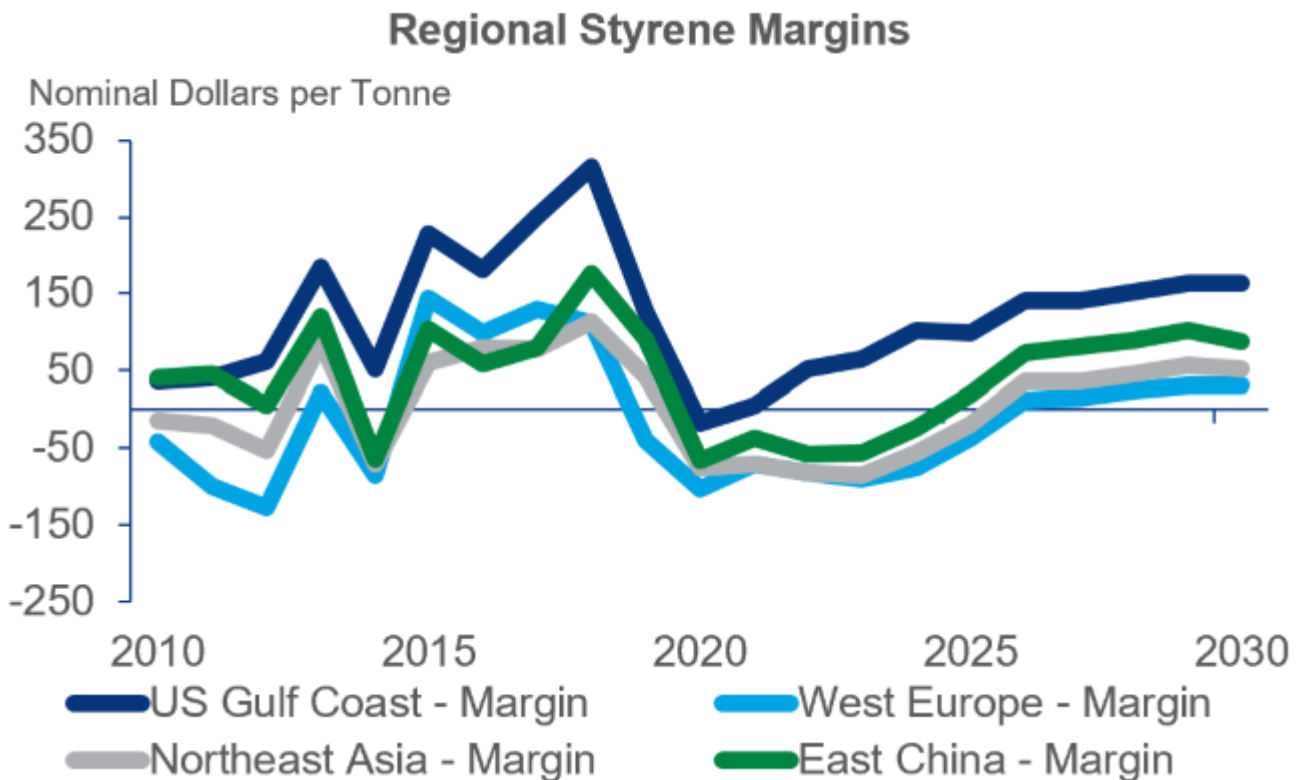
Source: Wood Mackenzie Chemicals

**Implications**

- Global styrene supply was already pressured entering 2020 as two Chinese mega projects, Zhejiang Petroleum & Chemical Co. (1,200 ktpa) and Hengli Petrochemical (720 ktpa), have successfully come online in Q1 2020.
- Styrene market conditions further exacerbated in Q2 2020 as the result of the ongoing coronavirus pandemic. Demand recovery is protracted as economic uncertainties keep consumers cautious. We expect global styrene demand in 2020 to contract by ~3.5% compared to the last year's demand
- Despite this demand loss, additional 1 million tonnes of new styrene capacity from Bora LyondellBasell (360 ktpa), Anhui Jiaxi (350 ktpa), and Tangshan Risun (300 ktpa) is still on track for commissioning in Q4 2020. Global styrene capacity additions will peak next year with a total 4 million tonnes of capacity is expected to start in China by H1 2021.
- The impact of China's new capacity start-ups will ripple through the rest of the world. While we expect US market to recover post-2021, European and Asian markets outside of China will bear most of the brunt of world-scale capacity additions in China. This will lead to an extended period of negative margins through mid-2020s, calling for some capacity rationalizations in both regions. We expect European and Asian ex-China margins to return to positive territory starting in 2026.



Regional styrene margins through 2030



Source: Wood Mackenzie Chemicals

### Outlook

- Global styrene markets are navigating through a unique and unprecedented event with the coronavirus pandemic. While this creates short-term turbulence, oversupplied styrene markets will remain, resulting in a downcycle period over the next five years.
- This oversupply market, coupled with a slow demand recovery, pressures production margins to negative territories over the next couple of years, resulting in capacity rationalizations for higher cost producers.
- Asia styrene export markets will be tightened as China increases its styrene self-sufficiency.

## Ascend quickly expands compounding capacity by new acquisitions

Timur Zilbershteyn, 10 September 2020

### Issue

- On 3 September, Ascend acquired two Italian companies, Poliblend and Esseti Plast. Poliblend is an engineering plastic producer, while Esseti Plast specializes in masterbatches .
- Earlier in June, Ascend also expanded its business in China by buying the assets of Tehe Engineering Plastic (Suzhou) and NCM (Changshu), which are located at the Changshu Yushan High-tech Industrial Park in Shanghai.

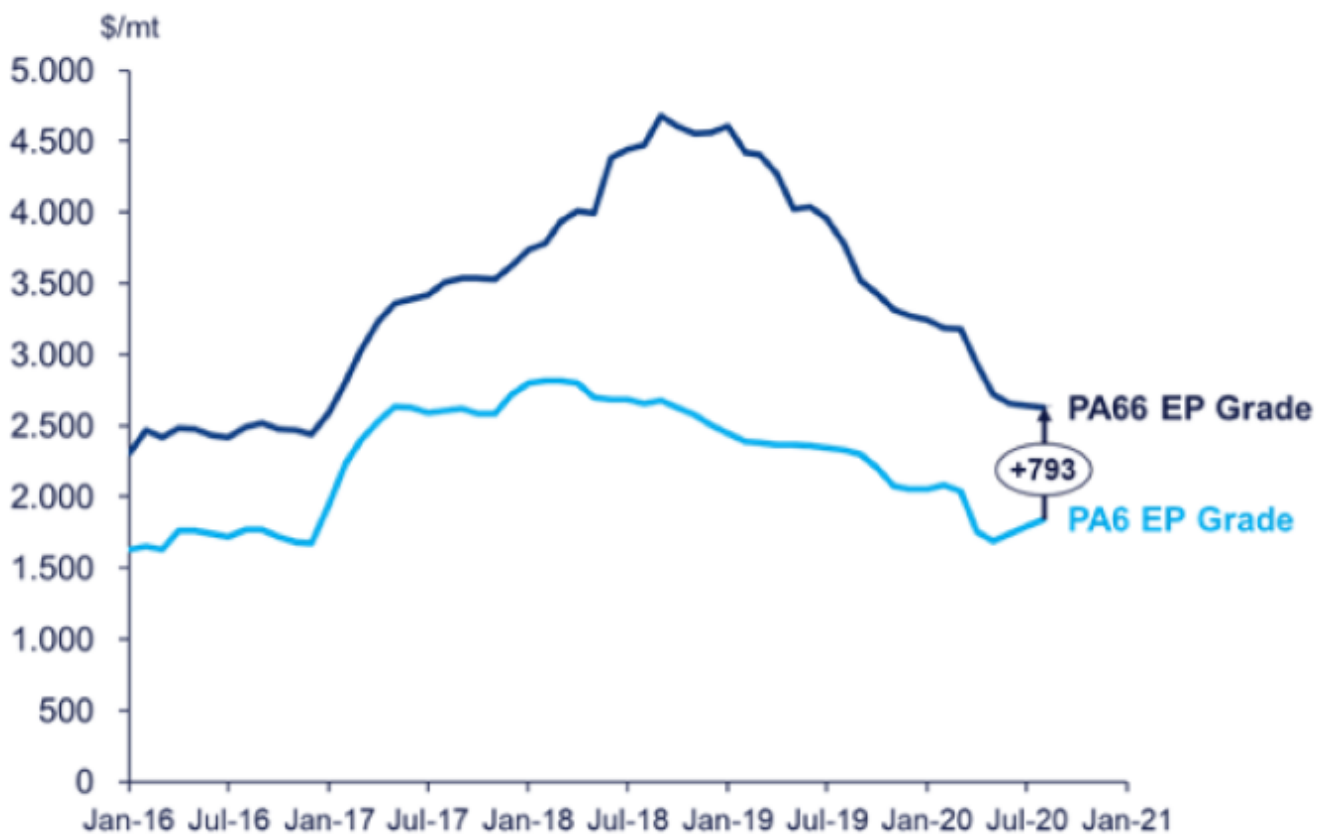
### Implications

- Ascend is one of the largest integrated polyamide-6,6 (PA66) producers. It intends to profit from Poliblend’s diverse portfolio in PA and other compounds (including recycled polymer) and Esseti Plast’s expertise in masterbatches.



- These acquisitions further establish Ascend presence in the European and Asian compounding markets. Ascend previously acquired Britannia Techno Polymer (Netherlands) in 2018, while Ascend’s parent company, SK capital, acquired GEON Performance Solutions (formerly PolyOne compounding) in October 2019.
- A number of new adiponitrile (ADN) projects are expected to start in 2022-2023, mostly in China. ADN is the key intermediate for PA66 and this new capacity is expected to bolster PA66 availability. PA66 polymer demand, however, may barely reach 2019 levels by that time.
- Increasing PA66 polymer supply and limited growth opportunities in the traditional applications will likely pressure PA66 price downwards.
- A possible approach for PA66 producers to remain profitable is to integrate with the downstream market. The compounding business requires closeness to the clients, including physical location of the production, and this is exactly what Ascend does by acquiring some downstream companies.

**PA66 vs. PA6 Price Spread in Europe**



Source: Wood Mackenzie Chemicals

**Outlook**

- Ascend’s compounding capacity is still relatively small compared to other integrated PA66 producers, such as BASF. But more downstream expansions are possible for Ascend, especially since many independent compounders are struggling with plunging automotive demand this year.
- PA66 could be competitive again in the compounding applications as PA66 price premium continues to slide. It will also improve PA66 polymer chances in the inter-material competition for new applications, such as electric vehicles and hybrid cars. These applications are relatively small and currently evolving, but growth expectations are strong.





- Many automotive producers alter car designs to comply with stricter European sustainability standards, which makes Europe a promising market for new compounding applications.

## Hurricane Laura’s impact on North America’s EOEG industry

**Andrew Day, Steve Wilkerson, 9 September 2020**

Hurricane Laura made landfall in southwest Louisiana early on the morning of Thursday 27 August. With a number of chemical and refinery manufacturing operations in its path, see [this report](#) to learn how Genscape and Wood Mackenzie work together to analyse the effects of the storm. With a particular focus on EO/MEG production outages, we consider the far-reaching impacts on these important commodities.

## Have Asian polyester fibre prices hit bottom?

**Bruna Angel, 8 September 2020**

### Issue

- Retail sales of many fibre products came to a near standstill in April and May due to Covid-19 and measures to control the pandemic.
- Wood Mackenzie’s benchmark Asia 1.4/1.5 denier polyester staple fibre (PSF) price for August 2020 was 68 c/kg CFR, a level not seen since February 2002, and down nearly 12% on April, -27% (-25 c/kg) on August 2019 and -51% (-71 c/kg) on August 2018.

### Asia polyester staple prices, 1.4/1.5 denier CFR



Source: Wood Mackenzie Chemicals

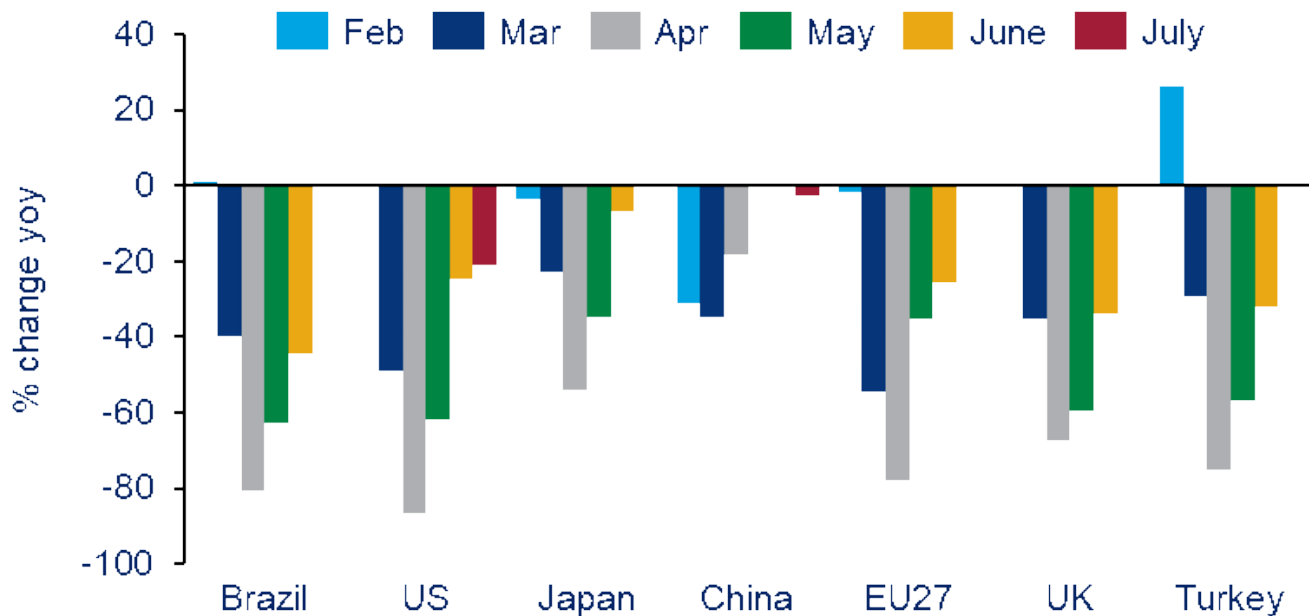
- The oil price recovery since April 2020 has squeezed margins along the supply chain to fibres. At the same time, pressure is building as raw material prices have increased. The recovery in fibre prices and margins will depend on the balance between demand recovery and supplies from fibre producers.



## Implications

- The slow recovery of retail sales since the low point in April as well as measures taken by retailers and brands to control inventory mean that fibre supply currently exceeds demand.

### Textile and apparel retail sales, February-July 2020



Note: US and China to May, others to April.

Source: IBGE, U.S. Census Bureau, Website of the Ministry of Economy, Trade and Industry of Japan, China NBS, Eurostat.

Note: retail sales for various countries are not directly comparable due to differences in types of businesses surveyed, can sometimes include footwear and leather goods and are not adjusted for price inflation except data sourced from Eurostat.

- Even after lockdowns were eased in the key fibre consuming markets of Europe and the US, apparel retail sales remained a long way below year earlier levels, despite large financial packages to support companies, jobs and incomes. In the recessionary economic environment, much of this financial support has moved into savings and asset wealth rather than consumption.
- In China, the official textile and apparel retail sales data points to a rapid recovery during Q2 2020 but sales in July remained weak.
- The ratio of inventory to sales at clothing retail in the US illustrates the magnitude of the impact that lockdowns in April had on this sector.

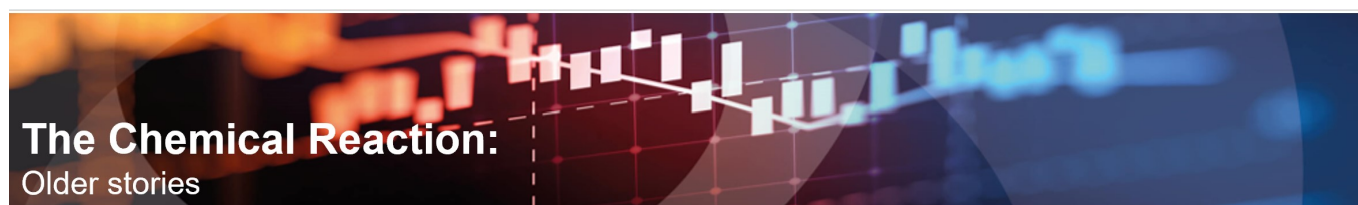


Source: US Federal Reserve

- This ratio averages at around 2.4 but rose to 17.7 in April before falling to 2.9 in July, still 24% above July 2019. To achieve this correction, orders back up the supply chain fell sharply, reducing demand for fibre.

## Outlook

- Orders are now improving as the sector prepares for Autumn/Winter retailing. However, ordering still lacks confidence given the recent resurgence in Covid-19 cases.
- This hesitancy means that smaller orders, knitters and weavers buying hand to mouth, and spinning mills are still operating at 70-80% at best. Meanwhile, fibre producers are looking to reduce costs by lifting operating rates and fill volumes with ultra-low pricing.
- Even if demand for clothing improves through Q4 2020, a return to 'normal' and a pull-back of lost volumes is not realistic in 2020 and polyester fibre prices are expected to underperform in Q4 2020.
- Nonetheless, oil prices are estimated to rise in H1 2021 and the global economy is projected to recover slowly next year. This should see polyester fibre prices rise off the current floor.



**The Chemical Reaction:**  
Older stories



## Wood Mackenzie Chemicals

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