

Argus Olefins Outlook

Formerly Argus DeWitt Olefins Outlook

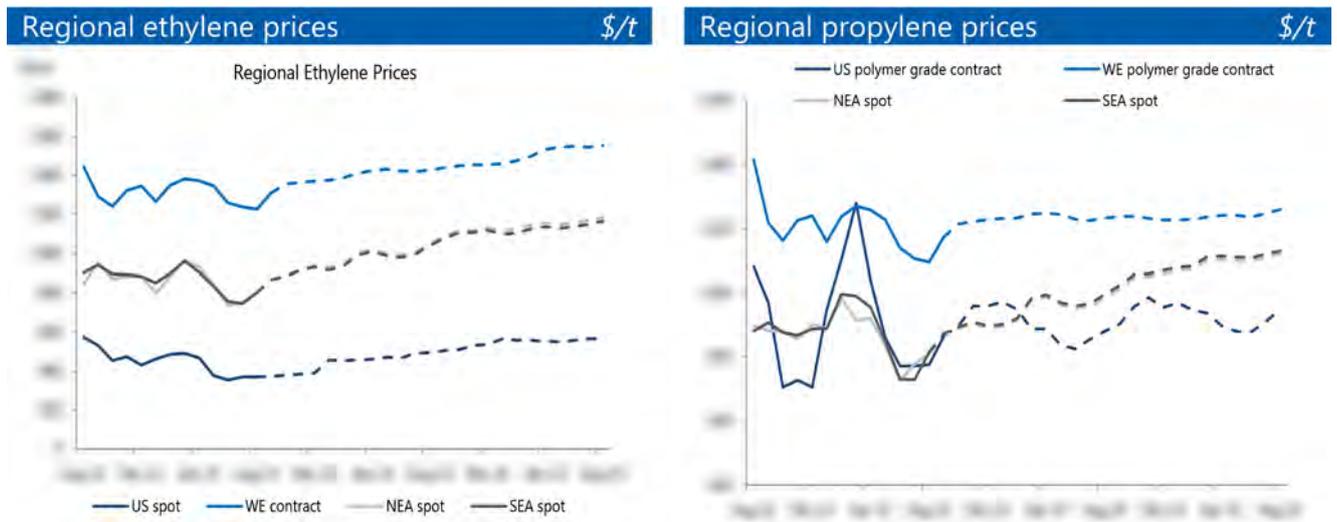
Ethylene

Producers need to find a balance between protecting steam cracker cash margins and stimulating demand. The anticipated ethylene demand recovery is now likely delayed until 2Q/3Q 2024. Production cost increase with higher crude and natural prices. North America ethylene producers continue to operate at rates higher than the global average. Weak fundamentals continue to exert pressure on Asia-Pacific ethylene prices.

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Propylene

New capacity additions coupled with reduced demand pressures margins. With new capacity ramping up in Q3 and economic headwinds expected to impact downstream markets in the near term, propylene supply should be ample to meet lower-than-expected demand. Increasing supplies from higher PDH operating rates and new start-up will further weigh on Asian propylene prices.



What's Changed

- Asia-Pacific olefins prices bottomed out on the back of rising feedstock naphtha values and downstream buying interest.
- Short term demand better than forecast in Europe, but market sentiment remains bearish.
- Producers in Europe take units off-line to manage low demand.
- Spot propylene dipped in July and remained weak amid tepid demand.

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Chemicals
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Price forecast

US																										
	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	
Contract ethylene US $\$/lb$	30.5																									
Contract ethylene $\$/t$	672																									
Spot ethylene US $\$/lb$	16.8																									
Spot ethylene US $\$/t$	369																									
Poly Gr contract propylene $\$/lb$	35.2																									
Poly Gr contract propylene $\$/t$	776																									
Poly Gr spot propylene $\$/lb$	32.7																									
Poly Gr spot propylene $\$/t$	720																									
Ref Gr propylene US $\$/lb$	10.5																									
Ref Gr propylene $\$/t$	231																									
HDPE IM fas Houston bagged $\$/lb$	40.3																									
HDPE Film fas Houston bagged $\$/lb$	42.0																									
LLDPE butene fas Houston bagged $\$/lb$	37.0																									
LDPE Liner fas Houston bagged $\$/lb$	41.0																									
PVC Pipe fas Houston bagged $\$/lb$	44.0																									
PP homo $\$/lb$	55.2																									

Europe																										
	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	
Contract ethylene $\$/t$	1,226																									
Contract ethylene $\$/t$	1,120																									
Poly Gr contract propylene $\$/t$	1,095																									
Poly Gr contract propylene $\$/t$	1,000																									
HDPE blow moulding $\$/t$	1,145																									
LLDPE $\$/t$	1,295																									
LDPE $\$/t$	1,395																									
PVC pipe $\$/t$	1,160																									
PP homo $\$/t$	1,255																									

Table does not give prices for periods currently in negotiation.

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Price forecast

Asia-Pacific																										
	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	
NEA spot ethylene \$/t	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
SEA spot ethylene \$/t	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
NEA spot propylene \$/t	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810
SEA spot propylene \$/t	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815
HDPE Film \$/t	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985	985
HDPE IM \$/t	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925
LLDPE \$/t	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955
LDPE \$/t	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965	965
PVC pipe \$/t	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825	825
PP raffia \$/t	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865

Market assumptions																										
	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	
Crude WTI \$/bl	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
North Sea Dated \$/bl	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
Dubai \$/bl	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
Natural gas Henry Hub \$/mmBtu	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	
Naphtha ARA \$/t	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629
Naphtha cfr Japan \$/t	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649
Exchange rate assumption \$/€	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	

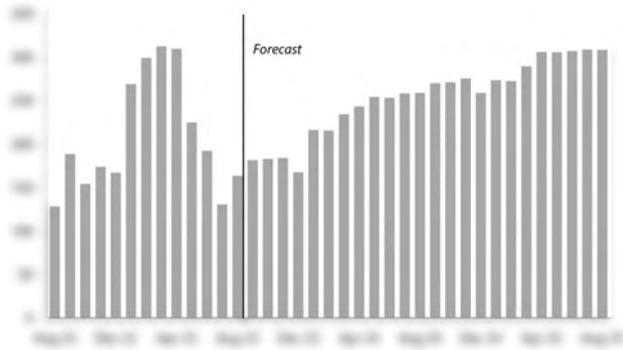
Table does not give prices for periods currently in negotiation.

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Ethylene feedstocks

US ethylene spread to ethane

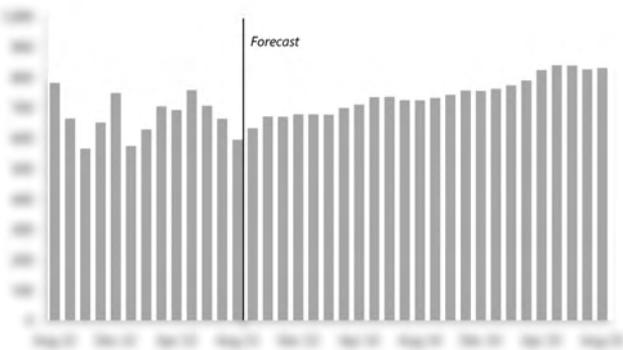
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Ethylene will follow its primary feedstock ethane until demand improves next year. The ethane to ethylene spread will average \$175/t for the remainder of 2023, before increasing to \$200/t in 2024 and \$230/t in 2025 as operating rate increases. US producers will enjoy even higher integrated margins as the region's cost advantage enables ethylene derivative exports into global markets.

Europe ethylene spread to naphtha

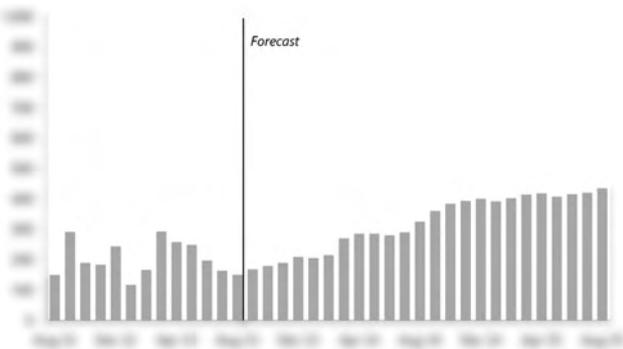
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Ethylene feedstock differentials were further eroded in July as feedstock costs rose and the August contract price settled at a rollover. They will remain below 2022 average through 2023 due to weak demand, poor operating rates and competitive derivative import pressure. The increase in feedstock cost will be challenging to pass through in the near term due to a lack of clarity over future demand, particularly to the derivative chain. Any further price pressure is most likely to result in more production rate reductions until the market stabilizes. A prolonged period of weakness is now anticipated while the economic outlook remains poor and regional import pressures persist, but low stock levels are likely to lead to periods of volatility.

Northeast Asia ethylene spread to naphtha

\$/t

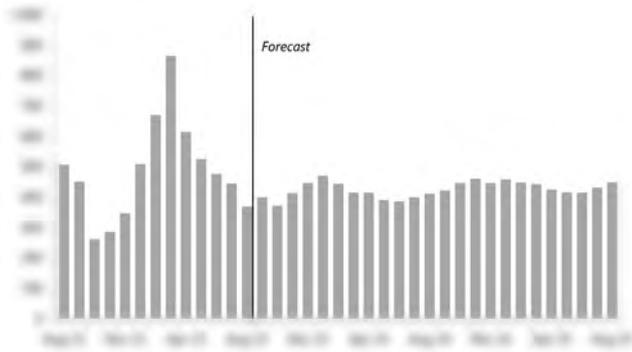


Ethylene values in mid August slightly improved with gains in crude and derivative markets. The average naphtha crackler margin dropped to -\$200/t in mid Aug from -\$170/t in June with higher naphtha feedstock costs. The ethylene spread to naphtha is forecasted to drop to around \$100/t in August from \$140/t in July, which is far lower than the breakeven of \$300-\$320/t. Near term price outlook continued to be bearish because ethylene supply is increasing and buying interest remains weak.

Propylene feedstocks

US propylene spread to propane

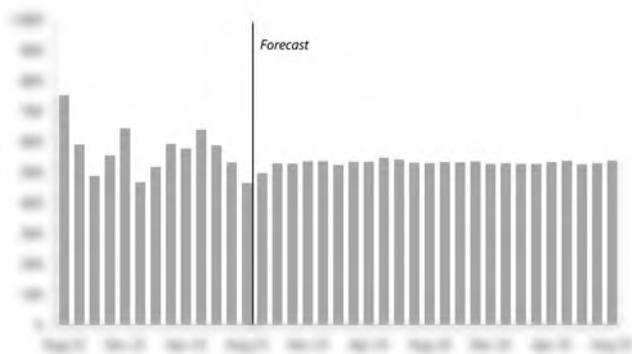
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The propylene propane spread generally peaks in August and this month's outlook is no exception. Propane is forecast to rise gradually with residential heating demand in late Q3 and into Q4 with the spread averaging 250.76 during the forecast period. The feedstock inventory spread will expand during inevitable PSM outages and maintenance activities over the forecast horizon.

Europe propylene spread to naphtha

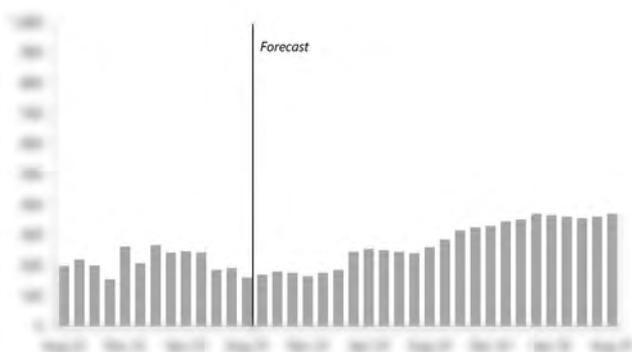
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The propylene balance is weak as a result of greater demand, derivative import pressure and the discretionary nature of the downstream demand. Balances remain tight and relatively high costs and global freight have restricted derivative exports. Higher near term upstream energy costs will be difficult to pass down the derivative chain. Producers will be reluctant to agree to substantial price reductions unless this can be seen to stimulate demand. Refinery production will continue to be a source of unwanted incremental tone and price pressure. A near term stand-off with buyers is likely with prices moving with feedstocks. Given the forecast growth in propylene and derivative capacity in Asia, we expect it to take some time for the propylene balance to tighten.

Northeast Asia propylene spread to naphtha

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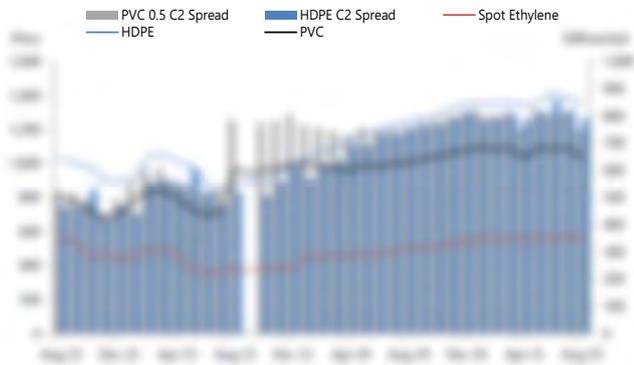
Propylene values in mid August improved on the back of downstream MFD demand. The average PSM margins dropped to \$102/t in mid August from \$104/t in July owing to one month high PSM operating rates. Propane based costlier margins dropped further reducing to \$105/t in mid August from \$107/t in July. Near term outlook is still weak because high PSM production, the addition of new capacities and slow demand all point to weaker fundamentals. The propylene spread to naphtha is forecasted to firm at low \$104/t in August.

Regional polymer spread

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US HDPE and PVC spread to C2

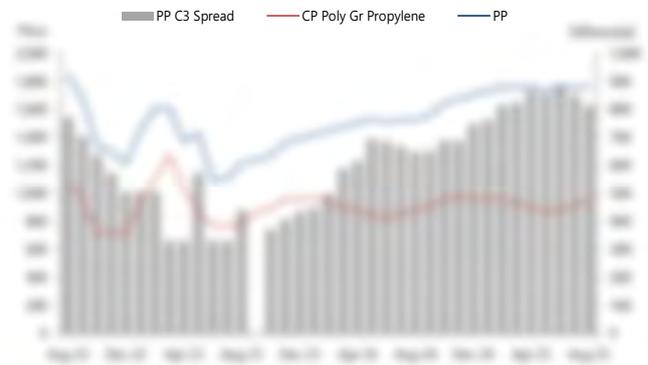
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Spot PE and PVC spreads relative to spot ethylene forecasts are expected to improve to over \$100/t by 2025 from an average low of \$100/t in 2023.

US polypropylene spread to propylene

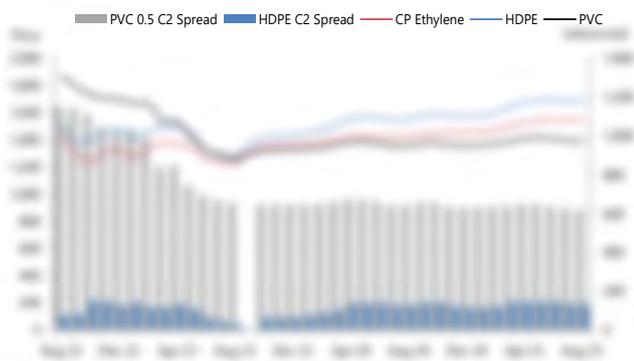
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US PP to propylene spread is expected to increase sharply during the forecast period as PP price increases outpace marginal gains in propylene.

Europe HDPE and PVC spread to ethylene

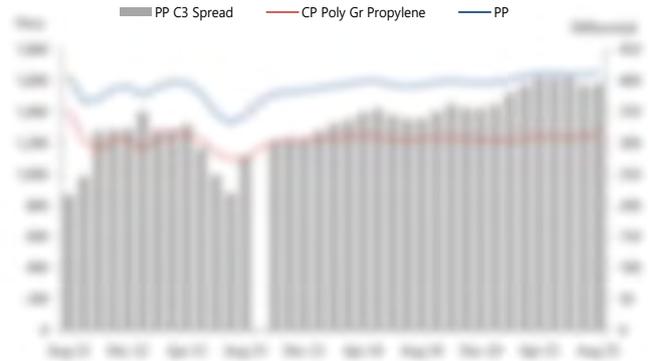
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PE differentials could only fall further if integrated margins moved upstream while weak demand persists.

Europe polypropylene spread to propylene

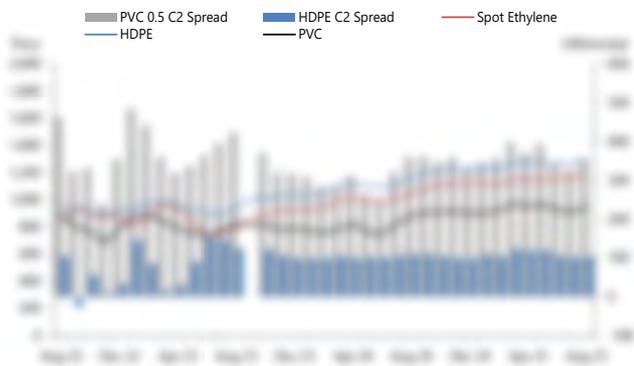
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PP differentials unlikely to fall further because of minimal integrated margin.

Northeast Asia HDPE and PVC spread to ethylene

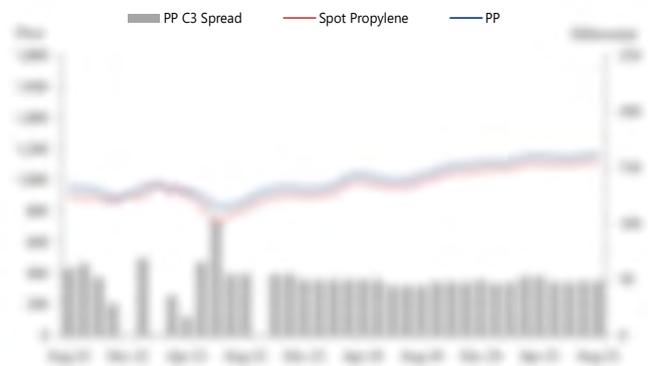
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The near-term polyethylene prices are expected to firm with rebounding crude and typical season, while new capacities and weak consumption will weigh on PE value.

Northeast Asia polypropylene spread to propylene

\$/t



Near-term polypropylene prices are expected to firm with typical peak season coming up, while expanding capacity and an overall weak economy will continue to exert pressure.

Key sensitivities

Global

The anticipated ethylene demand recovery is now likely delayed until 2Q/3Q 2024. Production cost increase with higher crude and natural prices. With new capacity ramping up in Q3 and economic headwinds expected to impact downstream markets in the near term, propylene supply should be ample to meet lower-than-expected demand.

Americas

North America ethylene producers continue to operate at rates higher than the global average

Europe

Inflation remains stubbornly high and consumer confidence low impeding any demand recovery. Low demand along with price and margin pressure will force producers to maintain low operating rates.

Asia-Pacific

Asia-Pacific crackers, MTO and PDH units will adjust run rates. Meanwhile, the arbitrage trade between the US and Asia remains on the radar. The recovery speed of China's domestic consumption and property industry continues to impact the market, as do emerging new crackers and PDHs across the region.

Global crude and feedstocks

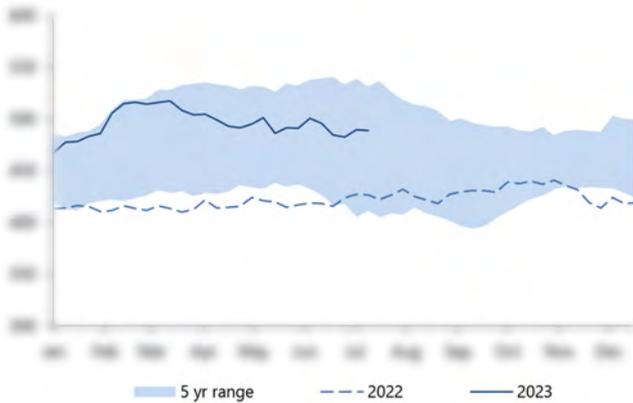
Crude and refined products outlook

- The crude market is finally responding to the Opec+ and Saudi Arabian production cuts, with North Sea Dated having risen by around \$10/bt in the last month.
- The increase was steeper than Argus had previously forecast, and so our forecasts have increased for the third quarter while keeping the profile beyond largely unchanged.
- Saudi Arabia will extend its unilateral 'voluntary' production cut into September, while also saying that its cut could also be 'extended or extended and deepened,' indicating that they are intent on achieving higher prices.
- Because of the Saudi cut, Argus see a stabilisation of \$70-\$75/bt in the third quarter.
- Another factor behind the higher prices is a lessening of macroeconomic concerns. With signs that inflation has peaked – and in most economies is falling – investors are returning to the market, building greater speculative net long positions in crude futures.
- Assuming the 'voluntary' Saudi cut is returned to the market, the Argus balance shows less tightness in the fourth quarter.
- While in the short term there is a forecast rise in prices, toward the end of the year and beyond Argus believe a sustained run-up in prices to be less likely. A contributing factor being a weaker than expected 2024 global economy, as interest rates will remain high to keep down inflation.
- Another factor is China's continuing disappointing Covid-19 recovery. Even though current oil demand appears strong, imports are heading into storage and refinery product stocks are rising with high utilization rates and restrictive demand.
- As a result of the current price rise, Russian fed crude values are now above the O7 net \$60/bt price cap, however there is still a \$10/bt discount from the O7 to North Sea Dated.
- The US programme to replenish its Strategic Petroleum Reserve has been dropped as WTI is trading above the \$67-\$70/bt range which the US were intending to buy at.
- Crude crack spreads strengthened in the four main hubs and are set to continue to rise in August. Cracks on the US Gulf coast and in northwest Europe hit one-year highs of \$25.00/bt and \$25.20/bt, respectively. Extreme heat in the US and southern Europe led to refinery runs being lowered for safety reasons, reducing supply.

Global crude and feedstocks

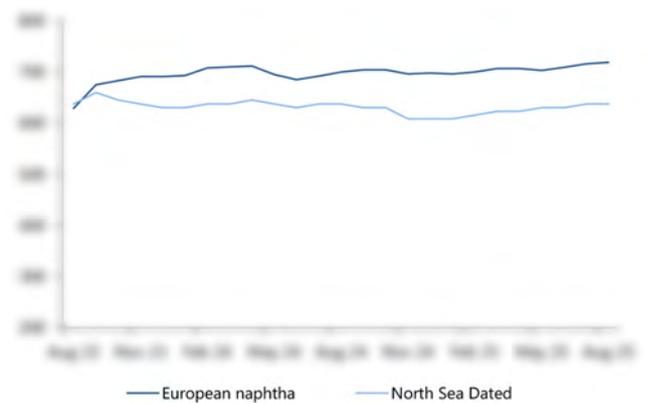
Weekly crude inventories — EIA

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Europe naphtha vs North Sea Dated

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- Naphtha cracks were lower in July across all major regions on continuing weak demand. A reformer outage at Marathon Petroleum's 100,000 bpd refinery has also reduced demand for heavy naphtha on the US Gulf coast.
- With blenders starting to produce lower octane gasoline for the winter, naphtha cracks are expected to have some support over the coming months.
- Exports from China rose by 21pc from June but were still down 4pc on May, according to Vortexa.
- Refining margins strengthened in all key refining regions in July as product cracks rose almost entirely across the board on tighter supply. This strength is expected to continue through August before receding in September.
- The US Gulf coast refining margin at WTI Houston saw the biggest increase, growing \$2.40/bbl in the month and is forecast to jump another \$4.00/bbl in August to \$14.30/bbl. Extreme heat in the region is forcing refiners to reduce rates due to safety concerns which could force restrictions in the coming weeks hence the higher margin in August.
- There have also been various outages across Europe that have supported refining margins in the region. Report was that a crude distillation unit at its 220,000 bpd Billerica refinery after a fire broke out.

LPG outlook

- LPG prices are forecast to remain weak in the near term. The propane API is expected to peak at 97pc of naphtha in November.
- LPG prices look like they will firm heading into the winter

- heating season. Butane prices have found significant support as gasoline blenders prepare for winter-specification gasoline.
- Europe is forecast to remain the most profitable feedstock for northwest European crackers for the next few months.
- Chinese propane dehydrogenation operations have increased, with many facilities returning online following maintenance closures. But falling margins suggest that this may not be sustainable.
- The Saudi contract price has been at a discount to the API netback for the last two months. This is potentially to win market share from the US, but it is not known how long the discounts will remain.
- Residential demand in the US and India has suffered because of warm weather and higher outright prices, respectively.
- Gas processing production in the US has grown, but at a slower pace than we previously forecast. Middle East supply has stepped up, with Iran increasing sanctions.

European natural gas outlook

- European inventories are 81pc full and are likely to reach 91pc by mid-October, increasing the buffer for winter 2023-24.
- Rising coal prices have elevated gas to coal switching levels, increasing the near-term gas discount to coal switching and narrowing the gas premium to coal for 2024.
- Proposed outages at LNG plants in Australia could disrupt deliveries to northwest Asia, which would prompt competi-

Global crude and feedstocks

Now with Europe for longer, stabilising prices

- The deflation of China's real estate bubble has resulted in a slowdown of cement demand - a significant contributor to industrial gas consumption.
- Caribbean importers have increased demand of LNG in the Americas, the region that is given converting to gas-fired electricity generation, and spurred on by a heatwave and lower prices imports rose to a monthly record high of nearly 400,000.

Macroeconomics

- The global growth rate for GDP in 2023 has risen to an anticipated 2.4% from the 1.5% growth envisaged in December 2022. Due to a stronger than expected performance from advanced economies in the first half of 2023.
- On the flip side, the 2.1% global growth for 2024 has been reduced to 1% as central banks are unlikely to enact any

monetary loosening until well into 2024 as they attempt to keep inflation in check.

- According to the EIA, US dry natural gas production will rise in 2024 to 104.1 Bcf/d from 103Bcf/d in 2023. Production is remaining strong in the Permian Basin thanks to higher oil prices and therefore increased drilling activity which will drive increased natural gas production.
- According to the EIA, US natural gas inventories will end the 2023 season 1% or 200 Bcf higher than the five-year average. Storage inventories are anticipated to remain above the five-year average for the entirety of 2024 as well as production remains high, and consumption will drop by 1% compared to 2023.
- As of 4 August, the total US rig count was 658, down from 764 during the same period in 2022, according to Baker Hughes.



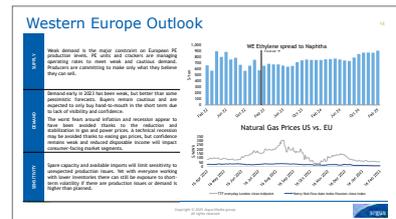
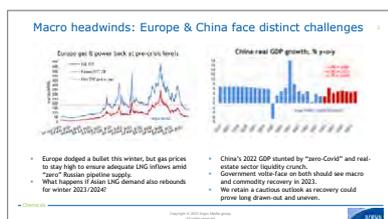
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Americas outlook

Near term

Cracker margins to remain under pressure over the next three to six months as natural gas (ethane) prices move higher. Natural gas prices are forecasted to reach \$3.74/mmBtu by January 2024. Despite slim cracker margins, integrated polyethylene producers will continue to maintain integrated margins in the \$200/t to \$300/t range.

Operating rates will likely be managed lower to control inventory as demand remains sluggish. Producers reported operating cracker asset at 85pc to 90pc during the 2Q and likely maintained this level of operation heading into the 3Q. July contract propylene price rolled at June's level of \$0.35/lb amid soft demand. US propane inventories were 37pc higher than year-ago levels in mid-August, despite strong export demand. Domestic propane prices increased only marginally in July amid subdued derivative demand, which negatively impacted PDH cash margins.

Long term

The global over supply of olefins and slower economic growth will restrict exports and therefore operating rates in the US despite the lower cost base. A better economic outlook is likely delayed until 2024. Improved demand in 2024 and 2025 should invigorate demand for ethylene and propylene and their derivatives. Propylene demand is expected to recover in North America during the latter half of 2024 and return to the long-run average growth rate of 2.5pc in 2025. However, we anticipate propylene spreads will continue to be pressured by global capacity additions and new derivative capacity. US polypropylene exports to South America continue to see more competition as Asia-Pacific and Middle Eastern producers seek more profitable outlets for their own production.

Ethylene

North American producers will retain their cost advantage versus other regions throughout the outlook, but ethylene price will follow benchmark prices higher starting in 2024 to maintain cracker margins. Producers and consumers will continue to closely monitor and use markets for signs of a demand pickup, as recent mixed economic data increases the risk that growth could be below expectations.

The peak of over-expansion of ethylene and derivative capacity in the US and globally has likely ended in 2023 but coincided with an economic slow-down and a fall in demand in the key Chinese market. Chinese demand has improved since the start of 2023 but there are plenty of challenges for the economy, which is a key import destination for North America ethylene and derivatives.

The price demand could ease through 2024 as global economic growth has been reined down to 2pc and most central banks are anticipated to maintain higher rates throughout 2024. For the US, it is particularly important how much global demand can be accessed, a factor that will be primarily driven by the spread between US natural gas prices

and middleweights, but importantly also on the confidence of buyers in other markets to expose themselves to the uncertainty of imports in terms of timing and relative price.

Propylene

Propylene prices have stabilized in Q2 in contrast to the volatility witnessed in 1H 2023. Prices for the remainder of this year will likely remain below the spike occurring in the first quarter of this year. On average, the 2024 price outlook is on-par with 2023 as seasonal demand is expected to drive pricing leaving any unforeseen supply issues related to PDH operations.

Polyethylene

July production in US and Canada was up 5.4pc with plants running on average at around 80pc of total capacity, according to preliminary data from the American Chemistry Council's Plastics Industry Producers' Statistics Group. Export sales remain strong, with US product competitive in most regions, despite slightly higher prices in August. Producers are believed to be selling significant quantities direct to Asia, but traders said there is still ample volume available for spot sales to other regions. For now, buyers in Latin America

Americas outlook

have been unwilling to accept the higher prices. With output slightly surpassing sales, producers added around 130m lb to inventories in July.

Demand has shown some signs of improvement as domestic buyers are replenishing stocks ahead of potential price increases in the coming months. Some producers have said their orders books for the month are strong with rigid packaging demand healthy, but flexible packaging demand reported down.

In addition, news of converter rationalization continues to be reported with Berry Plastics, Novel Rubbermaid, and Sealed Air announcing additional cost savings initiatives that include plant shutdowns, layoffs, and/or other cost cutting initiatives. Soft demand in the retail sector and changes in consumer buying behavior in food / meat packaging was cited as an example with no rebound expected until 2024.

Latin and Mexico markets are showing some improvement in demand with HDPE film cited as particularly strong. Supply of US material was ample but some delivery delays were noted in Houston due to packaging issues.

Polypropylene

Sales are also expected to be similar to June levels, with no signs of either major demand improvement or deterioration. Demand in August is similarly steady. Buyers are continuing to rethink, particularly with expectations that prices are at a bottom. But few converters have plans to build significant inventories, with participants throughout the chain content to run with lower inventories. US and Canada PP production is steady with no major production problems heard in the market, but with operators still running at reduced rates in an effort to balance supply with demand. Sources have speculated that new capacity that was set to come online by the end of the year or early in 2024 could be delayed given ongoing weak demand.

Mexican demand continues to improve with August slightly better than July. Brazil demand remains healthy with buyers increasingly looking to Asian material to fulfil their needs. On the supply side, producers in the US and Canada continue to support offers to Latin with confirmed sales to Brazil but Asian material remains the major source of supply.

PVC

Demand remains steady in the US by mid-August, with month-to-month growth shallow but present on an industry-wide level. Producers indicated that the market is in a better position for demand than the first quarter of 2023, but weaknesses remain in certain market sectors such as pipe. Production remains capable of matching domestic needs, with no word of disruptions at this time despite some lingering production issues throughout the industry. However, a series of turnarounds are coming throughout the third and fourth quarters. The need to build inventories for these maintenance at a time when industry supply levels are tight could leave export markets with less material in the interim even as some producer assets come back online.

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Europe outlook

Near term

Demand into August has been better than forecast but derivative price spreads will remain low. Low stocks through the supply chain coupled with expectations of feedstock driven price rises into September is driving a stronger order intake. But confidence remains low and many fear that strong summer demand will cannibalize September and October orders. Producers will balance maintaining low stocks against the need to balance the crackers operating rate and co-products. If demand does recover through the year, a squeeze on stock may lead to availability issues and a spike in pricing. At this stage however it is difficult to see the markets improve in the near-term with monomer pricing tied to or even below feedstock cost movements and a perceived cracker margin floor.

Long term

Global ethylene and propylene balances remain long due to excess new capacity and weak demand. Buyers will retain pricing power and seek to maintain low pricing. European producers will have a stronger cost position than in previous downturns, albeit with higher utility costs. Production rates will stay reduced to maintain a market balance. Longer term improvement should become evident toward the back end of this forecast.

Ethylene

European ethylene operating rates remain heavily reduced to match poor demand, maintain a balance across the co-products and with stock management still the focus throughout the value chain. High inflation and fears over energy costs have led to a collapse of consumer spending power and downstream demand. Price incentives are unlikely to stimulate any improved demand, keeping operating rates low to manage stocks.

Variation in the energy costs will be passed down the value chain and there will remain only a small degree of margin in the steam crackers leaving little margin to further support the weak polymers. If power and energy or feedstock costs were to rise there is limited scope for the producer to absorb these costs. Planned maintenance will offer limited support to European ethylene prices while anticipated closure of a unit in M&B in 2024 and restart of a unit in the UK following major project work, may create some challenges for domestic balances. Upstream feedstock cost movements coupled with a weak economic outlook are unlikely on their own, to improve demand through the value chain. Derivative margins and cracker operating rates will be lower as a result, but low stock levels are likely to lead to periods of better demand albeit short lived.

Propylene

The near term propylene market has stabilised but a long excess supply is being addressed by operating rate reductions, fueling and internal optimization but weak downstream demand and global capacity additions is the major driver of the weak balance. Spot discounts are well above net contract equivalents as refinery producers discount propylene to shift product before it impacts the refinery operations. Packaging and medical demand should be sustained but discretionary automotive spend and durables demand remain weak and fragile. Competitively priced derivative imports are evident in the market and exports continue to be restricted by high costs compared to other regions.

Buyers expect producers to lower the propylene cost relative to energy and relative to other regions, but this has little impact on improving demand or improve export competitiveness. Further reductions, above feedstock movement, will be challenging while ethylene and steam cracker margins remain weak. Rebalancing may be painful for all concerned and is likely to take most of this forecast period to commence. Propylene's relative net strength to ethylene needs to fall and can only return to the peaks of early 2022 if derivative exports regain their competitiveness. This seems unlikely in the medium term. Contractual discounts for

Europe outlook

propylene are considerably lower than for ethylene but have risen in 2023, especially for one-year contracts and will rise significantly more into 2024.

Polyethylene

European PE spreads remain under pressure from weak demand and competitive imports. Buyers of LD demand full cost transfer of price reductions but will resist ethylene cost increases even if supported by upstream energy. HD and LLD have been more balanced than LD and are thus more responsive to market changes and less aggressive on prices, but LLD is now coming under more price pressure. Spot prices have been aligned to close the arbitrage to other regions but demand although stable is lower than recent years. Demand is unlikely to improve in the second half of 2023 and we forecast that 2023/24 prices will move with or below ethylene. The strength in PE spreads will be dictated by demand but with confidence remaining weak, it is hard to see how margin improvements can be made until later in the forecast window. Today producers will only make to sell. Buyers will only buy to consume. Commodity HD margins are particularly weak, while LDFE needs to maintain a premium over the other grades to compensate for the higher production costs incurred.

Ultimately pressure on steam cracker margins will enforce a strong ethylene cost floor and producers will need to give up volumes, cut production and accede to increased imports to protect contract margins. Such imports, however, will only flow if polymer buyers have confidence over their downstream demand. This is unlikely to happen in the near term and may take until the end of the forecast period for any increase in confidence to be evident.

Polypropylene

The west European PP price spreads to propylene may have reached their minimum for now. Margins have fallen significantly over the past months with non-integrated PP margins only slightly better than commodity HDPE. While European PP pricing remains above other regions, import pressure will grow and local demand will remain muted. Cost floors have been reached with low operating rates the only option – particularly for non-integrated producers.

The economic outlook remains poor, with producers and buyers alike producing or an 'as needs' basis only. This policy

is likely to continue through to the end of 2023, if not longer. Propylene pricing moves in line with its upstream energy costs but will require improvements in the ethylene cost base before significant relative price reductions can be funded via steam cracker margins.

Demand may improve through the middle of 2024, especially if the energy threat recedes but, while margins may improve slightly, global over supply will continue to weigh on the market. PP pricing should strengthen relative to LDFE as the LDFE price declines disproportionately to PP. By late 2023 we would expect PP oversupply to begin to ease more of an impact and for relative pricing strength to move back towards LDFE. Whether producers will be able to capitalise on this improved position will depend on the prevailing supply/demand situation in the market. We expect this to improve toward the middle of the decade but may still be in the doldrums during 20 2024.

PVC

PVC price spreads to ethylene are coming under increased pressure from a combination of weak demand and low cost imports. Western Europe became a net importer of PVC in the first quarter a major shift from its traditional net exporter position. Reductions in upstream ethylene costs will flow straight through to the PVC customer but increases will be harder to pass through. Beyond this adjustment we will see a long term trend for spreads to fall, with pressure being exerted on European producers from low cost US, Egyptian, Middle Eastern and/or Chinese imports along with an increase in global capacity. Nevertheless, few producers can afford to allow prices to fall too far and may simply forgo volume to maintain economic margins.

Buyers have gained negotiating leverage as demand dropped in a weakening economic outlook but the spread over ethylene, although weakening, will still stay above the historic average supported by relatively high utility costs.

Higher inflation and a consequential slowdown in automotive and construction output will clearly be detrimental for PVC demand but, in contrast to the major demand collapse in 2020, PVC supply is in better balance and the general European housing market is not yet in crisis. Therefore, PVC margins should be more robust than for PE and PP through the current crisis.

Asia-Pacific outlook

Near term

Olefins prices remain under pressure in the near term because of weak demand recovery and worsening oversupply mainly from regional crackers/PDHs restarting and new capacities. The risk of further production cuts in downstream markets due to worsening margins may further curtail demand, while potential peak season starting from late August might lead support to market sentiment.

Long term

With the household consumer spending rebounds and property market bottoms out, olefins consumption is expected to grow steadily through 2024. That could help drive up demand across the whole region, despite inflation and currency depreciation. While negative cracker margins may continue into 2023 and late 2024 as supply growth continues to surpass demand. More old and small capacities are to be phased out amid competition.

Ethylene

Near term ethylene sentiment continued to improve, driven by the recent gains in feedstock and upgrades in most derivative markets, while concerns about the sustainability of the strength in derivative markets curtailed price upside. The overall weak consumption demand will continue to weigh on ethylene values. Regional ethylene will keep oversupply through the third quarter with lower production loss compared with the second quarter. Northeast Asian crackers have mostly maintained stable cracker run rates these days despite eroding cracker margins or higher naphtha. Some of them raised downstream plant operating rates following the recent upward in derivative markets, in a way to reduce merchant monomer supplies and maximize overall economy influx for August-September shipments, expected to be still outstripping demand with wider US Asia arbitrage.

Concerns remain about the medium term fundamentals. Regional supply will continue to be ample as cracker turn-around schedules are lighter in 2H 2023. China's Sinopec Beilong is going to start up a new 300,000 tpy CTO and a new 300,000 tpy offgas-fed cracker in the third quarter, and new Tianjin Nanqiang is looking to start up its 1.2m tpy naphtha-fed mega cracker in the fourth quarter of the year, the fourth new mega cracker added in China in 2023. China's economy may not be able to reach the level seen before Covid amid property market crisis, weak global macroeconomic environment with high inflation, and potential global recession. Naphtha cracker margins are expected to remain negative through 2023 due to a firm feedstock price outlook, rapid capacity expansions and prudent economic growth forecast for China.

The region's capacity growth continues to surpass demand growth as China continues to build new cracker complexes over 2024-26. It will eventually force rationalization or operating rate reduction amongst less competitive crackers and transform ethylene derivative units to maintain balance.

Propylene

Near term propylene market was undergoing a bullish sentiment amid recovery in PP demand, while high downstream PP inventory is currently weighing on the prices. Extreme typhoon weather might result in a temporary tight supply in northeast Asia. But more supplies are emerging. Chinese PDM plants are running at high rates of 80%. Upstream re-starting capacities and new PDM plants startup in the coming few months cast gloomy outlook which in turn will weigh on propylene prices. On a contrary sentiment in southeast Asia would be better with more demand for PP consumption and tighter supplies compared with northeast Asia as the region's crackers have been running at normal rates owing to margin concerns.

The medium term outlook is mixed amid expanding capacity and a gradual recovery of China demand. Incremental PDM and cracker capacities will exert downward pressures on propylene prices and operating rate. Meanwhile, propylene margins are anticipated to weaken against ethylene counterparts with massive expansion of on-purpose PDM capacities in China and an oversupply of downstream markets particularly in PP sector across the region.

Propylene may expect a longer period of downward cycle than ethylene because of the greater oversupply. The same is

investment of cracker projects and PDI particularly in China during 2023-24, driven by achieving carbon neutral and self-sufficiency regardless of market fundamental, will bring about low overall operating rates and weak margins among Asian propylene plants for an extended period likely through 2025-26.

Polyethylene

The near-term polyethylene market is expected to firm with rebounding crude and futures despite of gloomy consumption recovery in summer. Participants are expecting the consumption to improve in late August and early September with upcoming traditional peak season. In China, PE value went on an upward momentum attributed to high production losses and rising cost, while the export arbitrage was narrowing with increasing prices and weak consumption recovery. Supply in Southeast Asia was also tight due to production losses, and peak manufacturing season for finished goods in August-October drove up buying activities for PE. In South Asia, market sentiment improved with the belief of PE prices temporarily bottoming out. Downstream sectors consumption was high for finished goods used in celebration for Diwali in November.

In medium term, the expanding PE supplies continue to outweigh regional demand. Low PE prices have eroded producers' margins and prompt them to consider further production cuts and shut for maintenance. However, Asia capacity is still expanding despite price margins. Shandong Inhe's 400,000 tpy HDPE achieved smooth operations in April. New production capacity of 400,000 tpy from Ningbo is expected to start up in Q3, and another 1.05m tpy of new PE capacity is scheduled to start up in late 2023. Indian oilrefiner Hindustan Petroleum-Mittal Energy started its 800,000 tpy LLDPE/HDPE using plant in July and is expected to start its 400,000 tpy HDPE in the third quarter.

In the long term, solid economic recovery across the region will help boost regional demand and rebalance supply-demand fundamental as negative margin and high feedstock cost cannot sustain production all the time.

Polypropylene

PP outlook is expected to firm with rebounding crude and futures while the overall fundamental keep gloomy with over-supply and weak consumption. In China, domestic consump-

tion is steady. There would be some planned turnarounds in the coming weeks while increased run rates at PDI plants weighed on the PP sentiment. The export arbitrage opened with improved buying interest from overseas. Sentiment in Southeast Asia is bullish with increasing buying interest and export demand. Peak manufacturing season for finished goods in August-October could raise the regional PP prices. While expectation on new capacity start-up still weigh on the market. In India, downstream consumption remained firm for finished goods used in celebration for Diwali in November.

In the medium term, expanding capacity will continue to exert pressure on PP margins. PetroChina Guangdong has achieved successful trial runs at its new 300,000 tpy PP unit, new capacities including Vietnam's Long Son Petrochem's 400,000 tpy PP unit in September, Nippon Energy's 400,000 tpy PP plant at the end of the year and more than 3m tpy PP capacity expansion in China will further lengthen supply availability.

Sustainable negative margin will be forcing producers to consider to either reduce operating rates or delay the start-up of new PP units to balance the market. Global inflation, weak currency, and cautious consumption behavior further dampen market sentiment, while expectation on regional economic recovery supports the long-term recovery of PP downstream demand.

PVC

The Asian PVC price bottomed out with bullish crude sentiment in early August. Although Chinese converters purchased on an as-needed basis as domestic downstream demand remained moderate, the export market tended to be active, but the arbitrage window for ethylene-based PVC out of China slightly narrowed as prices rose significantly in India. PVC retreating activity remains firm among local converters despite monsoon season starting in June, taking advantage of current low price.

In long term, expanding supply might exert further pressure on PVC value, while the expectation of fully recovering supports the long-term recovery of construction industry. Wanhua Chemical has started up its new 400,000 tpy PVC plant in early April. China is expecting another 300,000 tpy new PVC plant late this year invested by Ningbo Zhenyong. Indian Refineries Industries will build a new 1.0m tpy plant, slated to begin production in 2026.



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26-28 September 2023
Ballroom A, Marriott Vienna

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Dan Barnard



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Registered office

Lacon House, 84 Theobald's Road, London, WC1X 8NL
Tel: +44 20 7780 4200

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Publisher

Adrian Binks

Chief operating officer

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Chief commercial officer

Jo Loudiadis

President, Expansion Sectors

Christopher Flook

SVP Consulting Services

Lloyd Thomas

SVP Petrochemicals

Chuck Venezia

Senior Analyst

Sarah Rae
Tel: + 44 12 8376 0787
ethylene@argusmedia.com

Customer support and sales:

support@argusmedia.com
sales@argusmedia.com

London, Tel: +44 20 7780 4200

Houston, Tel: +1 713 968 0000

Singapore, Tel: +65 6496 9966

