Asia petrochemical outlook
H2 2018

Petrochemicals special report
August 2018
Foreword

Many Asian petrochemical markets were dragged through a turbulent ride in the first-half of the year, partly due to volatility in oil prices and the US-China trade war, but there was some light at the end of the tunnel — good margins.

As we enter the second-half of the year, can we expect to see some calmness and stability? There are, however, a few factors that are still expected to play a role in the next six months: the impact of the US-China trade war and anti-dumping duties, changing trade patterns, currency fluctuations and swings in oil prices depending on the US government’s policies and OPEC decisions.

S&P Global Platts tracks these changes every day, delivering the most up-to-date news to our customers on the olefin, intermediate, polymer, solvent and aromatics markets.

The outlook on olefins focus on the near term situation in key petrochemical markets such as ethylene and propylene, moving downstream into polymer markets while also looking at the vinyls and polyester chains as well as the methanol market and its close relationship to both olefins and polymers.

Towards the end, we hone in on the aromatics markets such as paraxylene, benzene and styrene monomer.

Supply and demand, margins, arbitrage opportunities, outlooks, and other key fundamentals and market factors are analyzed, such as the impending supply boom coming from new greenfield refineries and petrochemical plants in China, where polyester and PTA producers are integrating upwards to enhance their competitiveness in these growing markets.

How big an impact will these new plants have on China’s imports of PX and SM, for example? But they are not only affecting aromatics, as they will also affect other petrochemical products ranging from olefins to polymers.

The recent fallout from the trade spat between China and the US, as well as the impact of anti-dumping duties and trade tariffs are also factors analyzed further in this outlook.

Enjoy our in-depth pieces on the petrochemical markets to gain a wider perspective.

—Gustav Holmvik, Team Leader Asian Petrochemical Team

Olefins and derivatives

Asia ethylene supply likely tight on lower output, firm China demand

- Ethylene H2 output loss seen up 7.7% vs H1
- China demand seen healthy for styrene production

The Asian ethylene market is likely to remain tight in the second-half of 2018, amid the steam cracker turnaround season as well as healthy demand in China, market sources said.

In H1 2018, the Asian ethylene market came under pressure, despite the heavy steam cracker turnaround season, due largely to an influx of deepsea cargoes. In May, the price spread between ethylene and naphtha narrowed to $556/mt, the lowest it has been since August 2017.

However in H2 2018, market sources expect Asian ethylene to be firm as more steam crackers will undergo maintenance in H2, compared with H1.

S&P Global Platts reported that around 765,250 mt of ethylene production is estimated to be disrupted in H2, due to the steam cracker turnaround season, compared with 709,950 mt in H1. In Southeast Asia, an estimated 311,000 mt of ethylene production will be lost in H2, as opposed to none in H1, as no steam cracker was shut for maintenance.

Market sources expect the price spread between CFR Northeast Asia and CFR Southeast Asia to narrow in H2 of this year, as Southeast Asian supplies are seen to be tighter in H2 due to steam cracker shutdowns. The price spread between CFR NE Asia ethylene and SE Asia ethylene averaged at $115/mt in June, the widest so far in 2018, S&P Global Platts data showed.

Deepsea supplies, especially those heading to Asia from Europe, are also expected to decline in H2, in line with rising ethylene demand in Europe as downstream plant operations return to normal.

Market sources said ethylene supplies are likely to fall in H2 as Asian steam cracker operators would typically switch to naphtha as feedstock, from LPG. LPG prices in H2 are usually higher compared with H1, due to strong LPG demand for heating purposes in the northern hemisphere.

LPG has a higher ethylene production yield compared to naphtha. According to S&P Global Platts Analytics, ethylene production yield from naphtha is 0.34, while that from LPG is around 0.40-0.43. In H1, Asian steam cracker operators switched to using around 5%-15% LPG as feedstock.
Most steam crackers in Asia use naphtha as their main feedstock, but tend to use a percentage of LPG when its price is around 90% of naphtha, or when LPG is around $50/mt cheaper than naphtha. According to S&P Global Platts data, the price spread between naphtha and LPG hit a six-year high of $130/mt in May.

On the demand side, market sources said spot ethylene demand for most derivatives — polyethylene or monoethylene glycol — would likely remain scarce due to negative margins, while demand for styrene monomer would be healthy as positive margins are likely to persist.

Market sources said ethylene demand may receive a boost from the intensifying trade war between the US and China. Some ethylene derivatives — such as ethylene dichloride or PVC — is on the list of exports to China which the US has slapped with an additional 25% tariff.

“China may start producing these sanctioned products in China, while reducing imports from the US,” a market source said. The US is the top exporter of EDC to China. In March, China imported 33,742 mt of EDC from the US, or around 80% of its total import quantity of 41,538 mt, according to the latest data by the Chinese Customs.

Butadiene to remain bearish on negative rubber margins
- China likely to remain butadiene exporter in H2
- Japan/Korea demand to support market

The Asian butadiene market would likely remain bearish in the second-half of this year, as spot butadiene demand would continue to be dragged down by negative margins for downstream synthetic rubber production in China, market sources said.

Nevertheless, fresh butadiene demand may emerge in non-China markets such as Japan or South Korea, amid lower butadiene plant operations, which would likely limit any price declines in the Asian butadiene market.

In H1 2018, China's synthetic rubber producers reduced their plant operations amid negative margins. In April, the CFR Far East Asia styrene-butadiene-rubber price sank to $1,490/mt, the lowest level since August 2017, S&P Global Platts data showed. The price spread between SBR and butadiene fell into negative territory in May as well, at minus $20/mt, Platts data showed.

**China becomes butadiene exporter**

China — an importer of butadiene — turned exporter in June as lower synthetic rubber plant operations there resulted in a built up in butadiene inventories. Chinese butadiene producers have been actively exporting their cargoes mainly to South Korea, while Chinese end-users have been re-selling their term butadiene supplies to the market.

Market sources said negative synthetic rubber margins may not recover in H2 amid the seasonal lull in tire demand, which would continue China's butadiene exports during the period.

However, the CFR China butadiene price is still relatively high, with the June monthly average price calculated at $1,710/mt, the highest level since March 2017, according to Platts data.

Market sources said fresh demand in South Korea and Japan continued to purchase ex-China butadiene, keeping Asian butadiene prices relatively high.

In South Korea, butadiene end-users would likely continue buying spot cargoes in a bid to cover a supply shortfall due to butadiene plant turnaround season. Lotte Chemical planned to shut its 130,000 mt/year butadiene unit from September to October for annual maintenance, while LG Chem will also shut its steam cracker in Yeosu from September to November for annual maintenance. LG's steam cracker is able to produce 145,000 mt/year of butadiene.
South Korea’s butadiene imports for January to May stood at 139,532 mt, down 21% from a year ago, according to the Korea Customs data.

In Japan, JXTG Nippon Oil & Energy planned to shut its 105,000 mt/year butadiene unit in Kawasaki from the middle of August, for one month of annual maintenance, while Zeon will also shut its 180,000 mt/year butadiene unit in Tokuyama from September to October.

For the January to May period, Japan imported around 28,663 mt of butadiene, up 12.7% from a year ago, the customs data showed.

Japan’s spot purchases would keep the FOB Korea butadiene price high as some end-users in Japan prefer to use Korea-origin materials. As a result, the CFR China–FOB Korea butadiene price spread would likely remain narrow.

The price spread between CFR China and FOB Korea butadiene averaged $32.82/mt in H1, Platts data showed. The spread is typically around $50-$60/mt, based on a freight rate between Korea and China.

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Propylene seen set to rebound on tightening supply, firm downstream

- Turnarounds in Northeast Asia set to tighten supply
- Downstream ACN’s bull run set to continue

The battered propylene market in Asia is nearing bottom and appears set to move into rebound mode in the second half of the year due to looming tight supply amid propylene plant shutdowns.

The propylene market in China was under pressure over May–June as weaker downstream polypropylene prices, cheaper domestic supplies and a weaker Yuan punctured buying interest. It fell further to be assessed at $1,070/mt CFR China on July 9, down $60/mt or 5.3% from May 28, S&P Global Platts records showed.

However, market sources said the propylene market was likely to have reached a floor in early July and could well be heading for a price rebound in H2 as turnarounds start paring back supply.

In South Korea, Lotte Chemical plans to shut its steam cracker in Yeosu over September 11 to November 1 for annual maintenance. It is able to produce 550,000 mt/year of propylene, and propylene production loss due to the shutdown is estimated at 50,000-60,000 mt.

Japan’s Mitsui Chemicals shut its steam cracker in Sakai, Osaka on June 14 for six weeks’ maintenance, which can produce 300,000 mt/year of propylene.

In China, Jiangsu Sailboat Petrochemical, also known as Jiangsu Shenghong, plans to shut its methanol-to-olefin unit on July 20 for 35-40 days’ major maintenance. The MTO plant has a nameplate capacity of 400,000 mt/year of propylene.

Besides tight supply, firmer downstream markets, particularly for polypropylene, oxo-alcohols and acrylonitrile, are likely to provide firmer backing for the propylene market. The oxo-alcohol market is expected to rebound in H2 due to a seasonal demand pickup, while Asian ACN is set to remain bullish on continuing tight supply.

ACN seen to remain bullish in H2

The Asian ACN market has been on an uptrend since the start of the year, with the CFR Far East Asia marker hitting a six-year high at $2,200/mt on July 3, the highest since April 2012, Platts data showed. Market sources expected that bull run to continue in H2 due to continuing plant turnarounds in Asia and limited deepsea supply from Europe amid ongoing Ineos plant disruptions.
South Korea’s Tongsuh Petrochemical Corp. plans to shut its 245,000 mt/year No. 3 ACN plant at Ulsan in October for a month of annual maintenance. Ineos Nitriles has a force majeure in place on ACN supplies from its plants in Seal Sands in the UK and Cologne, Germany. The company declared force majeure on June 5 following a power cut in Seal Sands and a technical issue in Cologne, and there was no update on the situation as of July 11.

“Many term customers have been requesting us to ship our term cargoes earlier than scheduled, and I think this will going to persist into the second half of this year as supply is very tight,” said a Japanese supplier.

An Indian end-user expected the price gap between CFR Far East Asia and the Southeast Asia and South Asia markets to close in H2 due to limited supply from the west to Asia.

“Many cargoes have diverted to China as they can fetch a high price; any other buyers in the region will have to pay around the same price if they want to secure the cargoes,” said the Indian end-user.

The CFR India and CFR Southeast Asia prices are typically lower than those in CFR China as they receive more deepsea supplies from Europe.

The looming trade war between the US and China is also likely to cause a shift in trade patterns in the ACN market in H2.

China’s Ministry of Commerce announced April 4 that it will impose an additional 25% tariff on ACN imports from the US.

“We have some ACN producers who have already approached us; they want to ship their ACN materials from America to us and then we help them ship to their term customers in China,” said a Taiwanese seller.

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India, Mideast demand to push up Asia vinyls market

- Fresh demand seen in India, Middle East for PVC, caustic soda
- EDC trading seen sluggish amid US-China trade war

Asian vinyls, including caustic soda, ethylene dichloride, vinyl chloride monomer and PVC, are likely to find support in the second half of this year from emerging demand, especially in India and the Middle East, market sources said.

Asian vinyls markets were under pressure in H1 amid an oversupply as positive caustic soda production margins kept vinyls production high. CFR China PVC fell to a five-month low of $910/mt in May, according to S&P Global Platts data.

PVC stocks were high in H1, with Japan’s inventory as of the end of May up 24.1% from a year earlier at 171,165 mt, according to the Vinyl Environmental Council.

Prices were likely to pick up in H2 — especially for PVC and caustic soda — amid rising demand in the region, market sources said.

Asian PVC is likely to see support from India as higher public spending ahead of the general elections next year is expected to boost demand for PVC.

On the other hand, demand in China is likely to remain sluggish in H2 due to a seasonal demand lull. The increasing trade tensions between the US and China is also likely to slow down the Asian consumer’s appetite for PVC, which is one of the petrochemical products in the tariffs list.

China typically imports US-origin PVC for re-export, which is exempted from the additional 25% tariff. But the imposition of the tax was enough to keep Chinese buyers away from the market, according to market sources.

Additional caustic soda demand seen in UAE

The Asian caustic soda spot market is expected to be firm in H2 amid fresh demand from the Middle East.

It was weak in H1 because of rising supplies from Iran. Alumina producers also needed less caustic soda as they obtained higher quality bauxite with fewer impurities, a trader said.

However, Emirates Global Aluminium’s new refinery project is likely to hike caustic soda buying interest in H2. A South Korean producer said that the UAE’s EGA was looking for 20,000 mt of caustic soda for August shipment.

Iranian cargoes are expected to fall in H2 as the US sanctions on Iran come into effect in November. Iranian cargoes are likely to continue to head to the west coast of India, an Indian source said. While western India receives cargoes from Iran, the east coast gets them from Northeast Asia, he added. This could result in a wider price gap in India between the east and west coasts.
The oversupply seen in China in H1 is expected to ease as some caustic soda producers have started reducing their plant operations amid narrowing margins. Demand is also expected to return after China's environmental inspections on downstream plants conclude in July.

**PVC-VCM spread to remain wide**

The Asian VCM market is likely to remain under pressure in H2 amid ample supply.

The price spread between PVC and VCM would likely cross the typical breakeven spread of $150/mt, sources said. In July, the spread between PVC and VCM hit an 11-month high of $245/mt, according to S&P Global Platts data.

Trading activity in the Asian EDC market is expected to remain low amid the US-China trade war as EDC is on the tariffs list. The US is the biggest EDC exporter to China with around 33,742 mt in March, accounting for 81% of China's total imports of 41,538 mt, according to the latest customs data.

**Firm downstream demand to absorb rise in Asian MEG, PTA supply**

- **MEG, PTA supply to rise on new start-ups, higher operating rates**
- **Demand firm on peak polyester demand, China’s ban on recycled plastics**

Feedstock supply for polyester fibers — monoethylene glycol and purified terephthalic acid — will increase in the second half of this year with the start-up of new plants as well as rising operating rates at existing units. But at the same time, Asian MEG and PTA markets are seen supported by seasonal polyester demand as well as China’s ban on recycled plastics.

**Coal-based meg capacity to increase**

China's MEG supply is expected to increase in H2 with the start-up of several coal-based MEG plants, sources said. These plants are expected to add 190,000 mt/year, lifting the country's total MEG capacity to 8.965 million mt/year by the end of 2018, from 8.775 million mt/year in 2017.

“The cost of producing coal-based MEG is cheaper than naphtha or ethylene-based MEG, provided that MEG prices stay at above Yuan 7,000/mt. So definitely, there are cost savings,” a market source said.

However, the incremental supply will not see China cut MEG imports in H2, as the new plants need time to attain on-specification production. Adding to this, the MEG market is likely to find support from new polyester plants starting up later this year, as well as peak demand season for the textile industry.

Turnarounds may take the pressure off supply and allow for a market balance in the second half of the year.

Plants scheduled for maintenance in H2 are: FREP’s 400,000 mt/year plant in southeastern China’s Fujian, Taiwanese Nan Yia’s 360,000 mt/year No. 3 plant at Mailiao, Indian Reliance’s 150,000 mt/year plant in Hazira, MEGlobal’s 400,000 mt/year unit in Canada, and Saudi Yanbu Petrochemical Co.’s 450,000 mt/year plant in Yanbu.

**PTA operations seen higher in H2**

Overall average PTA operation rates in Asia during H2 are expected higher than in H1, as majority of plants in Taiwan and South Korea have completed maintenance earlier this year. In China, run rates are expected to remain at 80%-85% capacity in H2, slightly higher than H1.

This comes even as most Chinese PTA makers saw their margins erode significantly, by 41% from the first quarter to average Yuan 170/mt in Q2, following a rise in feedstock paraxylene prices, according to industry and S&P Global Platts data.

The margin compares China’s most actively traded PTA futures on the Zhengzhou Commodity Exchange against the notional cost of production on a daily basis. The cost of production assumes 0.656 mt of feedstock PX to make 1 mt of PTA, and takes into account the relevant duties, value added tax, and a conversion cost of Yuan 600/mt.

Adding to this, the yuan has depreciated more than 5% against the dollar since February 28, hitting Chinese PTA makers hard as they buy their PX feedstock in US dollars, and sell PTA to the domestic market in local currency.

But the market may find relief from supply tightening during Q3. Ningbo Liwan and China Prosperity Petrochemical, also known as Hanbang, will kick off the turnaround season by shutting their PTA plants in July, followed by maintenance at Yisheng’s Ningbo unit and Hengli’s plant at Dalian.

On the demand side, seasonal demand peak from the downstream polyester sector in Q4 would likely absorb incremental PTA supply in the market, sources said.
China's ban on recycled plastics this year will also likely increase demand for virgin polyester and polyethylene terephthalate, boosting PTA and MEG demand, another source pointed out.

“China imported about 1.9 million mt/year of recycled plastics in 2017 ... With the ban in place, it has to be filled with virgin PET, so PET is definitely booming in 2018,” the source added.

**Polyester output rising, inventories low**

By the end of 2018, China's polyester production capacity will reach 44.4 million mt/year, from 41.1 million mt/year in 2017, following the start-up of new units, sources said.

Inventories are expected to remain low — covering less than 10 days' demand — in Q3 as the textile industry returns from the lull in demand season and in preparation for the winter season peak.

Meanwhile, PET chip plant operating rates will remain robust in H2 as bottle makers continue to cater to the summer peak demand season for beverages during Q2 to Q3. But operating rates have dipped slightly towards the end of June amid what have been called largely “temporary cuts” among certain producers to comply with environmental directives.

On the bottle production front, after an extremely bullish H1, signs of a slowdown have started emerging as prices reacted to negative sentiment propelled by a US-China trade war and waning demand from end-users.

“Matters have not been helped by several distress cargoes being sold by cash-strapped producers looking for payment upfront, which has dragged down the market. Furthermore, by the third quarter, Jiangsu Sanfangxiang's new 500,000 mt/year PET plant and Chengxing's new 600,000 mt/year should be commercially operational, which adds supply to the market while demand is projected to remain fairly stable from H1 2018,” a Northeast Asian trader said.

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Q4 2018, delayed from earlier start up estimates of Q1, an Iranian producer said in June. Kaveh's 2.3 million mt/year Bushehr methanol plant has been delayed from Q1 2018 to 2019, the source said.

On the buyers’ side, Asia demand in H2 will come largely from existing MTO plants, underpinned by their downstream profitability, as MTO startups look to skip 2018 altogether, industry sources said.

China's Connell Chemical's MTO, based in the Northeast province of Jilin — the only MTO with the potential to start this year — plans to begin operations in Q4, but industry sources predict it will be delayed to early 2019.

The 300,000 mt/year MTO is expected to consume 1 million mt/year of methanol.

Ethylene derivative margins key to maintain MTO operating rates
With startups out of play, existing MTOs will likely drive H2 demand, but will rely on ethylene derivative margins to maintain operating rates, according to an MTO source.

With MTO-linked polypropylene margins at about minus $95/mt on average during H1 2018, MTOs are largely reliant on their downstream ethylene to operate. Monoethylene glycol has typically positive margins averaging just above $150/mt over the same period.

Of the major coastal MTOs, Jiangsu Sailboat Petrochemical, also known as Jiangsu Shenghong, is seen by industry sources as the most resilient, due to its diversified mix of non-traditional downstream plants.

Sailboat has announced 35-40 days of maintenance starting July 20 at its 700,000 mt/year MTO at Lianyungang, making it the only major MTO scheduled for maintenance in H2.

“Methanol prices might dip while Sailboat is away, but with Xingxing [Zhejiang New Energy] and Ningbo Fund Energy back, international [methanol] supply will remain tight in Q3,” a trader said. The 600,000 mt/year units had been shut for maintenance in Q2 with both companies citing poor economics.

Consumption from the three MTOs represent more than a third of China's total annual methanol imports, and all three will likely run at high rates until the end of the year, according to industry sources.

“MTOs have financial obligations to fulfill at the end of the year, so will likely operate full during H2 to achieve the cashflow. In earlier years, they took advantage of cheaper methanol during spring and summer lull season, to buffer for pricier feedstock in winter — but between the Middle East turnarounds and Southeast Asia outages, there was never really a lull this year. And now we're entering into high demand season,” an analyst said.

Seasonal methanol demand in China will pick up in the fall, as formaldehyde production ramps up during plywood production season and MTBE ramps up in preparation for the driving season, he said.

China’s import demand for methanol will peak in winter due to lower methanol production amid higher demand for natural gas feedstock for heating. In addition, the Chinese government’s war on pollution will be in full swing, blunting production from coal-to-chemical plants in North and East China, the analyst said.

Downstream AA/VAM markets seen strong
Other methanol downstream products — acetic acid and vinyl acetate monomer — are seen to be firm.

Market participants expects AA demand to increase as downstream acetyls derivatives and purified terephthalic acid sectors should operate fully in the September peak season, while other government incentives such as blending ethanol into the gasoline pool might bring about long-term demand for AA at ethanol plants. AA prices are also expected to be supported by high downstream prices such as VAM, butyl acetate and ethyl acetate going forward, industry sources said.

Asia’s VAM prices would also likely remain supported amid little capacity additions and continued strength in the downstream emulsion and adhesive, industry sources said.

However on the end-user side, some VAM buyers were not so bullish for H2 demand, pointing out that the outlook might be rangebound to weak as plants might be taken offline because of high AA feedstock costs, market sources said.

Some downstream poly vinyl alcohol production units were also scheduled to start up, but these would not come on stream until next year.

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PE supply increase seen outpacing demand growth in Asia

- Coal-based PE output forecast to rise 24%
- Demand growth in Asia seen at 6%

Asian polyethylene prices are expected to remain weak in the second half of the year as a rise in supply from new plant startups outpaces a gradual increase in demand.

Asia is also a target market for around 2 million mt/year of new US shale gas-based PE capacity that is slated to commence exporting in H2, along with South America.

However, the impact of new PE plant startups in Asia in H2 was seen likely to be modest initially, as the new plants were unlikely to immediately operate at full capacity, market sources said.

New PE plants typically do not operate at 100% of capacity during the first year of operation, and ethylene feedstock costs were likely to remain high in H2, the sources said. The average operating rate would be around 50% in the beginning, the sources said.

The incremental supply increase in Asia in H2 was seen at 1 million-2 million mt/year, according to market sources and Platts Analytics.

Trade flows are also set to change in H2 as more Middle Eastern PE cargoes are absorbed within that region rather than exported, sources said.

However, this decline in exports to Asia will likely be offset by rising supply from the US, particularly in late H2 when producers step up efforts to minimize US year-end inventory tax obligations.

In China, PE production from coal and methanol is set to rise in H2 due to lower feedstock costs.

Sources also expect more PE to be produced from coal and ethane by year end with the start of new coal-based and shale-based facilities globally.

According to Platts Analytics, coal-based PE will rise 24% year on year to comprise 1.7% of global supply in 2018, while ethane-based PE will rise 34% to comprise 35.7%, due to the startup of around 500,000 mt/year of coal-based and shale gas-based production by year end.

The outlook for MTO-based PE production in China was mixed. A source at a major producer said it continued to be profitable in northern China as local methanol prices there were much lower than in the country’s east and south.

The outlook for spot methanol-based PE margins in east and south China was less positive amid expectations of a modest rise in methanol prices in the fourth quarter due to a likely increase in natural gas prices, sources said.
**PE demand seen mixed**

Asia's average per capita demand for PE is forecast at 6-7 kg in 2018, up 6% from the year before, according to Platts Analytics data.

Average demand growth for PE is expected to rise in line with GDP growth forecasts across most of Asia in H2, and be slightly higher in China and India, market sources said.

However demand growth for PE for automobile manufacturing, construction and infrastructure will likely be lower in H2, and also weak for packaging due to narrower margins, according to market sources.

Futures trading volumes are expected to continue to be impacted in H2 by China's measures to curb speculation. The closer regulation of trading activity, including disciplinary measures, has already resulted in a fall in traded volumes of LLDPE on the Dalian Commodity exchange so far this year, sources said.

However, traders expect China's LLDPE imports to continue rising in the wake of the country's ban on scrap plastics imports.

China is trying to promote more domestic scrap recycling, but a lack of financial incentives to collect and sort waste and a fragmented industry comprising mostly small players continues to constrain development.

The increased emphasis on curbing pollution continues to prompt some polymer resin producers to propose initiatives in the recycled polymer segment, but the price of recycled material can still work out to be higher than that of prime material, discouraging recycling.

With operators continuing to face sourcing difficulties and higher costs to import recycled pellets, and substitution with less polluting alternatives to PE costly, not immediately available and requiring a large capital outlay, virgin polymer is likely to remain the preferred option in H2, market sources said.

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**Asia PP demand to outstrip supply**

- **Supply to remain tight despite startup of 1 mil mt/year capacity in H2**
- **Possible arbitrage opportunities to export Chinese homo PP**

Asia's polypropylene market is likely to strengthen in the second half of this year, as the region remains net short of an estimated 2 million mt/year, with copolymer demand mainly seen from China, Indonesia, Vietnam and Pakistan, while Southeast Asia and South Asia account for majority of homopolymer demand.

This is despite the startup of 1 million mt/year of new PP capacity, including at South Korea's S-Oil, Malaysia's Lotte Chemical Titan and Vietnam's Nghi Son, suppliers said.

Regional PP demand this year is expected to grow at the same pace as GDP growth rates, and faster in developing countries. The rise of e-commerce would also lend underlying support to PP demand and prices, market sources said.

Although there has been no change in molded plastics production — which uses PP injection grade — and PP yarn woven bags, there has been a slight increase in production of stretched, multi-layer film plastics, which uses isotactic and biaxially oriented polypropylene, market sources said.

Some converters are thinking of using high density injection grade instead of PP copolymer with lower melt flows for economic reasons.

**Traders seek homopolymer opportunities in non-Chinese markets**

But with China's demand for homopolymer, such as PP raffia/injection, slowing as packaging demand has not grown quickly, traders are seeking opportunities to move homo PP to Southeast Asia instead of China when the price difference is more than $50/mt.

Some are even looking at exporting Chinese homopolymer cargoes.

Discussions to sell Chinese coal-based materials have been ongoing, but Vietnamese compounders said this is not a preferred material for them because of the low tensile strength. Compounders however, said they may consider carrying out trial runs if the price difference between naphtha-based and coal-based polymers becomes wide enough.

A few traders are also eyeing opportunities to move Chinese cargoes to the US, but are faced with uncertainties over arbitrage economics which need to be viable for a period of two to three months amid current US-China tension, traders said. Sellers put the freight rate from China to the US at $60-$100/mt, with a jumbo bag packaging costing an additional $40/mt.

On the supply side, PP output from unintegrated feedstocks is mixed. Methanol-to-PP plants are expected to continue running at low rates due to weak profits, while propane dehydrogenation units are likely to keep runs at above 80% capacity as margins are comparatively wider, sources said.

As for integrated feedstock, with a margin of $200-$300/mt between PP and raw materials namely oil and coal, margins are unlikely to turn negative for a long time even though
production costs are expected to increase in H2 based on projections of crude oil prices trending higher in the second half of the year.

**Futures gaining more influence**

Some traders expect futures contracts on China’s Dalian Commodity Exchange to exert more influence in the market, as Beijing wants to open up more of its futures trading to international companies and have greater control over the price it pays for its commodities. China also wants to promote the use of the yuan in global trade as an alternative to the US dollar.

Traders pointed out that futures contracts would remain as an indicator of PP market sentiment for forward months rather than to hedge physical price risk for delivery in the month ahead due to a lack of a liquid and well-defined forward curve.

Liquidity would continue to be concentrated in one month — typically a few months forward — to avoid the risk of physical delivery, they added.

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### Aromatics:

**Benzene eyes support from firm downstream demand amid ample supply**

- **Supply seen ample on plant startups, closed Asia-US arbitrage**
- **China demand seen set to rise on startups downstream**

Benzene supply will likely remain ample in Asia in the second half of the year, but strong demand amid positive downstream margins is likely to provide some support.

Operations at new aromatics plants that were started up in the first half of the year were seen to be stabilizing in July, which will likely increase benzene supply in the market in H2.

These new plants include Vietnam’s Nghi Son Refinery and Saudi Arabia’s Petro Rabigh Phase II.

In addition, around 620,000 mt of additional benzene output is expected to come online in China in the third quarter and 2.04 million mt in Q4, taking total new Chinese supply in H2 to 2.66 million mt.

With Asia structurally long in benzene, Northeast Asian sellers will continue to seek arbitrage opportunities to the US Gulf Coast, despite that window having remaining closed on paper for most of H1.

The benzene price spread between Asia and the US averaged $33.28/mt in H1, S&P Global Platts data showed. With freight costs from South Korea to the US at $50-$52/mt, the arbitrage was closed on paper. Around 74% of South Korea’s benzene exports typically go to China or the US.

China’s demand for imported benzene was weak in H1, as inventory levels in the East China market remained above 200,000 mt, a level considered healthy, resulting in a wide price gap between domestic cargoes on an import parity basis and CFR China cargoes.

As a result, end-users in China were heard to have mostly procured domestically in H1.

However, demand for CFR China cargoes was expected to improve in H2 as downstream operating rates were projected to rise and domestic stock levels to gradually recede. But this hinges on exchange rates, as the yuan depreciated against the US dollar in late June as US-China trade tensions intensified.

With ample supply in H1 pressuring benzene prices lower, production margins for downstream styrene, phenol and caprolactam were well above breakeven. Healthy downstream margins are expected to continue in H2, which will likely raise operating rates at downstream plants.

**TDP run rates dip**

Among the various methods of producing benzene, margins via the toluene disproportionation route were heard unfavorable in H1, and run rates of TDP units were heard to have been lowered in response.

Benzene prices did not track the firm gains seen in crude oil in H1 as the benzene-naphtha spread narrowed. It was calculated at $202/mt in the second quarter, down from $309/mt in Q1, Platts data showed.

With the benzene-naphtha slim and the production margins of downstream products to feedstock benzene high, benzene prices were widely considered undervalued in H1, which may translate into upward pressure on spot benzene prices in H2.
However, downstream phenol trade flows in Asia are expected to change in H2 after China slapped an antidumping duty in March on phenol from the US, EU, South Korea, Japan and Thailand.

In addition, China’s phenol/acetone demand is expected to fall in H2 as its self-sufficiency increases in line with the startups of new domestic phenol/acetone plants, and phenol/acetone producers are already on the hunt for alternative outlets in Southeast Asia and Taiwan.

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Antidumping tariffs set to reshape Asia’s SM market

• More EU cargoes expected to come to Asia
• Chinese imports to fall further on new startups

After a turbulent first half of the year, market participants said that the Asian styrene monomer market might finally see some stability in H2 after China announced final antidumping duties on SM imports from South Korea, Taiwan, and the US on June 22, which may prove to be a watershed moment for the industry.

After multiple appeals from various SM makers following the initial decision in February, South Korean producers will see a rate cut of 0.9-1.6% to 6.2-7.5%, while the final duty imposed on Taiwanese SM was revised down from 5% to 3.82%.

Despite lower ADD, South Korean and Taiwanese exports to China are unlikely to increase dramatically in H2, market participants said.

“To mitigate the impact of the ADD, most Korean producers have already allocated more term volumes to the domestic market this year as well as increased exports to other Asian markets such as Taiwan, Hong Kong, and India,” a trader said.

China imported 1.14 million mt of SM from South Korea in 2017, accounting for about 35% of its total imports. However, South Korean SM accounted for only 17% of total Chinese imports in the first quarter at 110,938 mt, customs data showed. Saudi Arabia overtook South Korea as the largest exporter of SM to China in Q1 with 143,406 mt.

European producers look east
In the lead up to the final ADD announcements, some traders took advantage of the rare arbitrage from Europe and Asia, with around 18,000 mt estimated to arrive in July.

“It will be interesting to see if [Chinese ADD] could incentivize more product flows from the EU to Asia in H2 to compensate for the increase in imports from the US [to the EU],” sources said.

US exports to the EU increased from 5% in Q1 last year to 16% this year. In Q1, only 64,669 mt of US SM arrived in China, down 72% from a year earlier.

Sources pointed out that although there were logistical challenges in carrying European SM to Asia such as the availability of long-haul vessels, inventory management and longer delivery time, the EU may become a more important supplier going forward.

Inventory to rebound
From tighter SM inventory in China in H1 amid turnarounds and lower imports, the situation was expected to change in H2 on higher production and more deepsea cargoes arriving, market sources said.

“In addition, the spot SM-benzene spread has been hovering at near nine-month highs for much of May, which should incentivize Chinese SM producers, who are predominantly non-integrated, to increase operating rates,” a producer said.

“Sluggish demand from polyethylene and monoethylene glycol may likely weigh on Asian ethylene prices, with non-integrated margins overtaking that of integrated plants if naphtha-ethylene spread continues to widen in Q3,” he added.

Chinese import demand to fall further
China’s total SM imports stood at just 641,437 mt in Q1, down 29% on the year. Imports are poised to fall further in Q3 with Anhui Haoyuan’s new 260,000 mt/year SM plant in East China expected to start commercial production by mid-August, sources said.

A portion of the capacity is expected to be absorbed by the downstream acrylonitrile-butadiene-styrene industry, with Shandong Haili Chemical Industry’s new 200,000 mt/year ABS plant in Shandong province expected to start commercial production in July, sources said. In addition, LG Petrochemical’s new 150,000 mt/year ABS plant in Huizhou expected to start up by the end of 2018.

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Gasoline blending demand could ease length from new MTBE, toluene capacities

• S Korea to become net exporter of MTBE
• New China plants may reduce toluene imports

Market appetite for blending components would likely be firm in the second half of the year, keeping pace with expected blendstock production growth, market sources
said. China exports are expected to increase in line with the approximately 7.5% increase in gasoline export quotas to 12.13 million mt allocated by the government from end-May.

Meanwhile, Singapore's gasoline exports from January to mid-June have also increased compared with 2017. While exports of 97 RON and above gasoline slipped 3.15% year-on-year to 680,844 mt, and under 90 RON gasoline exports fell 22.4% to 1.54 million mt, exports of gasoline with RON between 90 and 96 surged 115% to 1.59 million mt, according to data from IE Singapore.

Another buoyant factor is the sharp decline in China's imports of mixed aromatics which has lost favor this year ahead of the implementation of a consumption tax from May 1. According to China import statistics available up to Q1 2018, imports fell 32.3% to 1.98 million mt, leaving a gap in the blending pool to be filled.

Meanwhile, supply of Asian MTBE may lengthen further in H2 with South Korea en-route to becoming net-exporters, disrupting typical trade flows.

Cargo sales from the startup of S-Oil's new 370,000 mt/year MTBE unit at Onsan is anticipated to begin in Q3. Besides meeting a greater portion of domestic demand, the plant will tip the country into net-exporter position and compete with major exporters in Southeast Asia and the Middle East for key traditional demand centers of Singapore and China.

However, expanding domestic Chinese supply will further dampen available outlets for cargoes. Start-ups in the pipeline for H2 include Sinochem Quanzhou's 200,000 mt unit in Fujian and Sinopec Yanshan Petrochemical's 100,000 mt unit in Hebei.

New supply and weak tdp margins impede toluene in early-Q3

New toluene plants coming online in China will further reduce an already declining toluene import volume, which has fallen 37% on the year in Q1. Jingbo Petrochemical's 120,000 mt/year unit in Shandong started production end-May, while Sinopec Luoyang Petrochemical's 100,000 mt/year plant in Henan is expected to come online in October.

This new supply will likely contribute to a softer early-Q3 and late-Q4 in the Asian toluene market as several scheduled maintenance of toluene units outside of China are expected in September and October, and will help support prices in those months.

Meanwhile, toluene disproportionation (TDP) unit margins have been on the decline since mid-March, with the benzene–toluene spread dipping below the $100/mt mark end-April and averaging an unprofitable $69.84/mt for the month of June.

“TDP economics are a cause for concern, especially for non-integrated producers,” a trader source said. This has pressured TDP operators to reduce operating rates, according to several market sources.

In addition, East China benzene inventories have remained persistently above the 200,000 mt level since March, and as market participants expect a drawdown to be possible earliest by July, a recovery in TDP margins is only feasible after that.

One silver lining to boost demand from the downstream chemical industry, however, is the startup of Wanhua Chemical's new 300,000 mt/year toluene diisocyanate (TDI) plant expected in Q3, market participants noted.

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PX fundamentals to stay largely stable ahead of Chinese refinery startups

- Revision in Chinese startup dates point to status quo for 2018
- Indian PTA market to remain largely balanced amid JBF woes

The paraxylene market appears to be set for a relative period of stability in the second half of the year in terms of supply and demand with the likely startup of the mega-refinery PX projects in China having been pushed to 2019.

So far, China has been net short of nearly 14.5 million mt of PX, according to Chinese customs data from 2017. If the largest of the refineries — Zhejiang Petrochemical's 400,000 b/d No. 1 plant and the Hengli Group's 400,000 b/d facility — start PX production in the first quarter of 2019, Chinese import requirements would be cut by more than half.

Given that both the new refineries’ PX output is still at least 4–5 months out, H2 is looking more stable with Saudi Arabia’s Rabigh Refining and Petrochemical Co. and Vietnam’s Nghi Son Refining and Petrochemical expected
to stabilize operations at their plants.

PetroRabigh has already nominated three vessels for H2 July- and August-delivery cargoes, after starting operations in June. The plant is expected to gradually ramp up PX production to 100% of its 1.34 million mt/year nameplate capacity in Q3.

The most significant of PX plant startups is one of the two 800,000 mt/year plants at Fuhaichuang’s, former Dragon Aromatics, facility.

The plant took delivery of two condensate cargoes in Q2 and is seeking a third parcel, but it is still no closer to a restart, company sources said. The earliest date for a restart is now set for late September, and sources are talking of the likelihood of a further delay.

The condensate cargoes are currently in storage, with the restart of the downstream 1.5 million mt/year No. 3 crude terephthalic acid line contingent on the startup of the PX plant, which, according to the company source, depends on the requisite safety checks being cleared following pipeline repair works that are still underway.

Nearly all these plants are a prelude to the mega-refineries due to start up next year. The Hengli Group has said that it intends to feed first crude cargo into its 400,000 b/d refinery in Q4.

While commercial PX production is still some way off, the company has said that it expects to have the feedstock for its three purified terephthalic acid lines of 2.2 million mt/year each at Dalian ready by Q1 2019.

**Restart of JBF PTA plant still uncertain**

Downstream, only Indorama Ventures’ 700,000 mt/year PTA plant at Sines, Portugal, formerly Artlant PTA, has managed to restart and is seeing stable operations since the third week of June. The effect on PX demand has, however, been “a blip, nothing more, considering the small size of the plant,” a producer said.

This leaves a question mark over the startup of India’s JBF Industries’ 1.25 million mt/year PTA plant at Mangalore due to financial issues. This makes the start of operations in Q1 2019 doubtful.

“Even though it took delivery of two PX cargoes for testing the capabilities of the plant last year, the plant has essentially remained idle since then. So very optimistically, if it solves its financial problems today, which it won’t, we’re still looking at a restart at least 3-4 months away,” a fellow PTA producer said. Attempts to contact JBF were unsuccessful.

The startup is of particular importance as it would draw PX feedstock from the neighboring ONGC Mangalore Petrochemicals Ltd. plant, which currently sells its PX on a semi-annual tender basis. It recently issued a new PX sell tender for Q4 2018 and Q1 2019.

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### Asia likely to see glut of isomer-MX by year-end

- **New PX plants could support MX demand**
- **Solvent-MX supply stays tight, demand sluggish**

The Asian isomer-grade mixed xylene market looks set to be oversupplied towards the end of the year as MX plants resume operations after maintenance and peak gasoline demand season comes to an end, market sources said.

Demand for gasoline in the Northern Hemisphere typically peaks in the summer and declines towards winter, affecting demand for gasoline blendstocks and solvents such as isomer-MX and solvent-MX.

New isomer-MX plants are expected to startup in the second half of the year in China and Japan, adding close to 800,000 mt/year of new capacity.

Furthermore, one of Northeast Asia’s largest buyers of isomer-MX, South Korea’s Lotte Chemical, will shut its paraxylene, orthoxylene and meta-xylene plants for more than a month from October, reducing its demand for feedstock isomer-MX. That will bring around 100,000 mt of additional MX into the market, sources said.

Market participants are also monitoring the impact of the restart of Fuhaichuang’s condensate splitter this year after being shut for three years. China’s Fuhaichuang, formerly known as Dragon Aromatics, could restart its 4 million mt/year condensate splitter in Fujian in the third quarter.

The company previously bought up to 300,000 mt/year of isomer-MX for PX and OX production, but it is not known how much MX it will need and whether it will buy only from the domestic market. Market sources said that the company had already bought some MX from a domestic supplier and had shown interest in imports.

**China’s new mega plants may boost isomer-MX demand**

The massive PX plants being built by some of China’s purified terephthalic acid producers are expected to startup in Q4 or early next year could also take some of the excess MX, market sources have said.

Zhejiang Petrochemical is building a new refinery, and will be able to produce 4 million mt/year of PX on Zhoushan Island. Further north in Dalian, Hengli Petrochemical is building a refinery with 4.5 million mt/year of PX...
production capacity. Both producers are aiming to startup their plants within Q4.

Once the new Chinese mega-plants are fully operational, however, China’s PX imports could fall, which might lead to reduced margins for producers in general, market sources said.

The question is which PX producers might shut their plants due to lower demand and poorer margins. This could in turn, affect demand for MX.

Looking at lower-purity solvent-MX, a Northeast Asian producer said that supply was likely to stay tight going forward due to high olefins margins, which may lead producers to choose lighter feedstocks for their crackers. This would lead to lower output of pygas, the feedstock for solvent-MX.

China’s demand for solvent-MX has also slowed down with increasing supply of domestically produced isomer-MX and toluene, which is frequently used for the same applications, sources said.

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Balance 10734.80

NEW ISOMER-MX PRODUCING UNITS STARTING H2 2018

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Source: S&P Global Platts