

Mind the gap

Widening spot discounts to contract prices prompt rethink

Petrochemicals special report

March 2020



BUYERS RETHINK CONTRACT PRICING AS SPOT-TO-CONTRACT DISCOUNTS WIDEN

2019 was a bearish year for the petrochemicals industry. With weaker-than-expected demand, additional global capacity coming online and shifting trade flows, global petrochemical prices have been under downward pressure. Nowhere was this more noticeable than in the spot market, prompting some market participants to rethink traditional contractual arrangements as contract price movements fail to keep pace with spot.

Spot prices generally react to supply and demand dynamics more quickly than contract prices, which have traditionally had a greater link to feedstock costs and are seen as less volatile.

However, the imbalance seen in supply and demand fundamentals across 2019 led to a widening of spot discounts to contract prices in many petrochemical markets, leading buyers to reevaluate purchasing habits.

Major petrochemicals markets rely on long-term contracts, with consumers and producers typically negotiating volumes and pricing mechanisms on an annual or multi-annual basis. In many markets contract volumes price against an industry contract price settled on a monthly or quarterly basis, usually at a pre-agreed discount to the industry mechanism.

In 2019, spot prices in several European markets, including styrene, methanol, propylene and mono-ethylene glycol, fell below monthly or quarterly contract prices after discounts.

In the case of methanol, FOB Rotterdam spot prices were trading on average at around 30% below the quarterly contract price during the third quarter of 2019, according to S&P Global Platts data, compared with typical discount levels of 22-24% negotiated in 2019 contracts. Negotiations had focused on a busier-than-usual planned turnaround schedule, but expected supply tightness did not materialize and consumers were left paying a premium for volumes indexed to the quarterly contract price.

The low spot price environment was a feature of most petrochemical markets in 2019. Platts Petrochemical Index, which calculates the spot price average of seven widely used petrochemicals¹, hit a near four-year low of \$750/mt in December, falling from multi-year highs in 2018.

With this significant decline accentuating the widening gap between spot and contract pricing, participants in a number of markets entered 2020 reviewing their business

model, either reducing contractual offtake in favor of spot volumes or renegotiating pricing formulas in contracts to incorporate spot-based indexation. Styrene and glycols exemplify this trend, while other markets such as methanol and certain olefins remain divided on whether to increase spot exposure.

—Lara Berton, Anna Crowley, Luke Milner

STYRENE CONTRACT NEGOTIATIONS STRAINED AS SPOT/CONTRACT PRICES DISCONNECT

A rise in European styrene imports and weak demand weighed on the European spot market in 2019, resulting in a growing disconnect between the spot and the industry-settled contract price. In response, buyers are said to have pushed for amendments to contract formulas to reflect more spot pricing elements.

Styrene contract volumes are typically negotiated annually, with pricing determined monthly through the industry contract price (CP) mechanism, usually at a pre-agreed discount expressed as the CP minus a fixed percentage. Participants look to the relationship between spot and contract prices throughout the year as a measure of relevance for these contractually agreed discounts.

In 2017, 2018 and 2019, spot styrene prices averaged around 12%, 14% and 17% below contract settlement prices respectively, whereas the 2020 average between January and February stood at 25%, Platts data shows. Negotiated contract discounts were said to be in a 12%-15% range in 2019, with buyers heard to be seeking wider discounts in 2020.

The current push for greater discounts is a function of a variety of factors. First, the European styrene market has been largely bearish since the second quarter of 2019, following an influx of US imports, as market participants sought to bolster inventory levels amid a spate of European maintenance. At the same time, polystyrene demand has tapered off with market participants relying on material purchased at the end of 2019. Furthermore, regional acrylonitrile-butadiene-styrene (ABS) demand has been sapped by weak end-user consumption, particularly from the automotive sector, as well as competitively priced imports from Asia.

From December to January, the regional styrene contract price rose Eur64/mt, driven by stronger benzene feedstock pricing, though sources in the styrene market argued that the increase did not reflect the relatively weak, oversupplied market. With benzene strong and styrene fundamentals unfavorable, the European spot styrene-benzene spread fell to \$33/mt on January 13, its lowest level since July 2012 and well below the breakeven level estimated at \$250/mt by industry participants.

¹The Platts Global Petrochemical Index (PGPI) is calculated based on individual global product indexes with the following weight distribution: 0.32 ethylene, 0.24 propylene, 0.11 benzene, 0.05 toluene, 0.10 paraxylene, 0.05 LDPE and 0.14 polypropylene.

Increased self-sufficiency in China has also hit global demand and pressured spot pricing in Europe. New capacity in China is expected to reduce the country's reliance on imports and ultimately curtail demand for European styrene cargoes.

US formulas under scrutiny amid spot softening

Similarly in the US, a significant differential between spot and contract styrene pricing during 2019 has put pressure on formula-based pricing. Formula-based buyers took losses in 2019 with average spot styrene prices discounted to the contract formula from May through December.

The US styrene contract formula includes components for production costs, spot average and natural gas, as well as an adder, which in 2019 was at \$176/mt or 8 cents. US spot styrene prices began to move lower in the second quarter of 2019 amid improved supply and diminished demand with an ongoing trade dispute between the US and China weighing heavily on styrene derivatives.

By September, average spot US styrene prices had fallen to \$869/mt and the spot average was discounted to formula-based pricing by \$71.53/mt, Platts data showed. To put this number into perspective, a 5,000 mt parcel of styrene in September would cost the buyer roughly \$4.345 million, using the monthly spot average. That same parcel for formula-based buyers would cost nearly \$4.703 million, meaning that formula-based buyers overpaid by roughly more than \$357,000 per 5,000 mt parcel. These dynamics persisted throughout the remainder of the year though the formula-based premium slipped to just under \$48/mt in December, Platts data showed.

With formula-based buyers paying a premium during the second half of 2019, buyers sought lower adders to the formula in 2020. Sources have said that adders ranged from 4-6 cents (\$88-\$132) for 2020 although multiple sources have noted that it would be difficult to get 6 cents in the current environment. In the near term, it appeared this dynamic was unlikely to change as spot styrene prices in

the US remained soft with pricing averaging near \$785/mt for the first 20 days of February.

This comes at a time when a major US producer is down for planned maintenance from the second half of January through March while a second US producer is slated to undergo planned works in March. Further pressure was expected from new Asian styrene capacities with the start-up of Zhejiang's 1.2 million mt/year unit and Hengli's new 720,000 mt/year styrene plant. This, coupled with previously implemented anti-dumping duties from China as well as the recent coronavirus outbreak, has dampened sentiment and is expected to keep the styrene market depressed in 2020, sources have said.

Asia contract volumes stable in 2020

Despite China's new supply coming online in 2020, total contract volumes in Asia were relatively stable on the year, according to market sources.

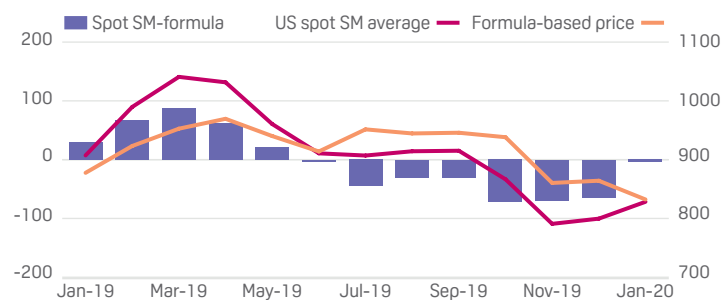
China, the major importer in Asia, imported around 3.2 million mt of styrene in 2019, approximately 2% from the US and 4.5% from Europe, while its styrene demand stands at more than 10 million mt/year.

Since late 2019 and into early 2020, the market has seen a closed arbitrage from Europe to Asia due to weakness in Asian styrene and increased freight costs. Firmness in benzene has also held back Asian buyers from signing contracts with US producers based on any cost-linked formulas. With the expectation of fewer deep-sea cargoes available in the Asian market, Asian producers gained some bargaining power in the course of contract negotiations.

One of the major South Korean producers has increased both the prices and volumes for 2020 contracts. However, producers in other Asian regions faced supply competition, with the Middle East remaining the main source of Asia's styrene imports, and some have opted to concede discounts to buyers. The pricing gap between cargoes subject to anti-dumping duties (ADD) and other non-ADD cargoes was thus narrowed in contract conclusion.

—Kevin Allen, Sophia Yao, Olu Shaw

WEAKER SPOT PRICING IN 2019 (\$/mt)



*The styrene formula has one component which considers styrene production costs using contract benzene and ethylene pricing, a natural gas component to account for utilities and an adder of \$176/mt. The second component includes the average spot styrene price. The final number is a summation of 50% of each these components.

Source: S&P Global Platts

METHANOL SPOT APPETITE GROWS, CONTRACT PRICING STILL DOMINATES EUROPE AND US MARKETS

Methanol consumers have also started looking at the spot market, notably in Europe. During the second half of 2019, the price differential between the FOB Rotterdam spot methanol price and the European industry-settled contract price widened beyond typical discount levels for 2019 contracts of 22-24%. As shown in the graph, between July and August 2019, European spot prices were at a 30% discount or higher to the quarterly contract price and averaged 25% below contract prices in 2019, according

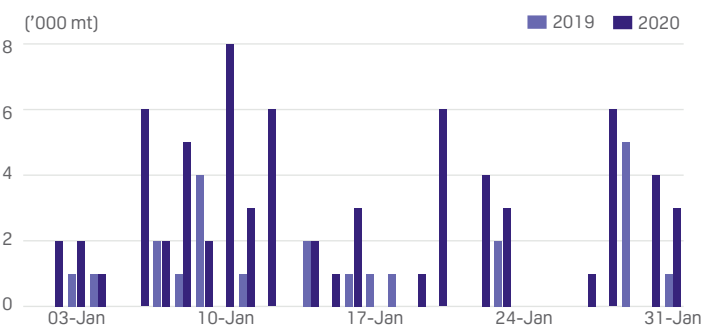
EUROPEAN METHANOL SPOT TO CONTRACT DIFFERENTIAL WIDENS IN 2019 ON LONG SUPPLY



*Calculation includes S&P Global Platts daily FOB Rotterdam spot methanol price and European industry-settled quarterly contract price.

Source: S&P Global Platts

EUROPEAN METHANOL TRADED SPOT VOLUMES INCREASE IN JANUARY 2020



Source: S&P Global Platts

to Platts data. Bearish fundamentals included weaker downstream demand due to slower economic growth and additional methanol capacity coming online in other regions, with Europe becoming the lowest priced region in October. This has led to a reduction of contractual intake in 2020, as buyers are hoping to buy cheaper spot volumes, if underlying demand improves, several sources said.

“It is also due to flexibility...consumers can play this by having different purchase contracts in place,” a source said, adding that several customers are more exposed to spot buying this year. At least 70,000 mt were sold in the spot market in January 2020, which was above levels seen a year ago, sources said.

Despite the uptick in spot activity, several sources said consumers still prefer to stick to contractual agreements as negotiated discounts have widened this year to range from 24% to above 25% in some cases, making net contractual prices more attractive than spot. European spot prices averaged Eur238.50/mt in January and February, 13% below the Q1 quarterly contract price of Eur270/mt.

Sources have attributed the surge in spot trading in early 2020 to favorable arbitrage economics between Europe and the US, with several vessels heard fixed out of Rotterdam. However, market participants believe that when US production improves and the arbitrage is shut, spot activity is likely to slow down in Europe.

China, US methanol contract agreements unchanged

In the US domestic market, contract pricing structures still appeal more to methanol consumers, looking to minimize pricing fluctuations and lock in a relatively predictable price month to month.

Despite recent and upcoming increasing methanol capacity in the US, spot prices in the US have retained their strength, remaining the highest-priced region amid turnarounds.

Between January 1 and February 25, the FOB USG spot price averaged around \$314/mt, up \$52/mt from the December average.

Throughout 2019, monthly contract values maintained a relatively stable premium to average monthly spot prices. In H1 2019, contract values averaged \$97.20/mt over spot values, and in H2 2019 they averaged \$89.90/mt over monthly average spot values.

Meanwhile in China, while the portion of spot activity done on a yearly basis is above European and US levels, 2020 has seen no change in buying pattern. Chinese methanol buyers have agreed 80% of their 2020 volumes on term contracts, with 20% bought from the spot market, unchanged on the year. Chinese methanol contracts are typically indexed to spot prices.

New Iranian methanol capacities — Bushehr Petrochemical Company’s 1.65 million mt/year and Middle East Kimiaye Pars Company’s methanol plant of the same capacity starting up this year — held out the promise that Chinese buyers would allocate more purchases to spot in 2020, but this was in the end conjecture. Some buyers even increased the proportion of their term cargoes to 90% from 80%, which turned out to be very prescient with a series of unplanned plant outages in Asia, Iran and the Middle East in January tightening supply across Asia. Others in China opted to buy more term cargoes to sell into the domestic market where margins are healthier, trade sources said. China is expected to import less than 10 million mt of methanol in 2020, like it did last year, as the coronavirus epidemic has dampened economic growth in the country.

—Lara Berton, Esther Ng, Mary Hogan

EUROPEAN OLEFINS CONTRACTS CHALLENGED BY CHEAPER SPOT

In the European olefins markets, the trend toward a reduction in contract volumes has also been present following a somewhat challenging 2019.

Downstream demand was relatively weak during 2019 with many expecting this to continue during 2020. As a result, both producers and consumers agreed that buyers were generally over-contracted during 2019 and that a trend

moving toward reduced contract volumes would be present during 2020.

Several butadiene consumers told Platts they would be reducing contract volumes during 2020 where possible as a result of challenging downstream conditions. Similarly, propylene traders said contractual intake by several chemical grade consumers was reduced for 2020 due to a weak automotive industry.

In recent years, contract volumes have typically accounted for some 90-95% of butadiene and propylene traded in Europe.

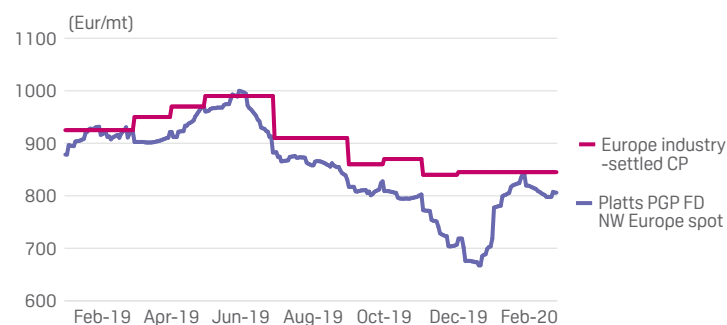
According to several propylene traders, some buyers have reduced their contractual volumes to 80% for 2020.

In 2019, polymer and chemical grade propylene spot discounts to contract prices widened to as much as 20% and 40% toward the end of the year respectively. Several buyers said they were unable to take advantage of attractive spot prices due to high stocks in 2019, but were considering increasing their exposure this year.

So far, spot activity in propylene has been thin in 2020, with weak underlying demand offsetting tighter supply stemming from reduced cracker run rates and a lack of imports.

“If market conditions improve I will buy in the spot market,” a chemical grade propylene consumer said.

EUROPEAN SPOT POLYMER GRADE PROPYLENE DISCOUNTS TO CONTRACT WIDEN IN H2 2019



Source: S&P Global Platts

Mixed views on trends in butadiene

In butadiene, some producers noted the flexibility buyers typically have in comparison with other olefins markets, with a larger range of spot volumes typically available to purchase.

“The nominations are on the lower end of the spectrum of the buying bandwidth. Unlike propylene, butadiene buyers like to have much more room to maneuver in terms of volumes,” a producer said.

Another trend heard in the market was an increasing push from producers toward multi-year contracts in order to secure consumers for longer periods. Buyers noted that

producers were typically interested in securing two-to-three year contracts with them.

“[Our] butadiene contracts are multi-year contracts, so buyers cannot quickly move the percentage they purchase on contract vs. spot,” a producer said.

Some consumers expressed concerns that a reduction in contract volumes would leave buyers in a weaker position to negotiate discounts to the contract price. “Buyers are able to negotiate better discounts when offering to take more material from producers, which is not the case this [coming] year,” one consumer said.

—[Callum Colford, Lara Berton](#)

ETHYLENE DERIVATIVES BUYERS PUSH FOR GREATER SPOT EXPOSURE

In the European ethylene supply chain, import competition from cheaper US derivatives has widened the disconnect between contract and spot prices, with contract pricing primarily reflecting the domestic feedstock slate and spot incorporating length in global markets.

At a time of falling global demand amid economic slowdown and the more recent coronavirus outbreak, cheaper US product flow into Europe has exposed high cost, naphtha-based European supply priced against the monthly ethylene contract price mechanism contrasting with weaker global spot price fundamentals. Nowhere has this been more dramatically felt than in the market for ethylene glycols, where the demand for US-produced mono-ethylene glycol imports has resulted in the collapse of European spot prices.

High European feedstock prices have fed through to the domestic MEG contract price while the MEG spot market has taken direction from pricing and supply availability beyond Europe. European ethylene contracts began 2020 above Eur900/mt, settling at Eur970/mt FD NWE in January — more than Eur300/mt above the MEG January contract price of Eur625/mt FD NWE. The MEG contract price was in turn commanding a premium of more than Eur125/mt, or 25%, over spot prices at the start of the year, with the FD NWE spot market averaging Eur495/mt for January and the CIF NWE spot barge market also pricing below Eur500/mt CIF NWE, having fallen from spot levels above Eur700/mt at the start of 2019, according to Platts data, continuing a trend of widening contract premiums to spot. The average MEG gross contract premium over FCA spot trucks amounted to Eur128/mt in 2019, up from Eur122/mt in 2018 and Eur106/mt in 2017. Trucks are the usual method for distributing the excess supply from European producers who sell into the spot market.

The widening spread has seen some participants increase their exposure to spot volumes. Buyers have reduced their

overall contractual commitments for 2020 to as low as 30% in some cases, according to sources, with the bulk now sought from the spot market. Until 2019 contractual volumes accounted for approximately 90% of all trade.

“[One buyer now] buys the majority on spot. If [they buy] 120,000 mt/year of MEG, whereas [up until last year they bought] 90%, they now buy 30%. [Another consumer that buys] 150 mt/year, they now only have one contract in place. We are still awaiting to hear from them about a [second contract] for this year. They will buy significantly more volumes on the spot market,” a producer said in January.

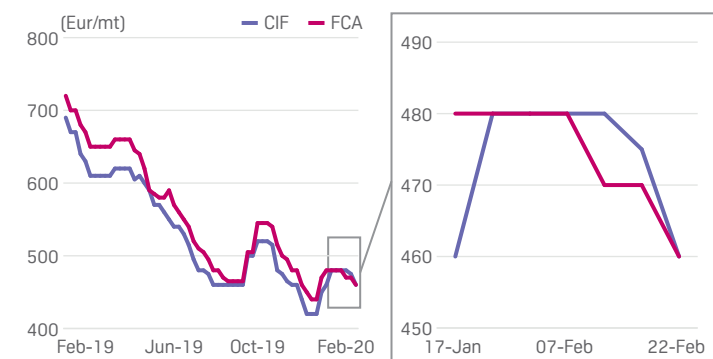
“Consumers of MEG are relying [more] on the spot market. Most customers have less contracts in place, and in some cases they are still waiting to negotiate contracts. One customer has fixed one contract and we are willing to discuss the other term. 50 kt [has been] contracted and the other 50 kt they are trying to negotiate. Another 50 kt is on the spot market. Big end-users of MEG are relying on the spot market more than they did in 2017-2019.”

“They want the bigger parcel. [They] wouldn’t want to commit on contracts but they wanted a bigger portion of spot, to commit more...and to take advantage of falling [global prices], which they have. That’s what we have — the result of the oversupply from the US,” an MEG trader said in February.

Increased interest in spot volumes since the start of the year, compounded by late settlement of 2020 contracts, has strained logistics systems set up to handle much smaller volumes. In a rare market occurrence brought about by the greater demand for spot barges, the CIF-FCA spot price relationship inverted, with domestic FCA trucks trading below imported CIF barges in February.

“The output increased so remarkably but the [US] terminals did not grow with [it]...They have not been able to handle it. That has been driving freight rates up crazily. It was [around] \$50/mt last year and now it is up to \$100/mt so demand has exploded — [this being] the consequence of that increased export demand,” the trader said.

EUROPE MEG BARGE-TRUCK SPREAD INVERTS



Source: S&P Global Platts

However, sources expect logistics systems to adjust eventually as they bed in to the new additional spot demand.

Platts assessed MEG FCA truck and CIF NWE barge spot prices at Eur470/mt and Eur480/mt, respectively on February 14, the first time the truck-barge premium has flipped to a discount since April 2013.

With spot prices below Eur500/mt in Europe despite higher barge demand, similarly steep spot market declines in the US and Asia, and contractual volumes significantly lower year on year, indexation for remaining contracts may tilt increasingly toward spot. While most European contract formulas price against a combination of the industry-settled monthly contract price and Asia spot, one glycols trader told Platts during 2020 negotiations that some contracts had been agreed on a spot-only basis. The same source said some market participants had stepped away from indexation based on the monthly contract price due to repeated late monthly contract price settlements. The MEG monthly contract price regularly settles after delivery, according to industry sources, with the February 2020 contract price only confirmed settled in early March.

—[Miguel Cambeiro, Kristen Hays](#)

ASIA TURNS TO PAPER MARKETS AMID GROWING NEED FOR HEDGING TOOLS

As an independent price reporting agency, S&P Global Platts welcomes the role it plays in providing data and information services to the market, increasing transparency across the existing suite of petrochemical futures offerings.

In comparison to the European and Americas markets, there is greater liquidity in Asian spot petrochemicals markets which is further supported by vibrant paper markets that provide hedging environments for traders and producers both upstream and downstream.

Within Asia, Benzene FOB Korea, Paraxylene CFR Taiwan/China, and Methanol CFR China are futures contracts listed on the Singapore Exchange, while FOB Singapore MTBE is listed on the Chicago Mercantile Exchange.

All of the futures mentioned above are settled based on the respective S&P Global Platts assessments.

Paraxylene futures traded on SGX off the CFR Taiwan/China Platts assessment are among the most important contracts in the Asian petrochemicals market, providing market players with a hedging mechanism and a means to take market positions.

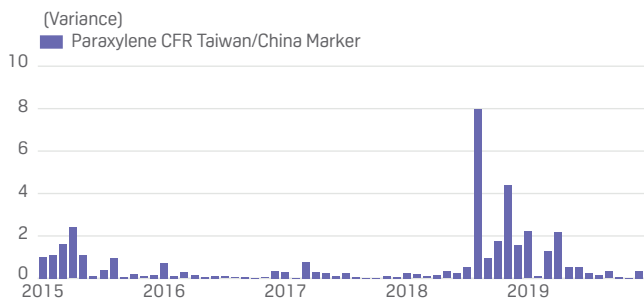
SGX paraxylene volumes hit an all-time high of 3.99 million mt cleared in 2018, up 70% on the year, before posting a slight fall of 10% to 3.58 million mt in 2019.

FUTURES CONTRACTS SETTLED OFF PLATTS ASIA ASSESSMENTS

	Contract size	Minimum price fluctuation (\$/mt)	Final settlement price	Launch
SGX Platts Benzene FOB Korea Futures	100	0.01	DMOPK in expiring month, 3 decimal places	05-May-08
SGX Platts Paraxylene CFR Taiwan/China Futures	100	0.01	DMOPT in expiring month, 2 decimal places	02-Dec-14
SGX Platts Methanol CFR China Futures	100	0.01	Average of CFR China daily in expiring month, 2 decimal places	24-Feb-20
MTBE FOB Singapore (Platts)	100	0.01	Average of FOB Singapore in contract month	22-Oct-18

Source: Singapore Exchange, Chicago Mercantile Exchange

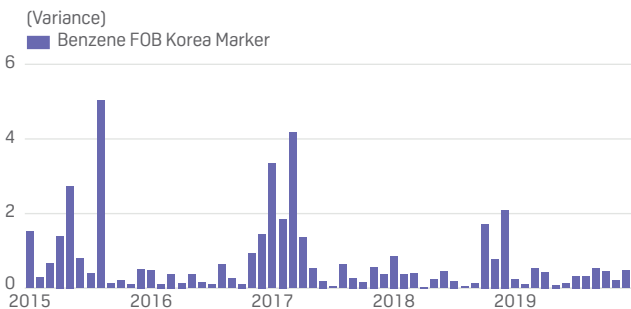
PARAXYLENE: CLEARED SGX VOLUMES, VARIANCE IN CFR TAIWAN/CHINA



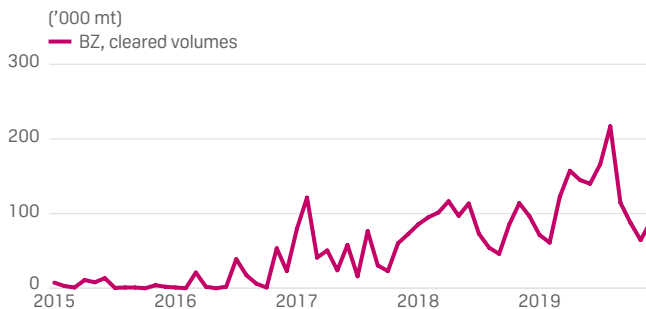
Source: S&P Global Platts, SGX



BENZENE: CLEARED SGX VOLUMES, VARIANCE IN FOB KOREA



Source: S&P Global Platts, SGX



Slower trading activity in 2019, particularly in the second half, was due to additional supply from new capacity that kept prices under pressure late in the year.

Moving into 2020, PX volumes spiked 180% on the month in January, or 4% over the same period last year, amid raised volatility driven by the coronavirus outbreak.

In 2019, benzene, the more volatile of the two aromatics contracts last year, led the pack in terms of growth rate, contributing over 1.4 million mt, up 33% year on year.

Despite a smaller variance across the assessed daily FOB Korea benchmark each month, cleared volumes on SGX have increased significantly, with benzene a key feedstock for over 250 downstream products, including styrene, phenol, caprolactam, and methylene diphenyl isocyanate (MDI).

Participants in downstream markets are able to, through the proxy of benzene, take part in the paper market as a form of risk management.

Since 2018, benzene-naphtha and paraxylene-naphtha values have diverged, with paraxylene prices surging due to demand from the polyester industry, resulting in an increase in operating rates across aromatics units.

Surging paraxylene production created a global excess of benzene, which is a by-product in paraxylene production, and the FOB Korea benzene benchmark faced downward pressure.

MTBE futures totaled 91,300 mt in 2019 – its first year of trading.

Traded monthly volumes reached their highest level in May at 24,000 mt as 95 RON gasoline prices hit a then year-to-date high of \$83.54/b on April 22, Platts data showed.

The methanol future is a contract started in late February to help methanol producers, traders and downstream users manage risk and improve price discovery amid rising demand.

Petrochemical prices occasionally move according to a different set of fundamentals from oil markets, and additional complexity is introduced due to volatility in upstream naphtha and oil, which also creates difficulty for producers, resulting in a greater need to manage risk across the value chain.

—[Tess Tseng, Samar Niazi](#)

CONCLUSION : A NEW ERA FOR PETROCHEMICALS INDEXATION?

The disconnect between spot and monthly or quarterly contract prices seen across a number of petrochemical markets raises a key question: will petrochemical contracts price differently in the future? It's a topic regularly discussed by market participants.

Petrochemicals would not be the first commodity to consider a price mechanism change. A number of markets including LNG and iron ore have switched from fixed pricing in long-term contracts to a market-based mechanism linked to spot.

Iron ore moved from fixed-price yearly long-term contracts in 2010 to index-linked contracts. These changes occurred as the spread between spot and contract diverged, resulting in buyers and sellers no longer being able to agree a contract price. The move to contracts based on spot indexation resulted in more flexible terms and conditions while retaining the security of supply provided by long-term contracts.

Spot prices reflect the value of the marginal ton. In increasingly interconnected global markets the spot market is becoming ever more important in reflecting the tradable level of a commodity.

—[Annalisa Jeffries](#)

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