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Argus *Global Polypropylene*

Polypropylene prices and global coverage

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HIGHLIGHTS

US
Storm-related outages tighten supply

Latin America
Brazil's Braskem rolls over prices in January

Europe
January contract ideas still formulating

Russia and CIS
Market inactive due to public holidays

Turkey
Prices rise on reduced supply/stock levels

Middle East
Prices rise but demand underwhelms

China
Producers raise offers as China opens up

Southeast Asia and Vietnam
Prices rise as supply tightens

India
Prices rise on increased interest

Pakistan
LC restrictions suppress buying interest

Dalian futures market
Futures fall after earlier gains

Fundamentals to watch
US PP margins may fall on new capacity
New PP capacity to change Mexico PP market
S Korea’s Hyundai Chemical to shut cracker in February
China's BYD becomes world's largest EV producer in 2022
Senate panel discusses potential recycling legislation

Global polymer freight rates

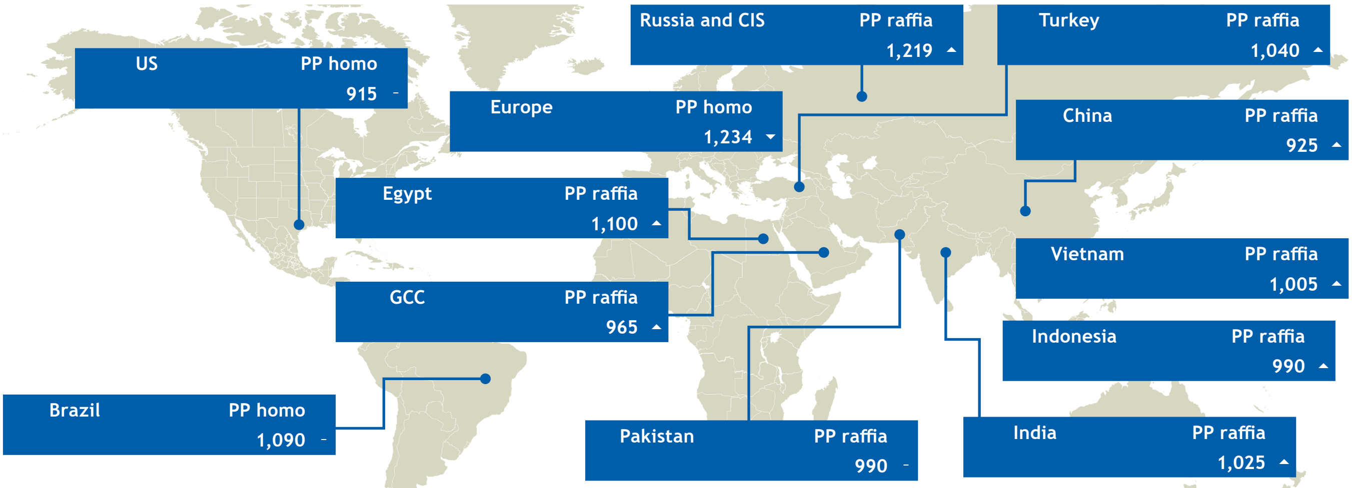
Contract prices $/t

	Timing	Contract marker	±
US			
Copolymer	Dec	1,257 ▼	-88.00
Homopolymer	Dec	1,213 ▼	-88.00
Western Europe			
Copolymer	Dec	1,640 ▼	-30.0
Homopolymer	Dec	1,565 ▼	-32.0

Spot prices $/t

	Basis	Price	±
US			
Homopolymer	fas/Houston bagged	904-926 -	0
Homopolymer	dap/Laredo railcar	838-926 -	0
Brazil			
Homopolymer	cfr	1,080-1,100 -	0
Copolymer	cfr	1,160-1,170 -	0
West Coast South America			
Homopolymer	cfr	1,070-1,080 -	0
Copolymer	cfr	1,080-1,100 -	0
Northwest Europe			
Homopolymer	del	1,194-1,274 ▼	-8
Raffia	del	1,167-1,247 ▼	-9
Russia and CIS			
Raffia	cpt	1,210-1,227 ▲	+3.0
PP homopolymer	cpt	1,239-1,268 ▲	+3.5
Block copolymer	cpt	1,366-1,384 ▲	+6.0
Turkey			
Raffia Mideast Gulf origin	cfr	1,020-1,060 ▲	+50
Non-woven fibre Mideast Gulf origin	cfr	1,070-1,120 ▲	+75
Fibre Mideast Gulf origin	cfr	1,070-1,120 ▲	+75
Block copolymer Mideast Gulf origin	cfr	1,100-1,150 ▲	+70
Block copolymer South Korea origin	cfr	1,120-1,200 ▲	+50
Egypt			
Raffia Mideast Gulf origin	cif	1,050-1,150 ▲	+15
Fibre Mideast Gulf origin	cif	1,100-1,200 ▲	+40
GCC			
Raffia	del	950-980 ▲	+10
BOPP film	del	980-1,020 -	0
Jordan/Lebanon			
Raffia	del	970-990 -	0
Saudi Arabia (CMP)			
Copolymer	fob	927-937 ▲	+54
Raffia	fob	907-917 ▲	+39
China			
Copolymer	cfr	940-950 ▲	+40
Copolymer domestic	import parity	925-949 ▲	+9
Raffia	cfr	920-930 ▲	+25
Raffia domestic	import parity	901-925 ▲	+9
Raffia	fob	980-1,005 ▲	+38

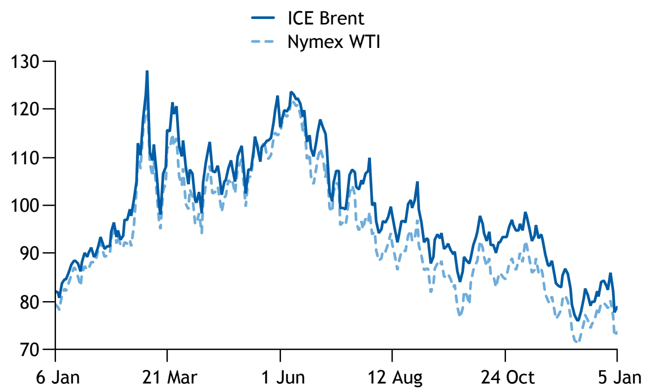
GLOBAL SNAPSHOT



Key prices								$/t
	Timing	US fas Houston	Western Europe spot ddp	Russia and CIS spot cpt	Turkey spot cfr (Mideast origin)	China spot cfr	Southeast Asia dutiable spot cfr	India spot cfr
PP copolymer				1,366-1,384	1,100-1,150	940-950	1,030-1,050	
PP homopolymer	Jan	904-926	1,194-1,274					
PP raffia			1,167-1,247	1,210-1,227	1,020-1,060	920-930	980-1,000	1,000-1,050

FEEDSTOCKS

Crude futures $/t



Crude oil

Ice Brent crude futures have stabilised just below $80/bl, which is lower than before the holiday period. Demand concerns have continued to weigh on the market, but there is considerable supply uncertainty as the impact of the EU and G7 embargo on Russian supply into the global market is still uncertain.

Prices for US marker WTI were similarly broadly stable. US crude inventories rose but product inventories eased back.

Spot prices				$/t
	Basis	Price		±
Southeast Asia dutiable				
Copolymer	cfr	1,030-1,050	▲	+50
Raffia	cfr	980-1,000	▲	+30
Southeast Asia duty free				
Copolymer	cfr	1,080-1,100	▲	+20
Raffia	cfr	1,050-1,070	▲	+20
Vietnam				
Raffia	cfr	990-1,020	▲	+25
Indonesia				
Copolymer Mid-east Gulf origin	cfr	1,020-1,040	▲	+40
Raffia Mideast Gulf origin	cfr	980-1,000	▲	+30
India				
Raffia	cfr	1,000-1,050	▲	+35
Pakistan				
Raffia	cfr	980-1,000	-	0
Bangladesh				
Raffia	cfr	1,000-1,040	▼	-10
Sri Lanka				
Raffia	cfr	1,080-1,100	-	0
Nepal				
Raffia	cpt	1,110-1,130	▲	+130

Crude				$/bl
	Effective date	Price		±
Ice Brent	6 Jan	78.57	▼	-7.34
Nymex WTI	5 Jan	73.67	▼	-6.59

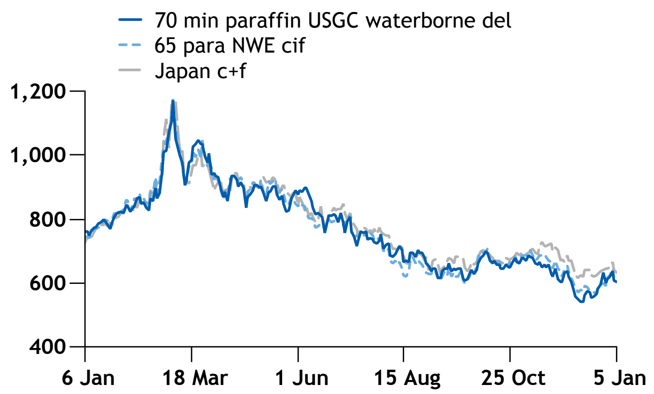
Naphtha

Naphtha prices have strengthened slightly in early January. Low gasoline prices and export demand outside of Europe

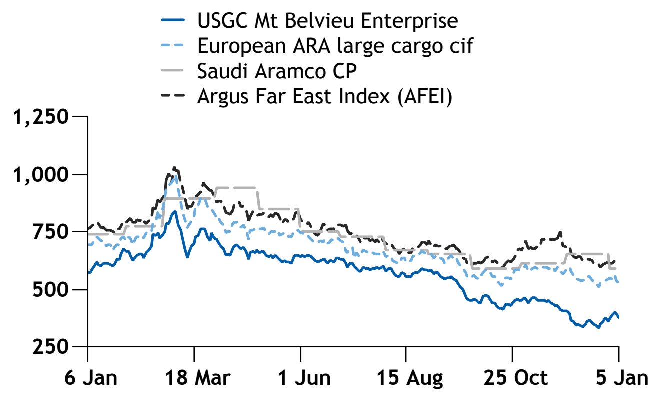
Naphtha				$/t
	Effective date	Price		±
70 min paraffin USGC waterborne del	5 Jan	602.48	▼	-18.40
65 para NWE cif	6 Jan	618.00	▼	-5.25
Japan c+f	6 Jan	638.00	▼	-11.38

Propane				$/t
	Effective date	Price		±
Mt Belvieu Enterprise	5 Jan	378.70	▼	-9.44
ARA large cargo	6 Jan	520.50	▼	-23.50
Saudi Aramco CP	6 Jan	590.00	-	0.00
Argus Far East Index (AFEI)	6 Jan	605.50	▼	-6.00

Naphtha spot prices $/t



Propane key prices $/t



encouraged some buying activity, with the naphtha crack to North Sea Dated crude climbing to its strongest since May 2022. The average naphtha price for January so far is €30/t ($32/t) higher than December's average, but it is too early to draw conclusions for the full month.

Asian naphtha prices were steady. Chinese naphtha imports rose to a four-year high in November, with increased imports from Russia and new crackers starting up. But demand across Asia is weak and driving some cracker operators towards extended shutdowns.

Propane

US propane prices are little changed compared with before the holiday period. Mont Belvieu propane prices moved higher with colder weather but have since eased as temperatures have become higher than average.

European coaster and large cargo prices have remained broadly steady and at slightly wider discounts to naphtha. Activity has been muted throughout the holiday period, with higher-than-average temperatures limiting heating demand.

Asia propane prices tracked fluctuations in crude prices. Demand from China was soft, but there was some uncertainty around Middle Eastern imports for February arrival because of possible port maintenance.

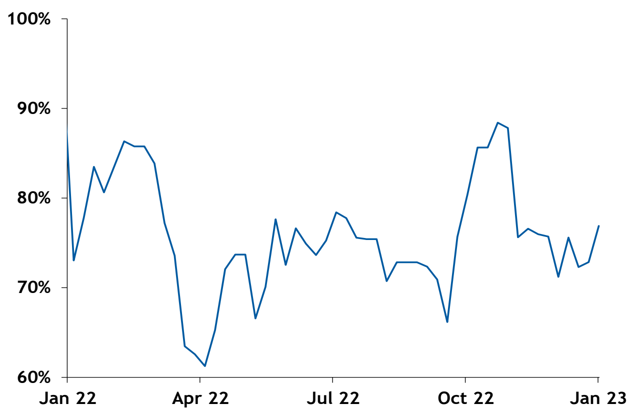
PDH margins

China PDH margins fell to $29/t this week. Feedstock propane prices fell slightly to a weekly average of $615/t in northeast Asia. Propylene prices fell by $10/t to $875/t cfr northeast Asia.

China PDHs

The average PDH operating rates were at 77pc this week, up by 4 basis point compared with last session. But selected PDH operators are still operating at reduced rates amid eroding margins. Liaoning Kingfa's 600,000t/yr PDH is running at 50pc, while Zibo Xintai's 300,000t/yr PDH unit and Chambroad Petrochemical's 115,000t/yr mixed-feed dehydrogenation unit are operating at 30pc according to market players. Jinneng Technology commenced turnaround at its 900,000t/yr PDH line on 15 December for 30 days, while

China PDH operating rates %



New PDH start-ups							
Status	**Plant**	**Location**	**Grade**	**Capacity '000t/yr**	**Start-up**	**Remarks**	**Source**
UPDATE	Puyang Far East Technology	China	Propylene	150	Mid-Jun 2022	Plant shut from 27 June because of technical issues	Industry
UPDATE	Shandong Huifeng Haiyi Petrochemical	China	Propylene	250	Sep 2022	Plant is operating at 80pc	Industry
UPDATE	Wanda Tianhong	China	Propylene	450	Nov 2022	Plant is operating at 60pc	Industry
UPDATE	Liaoning Kingfa	China	Propylene	600	Dec 2022	Plant is operating at 50pc	Industry

Puyang Far East Technology's PDH stayed offline with restart date remained unclear.

Propylene

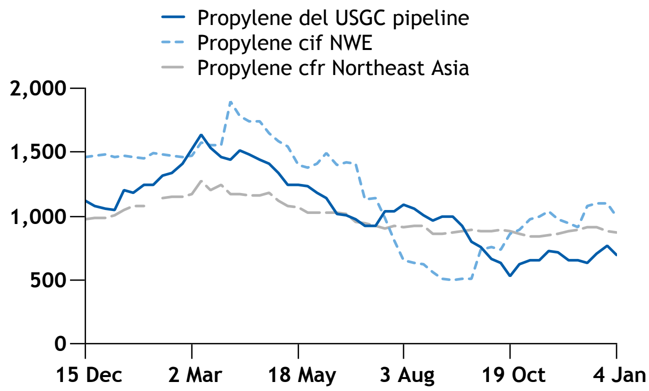
US spot PGP prices have been by and large rangebound between 30-35¢/lb since pulling out of its mid-October trough, with a brief dip below 30¢/lb in the first half of December. While not included in this past week's range, January traded this morning at 35¢/lb, hitting its prior price resistance level of around 35¢/lb. Market participants attribute this to the 750,000 metric tonne (t)/yr Enterprise propane hydrogenation (PDH) unit in Mont Belvieu, Texas and the 658,000 t/yr Invista PDH unit in Houston that is still undergoing its turnaround through January, which is expected to add capacity to that unit. Refiners still maintain strong run-rates as they want to capture the gasoline margins with falling crude prices. With propylene produced as a byproduct of refining and demand for propylene historically weak, the propylene market is facing a prolonged period of oversupply until demand can cyclically return as the fundamentals of Western economies improve.

There is some expectation that December will have marked a low for the European market in terms of demand throughout the value chain, but how far and how quickly demand recovers is uncertain. The €95/t decrease in the January monthly contract price (MCP), easing of destocking pressure in the new year, and a reduction in power and gas contracts are positive signs for demand, but Europe remains the highest-priced region and the domestic economic environment is still challenging. Price assessments have been reduced in line with the €95/t drop in the January MCP and the last deals for polymer grade propylene (PGP) before Christmas, at around 10pc discounts to the MCP. Many consumers have reduced contract volumes where they could for 2023 and will have more spot market exposure — should demand prove stronger than they had dared expect.

Asia propylene prices extended losses with weaker buying interests amid bearish downstream demand in China despite the uplifting of Covid-19 restrictions. Cracker margin in the region remained depressed as olefins prices struggle to recover. Most crackers in South Korea are operating at reduced rates. LG Chem is operating its three crackers in Yeosu and Daesan at an average of 60pc. YNCC will extend its No.3 cracker shutdown to end of February. Taiwan's Formosa will not rule out to keep its No.2 cracker idle for the first quarter. Hyundai Chemical is considering to shut its 900,000t/yr residual oil cracker with 450,000t/yr propylene output for maintenance in February until June according to market sources. Thailand's SCG has decided to extend its Rayong Olefins cracker shutdown to at least first half of

Propylene					
	Basis	**Effective date**	**Price**		**±**
PGP USGC contract *¢/lb*	Dec	20 Dec	32.00	▼	-1.00
PGP USGC contract *$/t*	Dec	20 Dec	705.48	▼	-22.0
PGP NWE contract *€/t*	Jan	29 Dec	1,075.00	▼	-95.00
PGP NWE contract *$/t*	Jan	29 Dec	1,148.38	▼	-101.48
cfr NE Asia *$/t*	spot	4 Jan	875.00	▼	-10.00

Propylene spot prices *$/t*



Market highlight

- Most crackers in South Korea are operating at reduced rates.

January. Philippine's JG Summit is again mulling to shutdown its cracker in first quarter amid thinning production margin. The company will use existing olefins stocks for the operation of its polymers downstream plants during the shutdown.

PRICING ANALYSIS

US

US polypropylene (PP) price ideas for January contracts are uncertain for now. Multiple producers have announced margin increases of 3¢/lb for January, but for now, it is not clear how much support there is for higher prices. There is little consensus on any movement for monomer either, with market participants saying they expect anything from flat to up a penny or two for January polymer grade propylene (PGP) contracts.

PGP spot prices have risen at the start of January, with January PGP trading as high as 36¢/lb on 5 January, up from trades at 31-32.875¢/lb at the end of December. However, PP market participants said any larger increase in PGP prices could cut off export activity, with export prices already nearing the point where they are no longer attractive to Latin American buyers.

US PP supply is tightening up with at least two companies operating under force majeure conditions following production interruptions relating to the below-freezing temperatures that hit the US Gulf coast region on 23 December. Ineos Olefins & Polymers declared a force majeure event on PP produced at its Texas-based units in Chocolate Bayou and Deer Park, Texas, on 28 December, while Pinnacle Polymers declared force majeure on PP produced out of its Garyville, Louisiana, plant, also on 28 December. The companies declined to comment on whether operations have since restarted.

The Heartland unit in Canada was also heard to be operating at reduced rates, with sources saying the propane dehydrogenation unit is still not up to normal rates yet. Another producer was heard to be gearing up for an extended turnaround beginning in February and continuing into March.

While supply appears to be sufficient for now to meet demand, sources said any further operational hiccups could tighten the market, particularly as demand begins to improve with the start of the new year.

Spot pricing for now is holding fairly steady, with generic prime homopolymer PP discussed in the high 40¢/lb level, with thin availability. Homopolymer remains more available than impact copolymers.

Final November data from the American Chemistry Council (ACC) showed output fell to 1.173bn lb, down by nearly 12pc from October with plants operating at around 64pc of total capacity, according to the ACC's Plastics Industry Producers' Statistics Group as compiled by Vault Consulting.

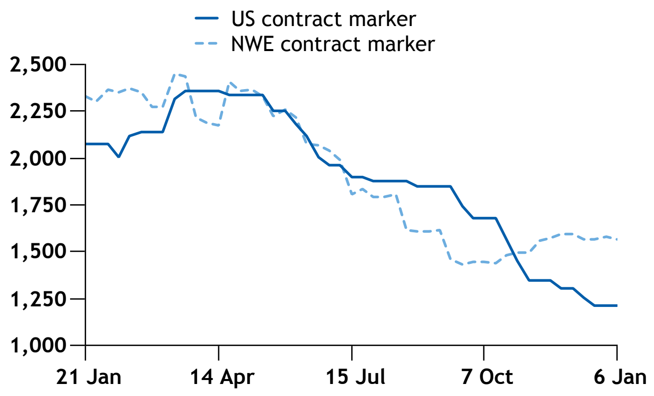
Final PP sales showed a slight decline from October, with total sales falling to 1.347bn lb, down by 0.3pc from October, with domestic sales up by 0.2pc and exports down by 9.9pc over the period. With sales exceeding output, producers drew down inventories by 178mn lb in November, taking inventory levels down to around 36 days, down from a high of 40 days in October.

Year-to-date sales through November are down by 3.3pc, with domestic sales down by 3.6pc and exports up by 10.5pc over the period. Of the domestic sales, there are declines across multiple sectors, including: appliances (-24.6pc), consumer and institutional products (-12.1pc), caps and closures (-9.5pc), media enclosures (-31.7pc), blow molding (4pc), extrusion (-4.4pc), and fiber and filaments (-13.3pc). Sales to distributors are down by 8.4pc and sales to compounders are down by 1.1pc year-to-date. There are very few bright spots in the demand picture, including: cups and containers (+4.4pc), crates and totes (+8.2pc), transportation (+15.8pc),

US contracts				¢/lb
	Timing	Argus Δ (month-on-month change)	Contract marker	Low / High ±
Copolymer contract marker	Dec	-4.0	57	-4.0/-4.0
Homopolymer contract marker	Dec	-4.0	55	-4.0/-4.0

US exports				¢/lb
	Basis	Price		±
Homopolymer	fas/Houston bagged	41-42	-	0
Homopolymer	dap/Laredo railcar	38-42	-	0

US vs west Europe PP homopolymer prices $/t



film (+2.2pc), sheet (+2.1pc), and sales to resellers (+8.6pc).

Demand in December was weak, with multiple converters taking extended time off with the year-end holidays. However, demand is beginning to pick up slightly in January, particularly as buyers sense that prices have reached a bottom.

Export activity remains slow with few fresh offers heard in the market. Traders said they anticipate that fresh offers will come at a slightly higher price, but said that might hurt demand.

Mexico

Demand in Mexico is beginning to pick up slightly at the start of January as converters return from extended holiday shutdowns, realizing that prices may have hit a bottom.

PP buyers are hoping for a price rollover for January, but traders said they expect to see prices increase slightly, particularly with increases for polymer grade propylene in the US. While PP is still available, market participants do expect it to become less available in the coming weeks, following some weather-related shutdowns in the US Gulf coast region, as well as upcoming turnarounds and other production constraints.

Overseas imports into Mexico are limited, with prices too high to compete. With decent availability of railcars from the US, buyers are unwilling to deal with the hassle of shipping logistics or financing costs. That could change if supply tightens or if prices rise more than expected.

Latin America

Demand for polypropylene (PP) in Latin American markets varied during the first week of the year, following a positive period in December.

On the west coast of South America (WCSA), demand in Peru is leading the region, despite the expectation of higher prices in the local market in the coming weeks. South Korean PP offers to the WCSA were reportedly very competitive at the beginning of the week but became more expensive towards the end.

Overall, PP demand in Brazil was lower this week, with few contracts closed. However, not all segments are experiencing the same effects as seasonality is driving sales for certain products. According to key sectors of the PP market, there was a recovery in production and demand in 2022 (compared to 2021) in the auto industry, agriculture, food industry, and among distributors.

For example, plastic transformers, which produce packaging for food and beverages, are forecasting strong market performance at least until March, when the southern hemisphere's summer ends. According to a source, the market for this type of plastic packaging has been strong since August of last year due to various events such as local presidential elections, the FIFA World Cup tournament in Qatar, and end-of-year celebrations. With families on vacation in January and Carnival approaching in late February, sales are expected to increase by 5pc year-on-year in the first quarter of 2023.

In the meantime, local resin producer Braskem decided to maintain prices for all PP grades in January, after reducing domestic prices in December and rolling them in November. Domestic PP prices have declined by $505/ton from June to December, based on the BRL/USD exchange rate of 5.2433 recorded in December's average.

Operationally, PP units are running at reduced rates, with Braskem managing its inventories. The southern Brazilian refinery Refap will shut down in January for maintenance, with an investment of BRL400mn ($76.3mn). Refap has a production capacity of 111,000t/y of propylene.

In Argentina, local buyers are still having difficulty obtaining imported material due to the government's efforts to restrict import licenses and keep US dollar reserves within the country. The Argentine Chamber of Chemical Products has expressed concern this week about the lack of approval for import licenses, leading local buyers to purchase from the only local producer at higher prices. Meanwhile, the local PP producer has kept its prices stable in January compared to December, according to reports.

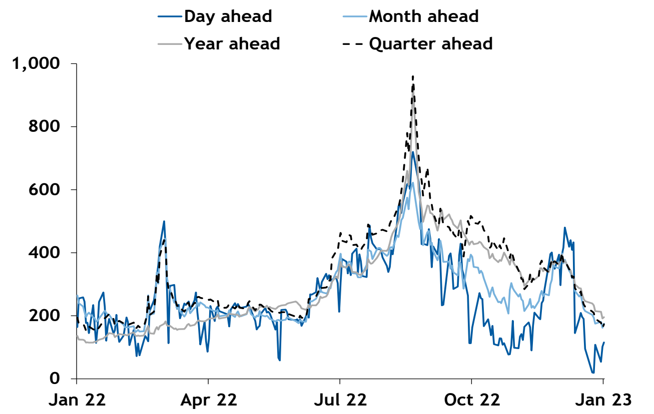
In Colombia, the PP unit ran at full capacity in 4Q of 2022, and local producer Esenttia aims to reach a production of 535,000 tons in 2022. The company is expected to complete the second step of its expansion project and start running the new capacity of 570,000 tons per year in a few days.

Europe

The European polypropylene (PP) market is slowly waking up after the holiday period. There are indications of improved demand, relative to a weak December, but it is still too early for a clear picture to emerge. January freely-negotiated contract price negotiations are getting under way now, with a €95/t reduction in feedstock propylene contracts the main driver.

Producers will want to use the €95/t decrease in January propylene contracts to recover part of the steep margin losses in the second half of 2022. Some initial producer positions have been indicated around a €50/t decrease but there have been few formal communications to buyers yet. Buyers positions may be more varied. Some are likely to seek at least the monomer decrease to be passed through and some may try to leverage the decrease in utility prices to

German power prices *€/MWh*



Western Europe contracts				*€/t*
	Timing	Argus Δ (month-on-month change)	Contract marker	Low / High ±
Copolymer contract marker	Dec	-40.0	1,545	-60.0/-20.0
Homopolymer contract marker	Dec	-40.0	1,475	-60.0/-20.0

Northwest Europe spot				*€/t*
	Basis	Price		±
Homopolymer	del	1,125-1,200	▲	+1
Raffia	del	1,100-1,175	▲	+1

argue for a larger decrease. But with producers having cut rates in the fourth quarter to manage inventories and stem production of unprofitable tonnes, some convertors will be sympathetic to a measure of margin recovery if it puts the domestic industry on a better footing.

The PP market is a fragile balance, with producers managing operating rates to meet weak demand and maintain disciplined inventory levels after the end of year. Buyers have few problems covering their core demand at the moment, but the availability of incremental tonnes if demand improves or new supply problems emerge is more limited and producers may need some incentive to plan for higher production levels. There are some continuing plant outages but nothing causing any difficulty for buyers. Production at a homopolymer PP plant in northern France has resumed after planned maintenance, despite a fire at the neighbouring cracker. In southern France, the restart of another complex is continuing.

Gas and electricity prices continued to fall in December, potentially relieving some cost pressures throughout the chain. Mild weather across much of Europe has eroded gas demand, as has lower industrial use. And crucially, with gas inventories relatively high at the start of the year, forward prices for the next month, quarter and year have fallen to their lowest since April 2022.

Even if lower utility prices are sustained, these are unlikely to filter through to household consumers and ease underlying inflationary and demand concerns until the second half of the year at the earliest. But in the short term, there may be some relief on cost pressures at all steps in the value chain, which could help with confidence and reduce competitive disadvantages against other regions.

Producers expect demand to improve in January, relative to a very weak December, as destocking pressure at customers eases. Order books show an improvement, but with many convertors taking extended production breaks over the holiday period and in no rush to restart at high rates, it will take a few weeks for a better demand picture to emerge.

Producer and customer inventories are under control because of the production curbs, but warehouse inventories are still heard to be high and import pressures will remain throughout January and February at least. There are no signs yet that the US cold snap has disrupted expected flows from the US, the impact on US operations and the balance being much less than during the 2021 winter storm, and the market situation is very different because of weak demand, rather than the surging global demand previously.

Spot activity has been extremely limited. Everyone is monitoring the market for indications of how demand may develop in the coming weeks and months, but there is little urgency from buyers or sellers. Higher import volumes are expected in January and February, based on earlier fixtures. Homopolymers are assessed stable at €1,125-1,200/t. Some indications of lower prices were heard, but so far are considered unrepresentative and unconfirmed.

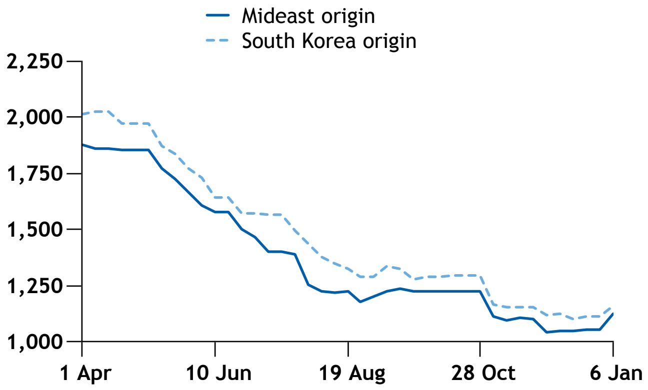
The assessed contract deltas for December 2022 have been confirmed at €40/t decreases from November 2022 for both homopolymers and copolymers. Demand was weaker than expected in December, and declining crude and naphtha prices throughout the month added some pressure to later settlements.

Russia and CIS

Russian markets were inactive due to public holidays.

Russia and CIS domestic				*Roubles/t*
	Basis	Price		±
Raffia	cpt inc VAT	104,500-106,000	-	0.0
PP homopolymer	cpt inc VAT	107,000-109,500	-	0.0
Block copolymer	cpt inc VAT	118,000-119,500	▲	+250.0

Turkey copolymer prices $/t



Turkey

Polypropylene (PP) import prices into Turkey increased this week because of reduced supply in the country and increased stock pressure among traders.

The volume of PP offers into Turkey reduced this week as freight rates into India and China are lower than rates to Turkey, offering higher netbacks to Middle Eastern producers and reducing supplies of polymers to Turkey. Producers expect prices to rise further but set against this, demand in Turkey remains low and will curb the increase. In addition to already high energy costs, an increase in the Turkish minimum wage has reduced Turkish converters' competitiveness. And demand for end-product is still low because of the stagnating economic atmosphere in the country. Upcoming national elections in June are another factor making market participants cautious. But reduced stock levels and the need to take a position ahead of the Orthodox and Chinese new year holiday periods has forced some traders to buy more polymer products. South Korean producers will scale back production in the first few months of the new year, after a disappointing 2022.

Middle East-origin PP raffia was assessed at $1,020-1,060/t cfr, an increase of $40/t at the low end of the range and $60/t at the high end compared with last week. Russian offers were available at $990-1,050/t cfr and South Korean offers were at $980-1,000/t fob, equivalent to $1,063-1,144/t cfr, given a $83-144/t freight rate.

Middle East-origin PP fibre was assessed at $1,070-1,120/t cfr, an increase of $70/t at the low end of the range and $80/t at the high end compared with last week. Russian offers were available at $1,090-1,100/t cfr and offers from South Korea emerged at $1,150-1,180/t cfr. Egypt-origin material was available at $1,200/t dap.

Middle East-origin PP fibre non-woven was assessed at $1,070-1,120/t cfr, an increase of $70/t at the low end of the range and $80/t at the high end compared with last week.

Middle East-origin PP block copolymer was assessed at $1,100-1,150/t cfr this week, up by $70/t at both ends of the range against last week's assessment. South Korean PP block copolymer was assessed at $1,120-1,200/t cfr, up by $40/t at the low end and $60/t at the high end from last week.

Egypt

Polypropylene (PP) import prices in Egypt slightly increased this week on limited trading and the unavailability of letters of credit for new transactions.

The Egyptian market is still adjusting to the revised regulatory and financial environment, following a deal signed with the IMF on 27 October, 2022. The Egyptian pound has since depreciated on a daily basis, while suffering from a third devaluation wave in less than a year this week. Some major suppliers are still holding back from offering material in Egypt owing to the high trading and financial risks. The market remains subdued and procurements are on standby, with buyers unable to obtain letters of credit for new transactions. The term deposit rate on the Egyptian pound has increased to 25pc for 12 months as the Egyptian government aims to suppress surging inflation and prices. The high-risk factor in the country also pushes the prices up and creates a premium with adjacent markets such as Turkey.

Middle East-origin PP raffia was assessed at $1,050-1,150/t cif, an increase of $10/t on the low end and $20/t on the high end compared with last week's assessment. Middle East-origin PP fibre was assessed at $1,100-1,200/t cif, up by $40/t on both ends compared with last week's assessment.

Middle East

Gulf Co-operation Council (GCC) PP prices inched higher this week on the low end. Cargoes that were offered at $930/t del are no longer available. PP raffia was $10/t higher at $950-980/t del GCC. A key Saudi producer offered cargoes at $980/t del. Another Saudi producer offered cargoes at $1,020/t del. Cargoes from Oman were offered at $950/t del. Cargoes from the UAE were offered at $1,080/t del. But participants deemed this to be too high. The same producer offered cargoes at $1,140/t del. Biaxially-oriented PP film was stable at $980-1,020/t del GCC.

PP raffia in Jordan and Lebanon was rolled over at $970-990/t del Jordan/Lebanon. A key Saudi producer offered cargoes at $1,090/t del. It later reduced its offer to $1,030-1,040/t del. But it could not be confirmed if any deals were done. Participants were resisting the reduced offer as they deemed it to be too high. The same producer offered PP block co-polymer cargoes at $1,090/t del. It later reduced this to $1,050-1,070/t del with deals concluded at this level.

Participants in Jordan and Lebanon were initially expecting a rollover in prices for January shipments. The sharp increments offered by producers came as a surprise. Discussions are expected to continue next week. PP demand in Jordan has been weak in recent weeks because of the current winter season. Manufacturers of ice-cream containers had to reduce operations as demand for ice cream has dipped because of cold temperatures. The ice cream industry is traditionally a big driver for food packaging in Jordan, according to market participants.

Middle East participants have been mixed about the current market outlook. Some participants raised concerns that plant shutdowns in the US, resulting from the winter storm, could lead to shortages and push up prices in the coming months. The situation could be similar to what happened in 2021 when the winter storm hit the US and forced shutdowns at major PP producers. It resulted in elevated PP prices worldwide for the rest of 2021.

Converters are facing difficulties managing inventory levels as well. Demand for final goods has been weak in recent months. This prompted weak restocking interest. Saudi PP producer Yansab, an affiliate of Sabic, will start a 53-day turnaround at its petrochemical complex in Yanbu on 10 January. The complex produces 1.3mn t/yr of ethylene and 400,000 t/yr of propylene. It also produces 400,000 t/yr of PP.

State-controlled firm Saudi Aramco cut its January propane contract price (CP) to $590/t, down by $60/t on the month, after supply outstripped demand. The nearly 9pc drop in the monthly CP, against largely stable crude values, depicted weak demand fundamentals in Asia-Pacific despite the onset of winter. The discount offered to term customers loading from Yanbu was at $22/t, $1/t higher from the previous month.

China

Import prices rose with firmer offers quoted by producers, while domestic prices inched lower because of limited trades during the week.

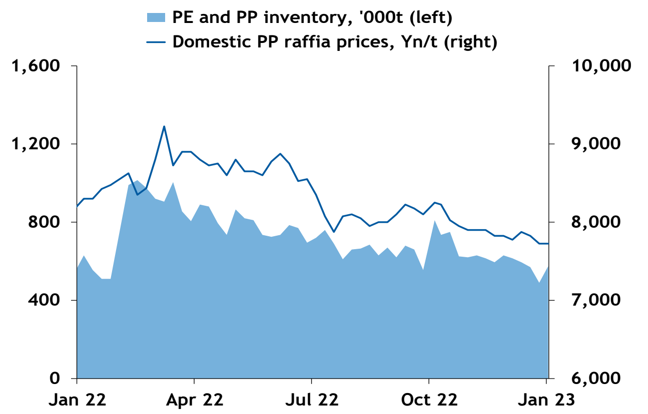
Domestic spot trades were active at the beginning of this week as downstream converters replenished their feedstock inventories after the three-day new year holiday. But demand is expected to diminish closer to the lunar new year holidays. Most downstream converters plan to wrap up work from next week. Current operating rates at the plastic woven industry edged lower to 44pc, while run rates for biaxially-oriented PP stayed at 64pc.

Ex-works prices for PP raffia were assessed at 7,600-7,800 yuan/t in east China, or an import parity equivalent of $897-921/t. PP co-polymer prices were assessed at Yn7,800-8,000/t ex-works in east China, down by Yn50/t from the previous assessment's high end.

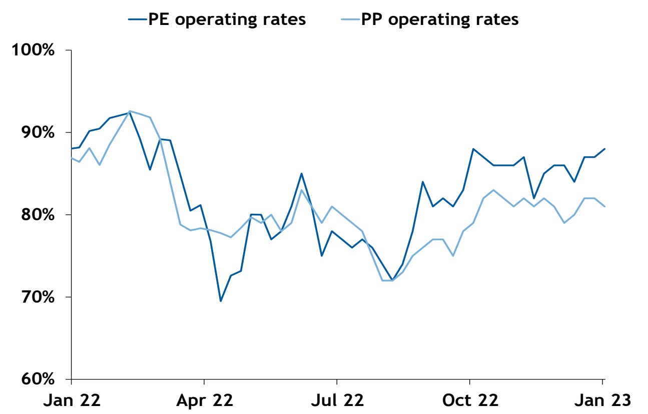
Major Chinese producers' inventories of PP and polyethylene increased to 575,000t on 5 January, up by 85,000t from 490,000t on 29 December 2022, because of the new year holiday from 31 December to 2 January. Average operating rates at Chinese PP plants fell to 81pc, down by a percentage point from the previous week. Qingdao Jinneng decided to extend maintenance at its 450,000 t/yr unit by a

China domestic				Yn/t
	Basis	Price		±
Copolymer	ex-works	7,800-8,000	▼	-25
Raffia	ex-works	7,600-7,800	▼	-25

Sinopec and PetroChina inventory vs PP prices



China PE, PP plant operating rates %



Market highlight

- Chinese producers offered PP raffia at $1,005-1,040/t fob China half-month to 16 January. SK Wuhan is conducting maintenance at its 200,000 t/yr unit from 27 December 2022 to 31 January.

Chinese import prices increased as a result of higher offers quoted by producers and traders. Saudi producers offered January-loading PP raffia and PP injection at $920/t cif China. UAE producers quoted January-loading PP co-polymer at $940-950/t cif China, with PP random co-polymer at $980/t cif China. Deals were done at the above prices. Trading firms were offering $930-940/t cfr China for PP raffia and PP injection, while offers for PP co-polymer were at $950-970/t cfr China. No deals were concluded.

PP raffia prices were assessed at $920-930/t cfr China, up by $25/t from the previous week's assessment. PP co-polymer prices were assessed at $940-950/t cfr China, up by $40/t from the previous week.

Export trades were limited this week. Chinese producers offered PP raffia at $1,005-1,040/t fob China, while domestic trading firms quoted re-exporting PP raffia at $980-990/t fob China. Limited deals were done at $980/t fob China for Indian-origin PP raffia, destined for Africa. Freight rates from China to Vietnam were at $10-15/t, while rates from China to India and to Africa were at $35-40/t and $80/t, respectively, according to market participants. Export prices for PP raffia were assessed at $980-1,005/t fob China, up by $35-40/t from the last assessment.

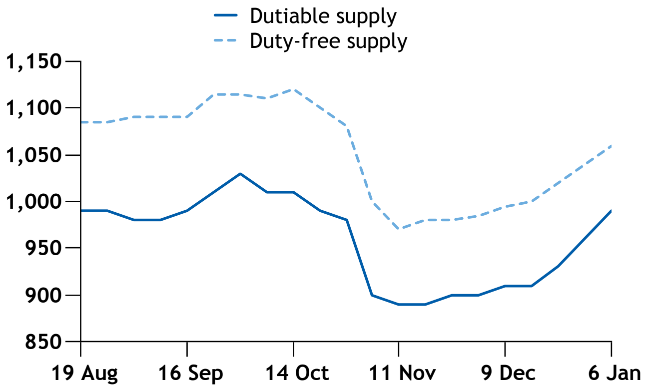
Southeast Asia and Vietnam

Southeast Asian PP prices rose further with spot transactions at higher levels. Regional and international PP supply to southeast Asia is likely to tighten further in January - February with several key producers expected to shut their PP plants for planned maintenance, while others were continuing production cuts because of persistently weak production margins.

Sentiment was mixed among regional converters. Some converters have continued resisting price increases and continued to adopt a wait-and-see approach, especially as trading activities in the key Chinese market cool this week approaching the lunar new year holidays. Some converters were keener to replenish PP supplies, with falling inventory levels and expectations of strong seasonal consumption in the first quarter of the year. There was also slight expectation of further price increases post the lunar new year, should Chinese demand improve further following the easing of Covid-19 restrictions. In Thailand, a stronger Thai baht against the US dollar and higher domestic PP prices were encouraging buyers to seek imports, considered to be more competitive during this period.

Regional producers were running their upstream cracker

SE Asia PP raffia prices $/t



and downstream PP plants at reduced rates since last year's fourth quarter, but tighter PP supplies were offset by a seasonal lull in demand. Regional supplies have remained limited with producers maintaining production cuts and supplies from other international producers tightening because of planned maintenances. Regional buyers have started seeking supplies from new plants like Malaysia's PRefChem. The producer has restarted its No.1 450,000 t/yr PP unit since 28 December and the unit is operating at around 70pc, according to market sources. Vietnam's Long Son Petrochemical and Thailand's HMC Polymers have last month conducted trial runs at their 500,000 t/yr and 220,000 t/yr PP plants respectively. But a specific timeline for commercial operations of both plants is not available.

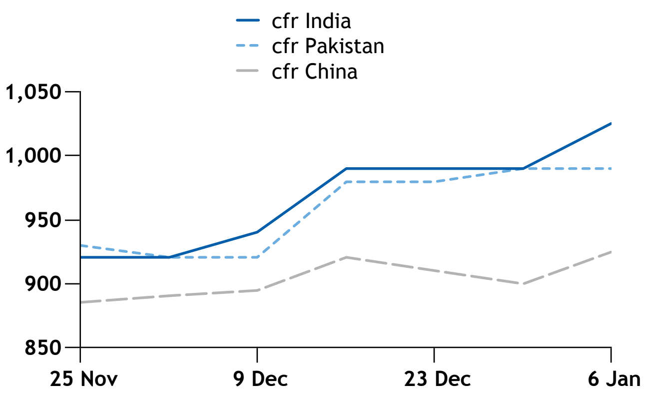
Indonesia's Chandra Asri has continued to operate its 590,000 t/yr PP plant at 70pc because of issues at its upstream cracker facilities. Thailand's SCG Rayong-based cracker which can produce up to 400,000 t/yr of propylene has remained shut since September last year, limiting its PP production. Malaysia's Lotte Titan and Philippines' JG Summit have continued operating their PP plants at around 70pc because of weaker margins. Vietnam's NSRP has unexpectedly shut its 370,000 t/yr PP plant from 30 December, with the shutdown expected to last up to mid-January.

Dutiable PP raffia prices rose to $980-1,000/t cfr southeast Asia. Limited quantity of Saudi-origin PP yarn supplies traded at $980/t levels cfr southeast Asia. South Korea-origin PP raffia offers were at $1,020-1,070/t cfr southeast Asia. Bids for dutiable PP raffia supplies were mostly at $990-1,000/t cfr southeast Asia. Dutiable PP block copolymer prices rose to $1,030-1,050/t cfr southeast Asia. UAE-origin PP block copolymer supplies traded at $1,050/t levels cfr southeast Asia to consumers.

Duty-free PP raffia prices were raised to $1,050-1,070/t cfr southeast Asia with higher deals on the back of tighter supplies. Philippines- and Vietnam-origin PP raffia offers were at $1,060-1,080/t cfr Indonesia. Duty-free PP block copolymer prices rose to $1,080-1,100/t cfr southeast Asia with higher offers. Vietnam- and South Korea-origin PP block copolymer offers were at $1,100/t levels cfr Indonesia, on a duty-free basis.

PP raffia prices rose to $990-1,020/t cfr Vietnam. South Korea- and Saudi-origin PP raffia offers were at $1,020-1,040/t cfr Vietnam, with deals possibly done. Saudi-origin PP fiber offers were higher at $1,050-1,060/t cfr Vietnam. Vietnam's NSRP has unexpectedly shut its 370,000 t/yr PP plant from 30 December, with the shutdown expected to last up to mid-January. The refiner also shut its residual fluid catalytic cracker in early January following a leakage in late December, according to market sources.

South Asia vs China raffia prices $/t



South Asia

Indian PP raffia was $30/t higher at $1,000-1,050/t cfr India as producers began announcing new offers for January shipment. Cargoes from the Middle East were offered at $1,000-1,050/t cfr with deals done in this range. Re-export cargoes from China were offered at $1,030-1,040/t cfr.

Indian buyers continued restocking this week as converters were eager to replenish inventories. Trading firms noted the increase in demand for prompt cargoes in local markets. Converters were willing to pay additional premiums on cargoes from traders compared to cargoes form local producers. This has been driven by increased demand in the agricultural sector, as demand for grain and fertilizer packaging stayed firm since November after the monsoon ended, which allowed for more farming activity. But converters manufacturing final goods for export markets continue to face challenges in securing orders as demand for final goods has been weak overseas, especially from customers in the west of Suez.

Production in India has been stable, with minimal disruptions. IOC restarted its 350,000 t/yr PP plant in Panipat in the middle of December. Participants expect the producer to resume full operating rates by the end of January. This is expected to bolster domestic supplies to balance demand. Import demand is expected to remain firm as converters continue restocking after an extended period of destocking in the second half of 2022.

Pakistani PP raffia was stable at $980-1,000/t cfr Pakistan as spot offers remained limited. Cargoes that were offered by a key Saudi producer last week have yet to be fully sold out. Buyers are exercising caution and carefully assessing the market before making any new purchases. Given the rise in prices in the rest of south Asia, producers would be keen to raise prices to Pakistan in the coming weeks to match higher netbacks from the region.

But this may be a challenge as restrictions on letters of credit (LCs) continue to limit import purchases for Pakistan buyers. Banks have verbally informed customers of their intention to reduce LC quotas because of worsening trade balances and tight US dollar availability. Buyers have not been able to purchase large volumes to hedge against a potential rally in polymer prices. Participants were initially expecting regular openings of LCs for imports of polymers to drop by around 50pc. But with new indications from banks, this is now expected to fall by around 75pc. Sellers to Pakistan have exercised caution and now require buyers to furnish LCs with confirmation. Some trading firms and distributors have stopped sales to Pakistan altogether and diverted these initially planned allocations to other regions. Trading firms that continue to focus on Pakistan are mainly firms with excess supplies that are looking to destock aggressively.

Bangladeshi PP raffia was $10/t lower at $1,000-1,040/t cfr Bangladesh. A Saudi producer offered cargoes at $1,000/t cfr. Cargoes from South Korea were offered at $1,100/t cfr. Deals were concluded in the range of the price assessed. Sri Lankan PP raffia was stable at $1,080-1,100/t cfr Sri Lanka as spot offers remained limited.

Nepalese PP raffia was $130/t higher at $1,110-1,130/t cpt Nepal as producers announced new offers this week. Producers were actively chasing higher netbacks in India and did not have sufficient cargoes left over for Nepalese buyers. Cargoes from India were offered at $1,080/t fob, with shipping costs at around $50-80/t. A key Saudi producer concluded deals at $1,060/t cif Kolkata with shipping costs from India's port of Kolkata to Nepal's dry port of Birgunj at $70/t.

FUNDAMENTALS

Global production news

US PP margins may fall on new capacity

US PP margins could narrow further in 2023 as new capacity ramps up even as demand is expected to remain weak.

PP margins in 2022 have fallen by around 9¢/lb through November, with more expected to come out in December, as the market has contended with elevated producer inventories, weak demand, and limited export opportunities due to logistics challenges for much of the second half of the year. PP prices are typically discussed on a monomer-plus basis, so anything on top of the polymer grade propylene (PGP) price is the PP producer's margin.

The market has already seen limited supply impact from Inter Pipeline's new 525,000 t/yr PP unit in Alberta, Canada, which came online in July 2022. But that unit has not been running at full rates as it awaits the full startup of the adjoining propane dehydrogenation (PDH) unit, expected by the end of this year. Additionally, ExxonMobil's new 450,000 t/yr PP unit in Baton Rouge, Louisiana, started up in early December. However, the full impact of that new production is not expected to be felt until late in the first quarter or early in the second quarter of 2023, as the unit is expected to take some time to work through its entire product wheel before it can achieve higher operating rates.

But once the two units begin running at steady levels, market participants have suggested the market could quickly become oversupplied.

"Everyone is going to have resin to offer. We will find resin under the rocks in our garden," joked one trader. "It's going to be everywhere."

That abundance of new resin, combined with expectations for continuing weak demand in the early part of 2023, has some market participants expecting that PP margins could fall by as much as another 8-10¢/lb by the end of 2023.

While some producers and even some buyers are optimistic that domestic demand will rebound early in the first quarter as buyers are forced to rebuild their inventories, plenty are still worried about economic conditions and the possibility of a potential recession that would erode PP demand.

"The economy is in tough shape," one buyer said. "Some people are saying things will turn around quickly, but I don't think consumer spending will be good for the majority of next year."

The uncertainty has left buyers more cautious in their approach to negotiations for 2023 contracts. In a typical year, contracts are signed in the last two months of the preceding year. But this year, contract negotiations are expected to extend into early 2023, as buyers seek to leverage the increased competition for better pricing.

Multiple buyers have said they anticipate contracting for less volume in 2023 so they have the option to purchase more spot volumes.

Imports from overseas are not expected to be as much of a factor in 2023 as they were in late 2021 or mid-2022, as domestic buyers look to the new capacity to more than meet their requirements. Exports from the US, however, are expected to play a bigger role, with producers needing the export market as a relief valve to prevent inventories from building up too high.

If domestic demand does not improve, and producers are not able to export as much as they need, some market participants have suggested that capacity rationalization could take place, with some of the oldest and least efficient units shutting down.

Impact of US PP force majeures unclear for now

Market participants are divided on the potential impact of two force majeures on polypropylene (PP) declared last week following production interruptions caused by below-freezing temperatures in US Gulf coast region.

Ineos Olefins & Polymers on 28 December declared force majeure on PP produced out of its Texas-based units in Chocolate Bayou and Deer Park, Texas, and Pinnacle Polymers on the same day declared force majeure on PP produced out of its Garyville, Louisiana, plant, according to separate customer letters.

The letters cited outages related to the winter weather. Temperatures in the Houston-area dipped below freezing during the early morning hours of 23 December then returned to below freezing for the next three nights before a warm-up began.

The Ineos letter described the declaration as a "precautionary measure… with possible implications to its supply of polypropylene," while the Pinnacle Polymers letter stated that it was "unable to predict when we will return to normal production due to the uncertainties of the event."

Officials from both companies declined to comment on whether the units had restarted, or on any lingering impacts to customers.

Multiple market participants said they believed most of the units have restarted, but participants were divided on the potential impact of any shutdown. One distributor said the shutdowns could potentially support higher prices due to supply limitations.

"With PP pricing dropping as much as it has over the last eight months, everyone has been destocking and availability could start to become an issue," said one distributor.

However, another distributor said most PP units were

Plant maintenance, outages and disruptions

Status	Plant	Location	Grade	Capacity '000t/yr	Duration	Remarks	Source
	Stavrolen	Russia	PP	120	1 Oct for two weeks	Planned maintenance	Producer
	Poliom	Russia	PP	218	9 - 31 Oct	Planned maintenance	Producer
	Yansab	Saudi Arabia	PP	400	10 Jan for 53 days	Planned maintenance	Producer
UPDATE	HPCL-Mittal Energy Limited	India	PP	400	Mid-Feb 2022 until present	Plant is operating at 40pc from August	Industry
UPDATE	Wuhan Petrochemical	China	PP	120	10 Nov 2021 until present	Maintenance	Producer
UPDATE	Haiguo Longyou Daqing Lianyi Petrochemical	China	PP	200	Apr 2022 until present	Maintenance due to margin concerns	Producer
UPDATE	Haiguo Longyou Daqing Lianyi Petrochemical	China	PP	350	3 Apr 2022 until present	Maintenance due to margin concerns	Producer
UPDATE	Sinopec Tianjin No.2	China	PP	200	1 Jul 2022 until present	Unplanned outage due to technical problems	Producer
UPDATE	Qinghai Saltlake	China	PP	160	13 Oct 2022 until present	Maintenance	Producer
UPDATE	Fujian Refinery No.1	China	PP	120	10 Nov 2022 until present	Maintenance	Producer
UPDATE	Hebei Haiwei	China	PP	300	6 Nov 2022 until present	Unplanned outage due to technical issues	Producer
UPDATE	Qingdao Jineng Chem	China	PP	450	30 Nov 2022 - 16 Jan 2023	Planned maintenance	Producer
NEW	SK Wuhan Petrochemical	China	PP	200	27 Dec 2022 - 31 Jan 2023	Maintenance	Producer
NEW	Shenhua Ningmei	China	PP	500	31 Dec 2022 - 6 Jan 2023	Unplanned outage due to technical issues	Producer
NEW	Shaoxing Sanyuan No.1	China	PP	200	9 Jan - 10 Mar	Maintenance	Producer
UPDATE	Shaoxing Sanyuan No.2	China	PP	300	9 Jan - 10 Mar	Maintenance	Producer
	IRPC	Thailand	PP	775	End Sep - Nov	Plant is expected to operate at 50pc	Industry
UPDATE	Thai Polypropylene	Thailand	PP	720	Mid-Sep - Jan 2023	Plant is expected to operate at reduced rates alongside upstream cracker shut-down	Industry
NEW	Lotte Chemical Titan	Malaysia	PP	640	Jan	Plant is expected to operate at 75pc with reduced propylene supplies	Producer
NEW	Chandra Asri	Indonesia	PP	590	Jan	Plant is operating at 70pc	Producer
NEW	Nghi Son Refinery and Petrochemical	Vietnam	PP	370	30 Dec 2022 - mid-Jan 2023	Plant shut due to technical issues	Industry

already expected to take significant downtime during the winter holidays, so the shutdowns were likely to have minimal impact.

"Maybe they lost a couple of shipping days. I just don't know who that really impacts," the distributor said. "It doesn't feel like it is going to be a big deal. I don't think anyone is down to the last few pellets."

Other PP units had taken some downtime in advance of the storm, including Braskem America, which notified customers on 21 December that it was temporarily idling assets in Texas, including at its La Porte, Seadrift and Oyster Creek locations. It was not immediately clear whether those units had restarted.

Ineos Olefins & Polymers has a combined capacity of around 586,000 t/yr of PP at units in Chocolate Bayou and Deer Park, Texas. Pinnacle Polymers has approximately 429,000 t/yr of PP capacity at its plant in Garyville, Louisiana.

New PP capacity to change Mexico PP market

The start-up of new capacity in the US and Canada is expected to change the fundamentals of the Mexican polypropylene (PP) market in coming months, after a 2022 that began with limited availability of imported material and ended with little demand for the resin.

Increased capacity at the ExxonMobil plant in Louisiana and the startup of the Heartland Polymers plant in Alberta, Canada, together bring almost 1mn/t of new capacity to the market, essentially doubling it in the US and Canada, which will create greater availability in Mexico.

"That is why we believe that the prices in 2023 should be lower than the ones we are currently seeing and not as high as those seen in the first half of this year," a local source said.

The new capacity should also help Mexican PP demand pick up because when prices drop, demand is usually stimulated, as customers in general can transfer those prices to their downstream customers'chains easier, benefiting the whole sector.

Another driver for a rebound in Mexican PP demand next year relates to nearshoring, the decision to move production closer to the US market.

Mexico's PP market during the first half of 2022 was marked by limited availability of US produced PP due to a lack of rail cars and several unscheduled plant shutdowns, which in turn led to rising prices.

New start-ups

Status	Plant	Location	Grade	Capacity '000t/yr	Start-up	Remarks	Source
UPDATE	Inter Pipeline	Canada	PP	525	Jul 2022	Plant started	Industry
UPDATE	ExxonMobil	US	PP	450	Dec 2022	Plant started	Industry
	Kazakhstan Petrochemical Industries	CIS	PP	500	2H Sep		Industry
UPDATE	Fujian Zhongjing Petro-chemical	China	PP	600	Early Sep 2022	Delayed from April 2022	Producer
UPDATE	Fujian Zhongjing Petro-chemical	China	PP	600	Dec 2022	Delayed from May 2022	Producer
	Jingbo Petrochemical	China	PP	400	1Q 2023	Delayed from October 2022	Producer
	Jingbo Petrochemical	China	PP	200	1Q 2023	Delayed from October 2022	Producer
UPDATE	Sinopec Hainan	China	PP	200	Feb 2023		Producer
UPDATE	Sinopec Hainan	China	PP	300	Feb 2023		Producer
UPDATE	Guangxi Hongyi New Material	China	PP	300	4Q 2022		Producer
	Oriental Maoming	China	PP	500	End 2022		Producer
	Guangzhou Juzhengyuan Phase 2	China	PP	300	End 2022		Producer
	Guangzhou Juzhengyuan Phase 2	China	PP	300	End 2022		Producer
	Ningbo Jinfa New Material	China	PP	800	1Q 2023		Producer
	Zhejiang Yuanjin New Materials	China	PP	450	2Q 2023		Producer
	Anhui Tianda	China	PP	300	3Q 2023		Producer
	Baofeng Energy Phase 3	China	PP	500	Jun 2023		Producer
	Sinopec Qilu	China	PP	250	Jun 2023		Producer
	Sinopec Anqing	China	PP	300	Jun 2023		Producer
	Petrochina Guangdong	China	PP	200	Sep 2023		Producer
	Jinneng Petrochemical Phase 2	China	PP	450	End 2023		Producer
	Shenhua Baotou Phase 2	China	PP	350	2023		Producer
	Oriental Maoming	China	PP	500	2023		Producer
UPDATE	HPCL-Mittal Energy Limited	India	PP	500	Jun 2022	Plant has started but operating at reduced rates	Industry
UPDATE	PRefChem	Malaysia	PP	450	Aug 2022	Plant has restarted on 28 December 2022	Industry
UPDATE	PRefChem	Malaysia	PP	450	Oct 2022	Plant is shut after a fire at the Pengerang Integrated Complex, expected to restart in January 2023	Industry
UPDATE	HMC Polymers	Thailand	PP	220	Dec 2022	Trial runs expected in December 2022	Producer
UPDATE	Long Son Petrochemical	Vietnam	PP	450	1H 2023	Trial runs expected in December 2022	Producer

But by mid-year PP prices started a downward price trend which remains in place as the year wraps up. The primary reasons for the lower prices were the drop in feedstock propylene prices and decreased margins in the PP prices.

As demand has dropped considerably in most market segments, the new capacity additions from Canada and the US also helped in pushing prices down.

Even with the higher prices seen during the first half, demand supported US exports to Mexico, which peaked at 176,000t in March this year. The following months saw some hiccups in exports until June, which saw exports into Mexico in the 140,000-150,000t range.

From July to September, when demand declined, US exports to Mexico failed to surpass the 140,000t barrier, according to the latest available customs data compiled by Global Trade Tracker.

US PP exports to Mexico totaled 542,000t during January-September, data show. For all of 2021, US PP exports to Mexico hit 708,000t.

In the meantime, Mexican PP inventories rose due to the lack of sales and poor demand in general in the second half of 2022.

S Korea's Hyundai Chemical to shut cracker in February

South Korean petrochemical producer Hyundai Chemical is considering shutting its Daesan-based heavy residual cracker in February, probably for 3-5 months amid persistently eroding cracker production margins.

The producer is aiming to shut its 900,000 t/yr cracker with 450,000 t/yr propylene output, likely from first half of February to end of June. But the exact dates are still under discussion, according to market sources. Downstream units including a 850,000 t/yr polyethylene plant and 500,000 t/yr polypropylene line will also shut because of an absence of feedstock olefins during the cracker shutdown.

Most crackers in South Korea, if not all, are operating their crackers at a reduced rates because of thinning cracker margins since early last year. Cracker margins have been under pressure despite producers cutting cracker rates to reduce olefins output because of weak downstream demand and high feedstock prices. Average naphtha cracker-based margins in 2022, according to *Argus* calculations settled at a negative $237/t, a far cry from $96/t in 2021 and $310/t in 2020.

Selected cracker operators in Asia are either mulling full shutdowns or extending their cracker turnarounds. South Korea's YNCC is extending its No.3 Yeosu-based cracker shutdown to end of February. Thailand's SCG is also extending its Rayong Olefins cracker shutdown in Map Ta Phut from September to at least mid-January. Taiwan's Formosa will likely keep its No.2 cracker in Mailiao shut for the first quarter of 2023. Philippine's JG Summit is aiming to shut its Batangas-based cracker again in the first quarter of the year because of weak margins.

Hyundai Chemical is a joint venture between Hyundai Oilbank and Lotte Chemical. The company started up its cracker in November 2021.

Vietnam's NSRP shuts RFCC, spurs prompt fuel buying

Vietnamese operator Nghi Son Refinery and Petrochemical (NSRP) has shut its residual fluid catalytic cracker (RFCC) in January following a leakage at the end of December, market participants said.

NSRP has shut the gasoline-producing RFCC unit from 1-10 January, market participants said, although this could not be confirmed with the refiner. It had previously reduced runs, likely at the unit, to about 65pc following the leakage in late-December. The 200,000 b/d refinery could have reduced overall crude run rates as well, market participants added.

The reduced runs and subsequent shutdown nudged Vietnam's state-controlled firms PVOil and Petrolimex to emerge on the spot market to buy prompt gasoline cargoes, market participants said. PVOil sought 180,000 bl of prompt gasoline for 10-13 January delivery to Vietnam through a tender that closed on 29 December, while the details of the Petrolimex tender could not be confirmed.

Gasoline demand from Vietnam has generally been rather stable, and with supplies disrupted by the shutdown, the market could see more buying of prompt cargoes, a gasoline trader said.

The RFCC closure also comes as Vietnam's ministry of trade and finance announced on 3 January an increase of 332 VND/litre in domestic retail 92R gasoline prices, subject to a maximum price of 21,352 VND/l ($0.91/l). Increases in 95R gasoline, kerosine and 180cst fuel oil prices were also announced, although eventual prices were all lower compared to levels in June 2022.

The refinery had cut PX production following the RFCC issue, with run rate reductions at the PX unit lasting till slightly after mid-January, sources familiar with refinery operations said.

Packaging and downstream applications

China's BYD becomes world's largest EV producer in 2022

China's new energy vehicle (NEV) manufacturer BYD reported record-high output and sales in 2022, surpassing US electric vehicle (EV) producer Tesla as the world's largest EV producer.

BYD's NEV production more than tripled from a year earlier to 1.88mn units in 2022, accounting for 99.8pc of the firm's total vehicle production. Its NEV sales in 2022 were also slightly more than three times that of the previous year at 1.86mn units, making up 99.7pc of the firm's total vehicle sales. Tesla produced 1.4mn EVs in 2022 compared with 930,422 in 2021.

BYD's NEV output in December surged by 156pc from a year ago to 235,215 units, including 599 commercial NEVs and 234,616 passenger NEVs, among which battery electric vehicles (BEVs) increased by 135pc from a year earlier to 109,577, with plug-in hybrid electric vehicles (PHEVs) soaring by 182pc to 125,039 units.

No gasoline-fuelled vehicles were produced in December as BYD stopped producing them in March 2022 and has since focused on producing BEVs and PHEVs.

BYD sold 235,197 NEVs in December, the fourth consecutive month with sales above 200,000 units, up by 150pc from a year earlier. Its December sales include 599 commercial NEVs and 234,598 passenger NEVs, among which BEVs rose by 132pc to 111,939 and PHEV sales almost tripled to 122,659.

China's NEV production totalled 6.253mn units during January-November 2022, doubling from a year earlier, with sales also doubling to 6.067mn units over the same period, according to data from China's Association of Automobile Manufacturers (CAAM). The association earlier last year expected China's NEV sales to reach 9mn in 2023.

But the end of an extended state subsidy is likely to slow China's NEV growth in 2023. The country will continue to waive the purchase tax for NEV. But this remains insufficient to ensure that producers are able to break even and many EV producers have consequently been indicating that auto prices will rise in 2023. BYD will raise prices for some models by 2,000-6,000 yuan/t ($290-872/t) from 1 January 2023, following a round of price hikes in late November.

FMCGs

Senate panel discusses potential recycling legislation

A US Senate panel is exploring national legislation to reduce plastic waste in the US.

The US Senate Committee on Environment & Public

Works in December discussed a variety of topics relating to plastic waste and recycling, including the rise of chemical or advanced recycling, a lack of standardisation of collection, and the harms of plastic waste.

The panel began by addressing a number of health and environmental concerns caused by plastic waste, including the presence of microplastics inside humans, damage to bodies of water such as rivers and lakes, and the carbon footprint caused by plastic waste.

"Plastic waste has caused a lot of concern, and yet we're blindly enroute to tripling its presence," said US senator Jeff Merkley (D-Oregon).

A source of frustration for US-based polymers recyclers in 2022 has been a steady barrage of criticism directed at the industry for its recycling rates, which is largely caused by a lack of national standardised collection and unavailability of recycling in regions across the US. Recycling rates for plastic are low relative to other materials, with polyethylene terapthalate (PET) bottles recycled at a rate of 27.1pc in 2021, according to Association of Plastic Recyclers data.

Activist and industry groups, which have largely been at odds and clashed loudly with each other over the course of 2022 via large media outlets such as The Atlantic and Time, did agree on some potential for co-operation regarding bottle bills and collection legislation.

Plastic Industry Association President Matt Seaholm and activist group Beyond Plastics President Judith Enck agreed that well-crafted national bottle bills and deposit schemes presented a good path forward for plastic recycling, in spite of competing interests.

Senators also questioned chemical recycler Nexus Circular chief executive officer Eric Hartz about whether chemical recycling would take feedstock typically reserved for mechanical recyclers. The issue has worried some recyclers and industry analysts because collection streams for chemical recycling are in their beginning stages, meaning they might have to rely on established streams and increase competition for bales.

"Mechanical recycling is actually less work, there's some heat, you cut plastics and reform them," Hartz said. "There's a lot of plastics that can go there, and that's not the plastics we seek."

Hartz also said that it was cheaper to produce recycled plastic mechanically than chemically, and therefore the economics of the marketplace would prevent chemical recyclers from using mechanically recyclable material.

The panel made no commitments, but agreed to continue to study the issue and consider potential legislation.

Economic view

China's business confidence fell to its lowest since January 2013, a survey by World Economics showed, reflecting the impact of surging Covid-19 cases on economic activity with the abrupt lifting of many pandemic control measures. The index fell to 48.1 in December from 51.8 in November, showed the World Economics' survey of sales managers at over 2,300 companies conducted in the first half of December. The index was the lowest since the survey began in 2013. But next year could see some improvement. China's top leaders said they will focus on boosting the economy next year, hinting at business-friendly policies, further support for the property market while likely scaling back fiscal stimulus. At a recent two-day Central Economic Work Conference, Chinese president Xi Jinping and other senior officials pledged to revive consumption and support the private sector, a marked shift from recent years.

Euro zone gross domestic product (GDP) grew by slightly more than initially estimated, data from the European statistics agency Eurostat showed, with household spending and business investment propping up the economy. Eurostat said GDP growth in the third quarter was 0.3pc in the 19-country euro area in the July-September period from the previous quarter and 2.3pc year-on-year, above its flash estimates of 0.2pc and 2.1pc published in mid-November.

The US economy showed signs of slowing with retail sales and manufacturing dropping in November, but the labor market remained resilient as employers largely hold onto workers. Retail sales fell in November by the most in nearly a year in a broad-based decline reflecting the strain of inflation and a shift toward spending on services. Several factory gauges showed contraction, burdened by higher borrowing costs and weaker demand.

Currency

The US Dollar has seen mixed movement amid widespread market uncertainty.

Supply chain and shipping

China is easing the handling of Covid-19 as restrictions are being lifted. The easing of restrictions is expected to improve the efficiency of the supply chain, according to shipping experts. A more efficient supply chain, in addition to soft demand due to fear of recession, is expected to put a downward pressure in spot rates in the following months, according to analysts.

Long-term rates will drop faster as older, much more expensive contracts expire and new, much lower contracts

Global polymer freight rates $/t

Origin	Destination	Argus Low	Argus High	±	Source
Americas					
Houston	Shanghai	32	45	▲	Freightos Derived
Houston	Mersin	52	52	-	Freightos Derived
Houston	Genoa	36	55	-	Freightos Derived
Houston	Valencia	36	53	▲	Freightos Derived
Houston	Antwerp	24	40	▼	Freightos Derived
Houston	Santos	37	65	▼	Freightos Derived
Houston	Buenos Aires	47	71	-	Freightos Derived
Houston	Buenaventura	102	106	▼	Freightos Derived
Houston	Callao	102	111	-	Freightos Derived
Houston	Guayaquil	102	107	-	Freightos Derived
Houston	Valparaiso	129	152	▼	Freightos Derived
Santos	Rotterdam	91	91	-	Freightos Derived
Middle East and North Africa					
Jubail	China	10	15	▼	Argus
Jubail	Indonesia	30	35	▼	Argus
Jubail	Karachi	45	50	▼	Argus
Jubail	Mumbai	25	30	▲	Argus
Jubail	Turkey	55	65	-	Argus
Jebel Ali	Shanghai	6	16	-	Freightos Derived
Jebel Ali	Singapore	8	8	-	Freightos Derived
Jebel Ali	Melbourne	188	194	-	Freightos Derived
Jebel Ali	Tauranga	176	192	-	Freightos Derived
Jebel Ali	Antwerp	43	56	-	Freightos Derived
Jebel Ali	Buenaventura	184	184	-	Freightos Derived
Jebel Ali	Callao	181	181	-	Freightos Derived
Port Said	Mersin	10	15	-	Freightos Derived
Port Said	La Spezia	15	25	-	Freightos Derived
Port Said	Antwerp	25	35	-	Freightos Derived
Southeast Asia					
Singapore	Karachi	40	59	▲	Freightos Derived
Singapore	Mumbai Nhava Sheva	32	56	-	Freightos Derived
Singapore	Colombo	35	50	▲	Freightos Derived
Singapore	Melbourne	81	105	-	Freightos Derived
Singapore	Tauranga	187	214	-	Freightos Derived
Vung Tau	Antwerp	107	136	▼	Freightos Derived
Vung Tau	Genoa	117	129	▼	Freightos Derived

Global polymer freight rates $/t

Origin	Destination	Argus Low	Argus High	±	Source
Northeast Asia					
Busan	Mersin	83	144	▲	Freightos Derived
Busan	Koper	121	136	▲	Freightos Derived
Busan	Genoa	107	119	▲	Freightos Derived
Busan	Valencia	113	138	▲	Freightos Derived
Busan	Antwerp	55	87	▼	Freightos Derived
Busan	Durban	170	210	-	Freightos Derived
Busan	Santos	65	69	-	Freightos Derived
Busan	Buenaventura	64	66	▼	Freightos Derived
Busan	Callao	64	66	▼	Freightos Derived
Busan	Melbourne	48	48	-	Freightos Derived
Busan	Tauranga	95	108	▲	Freightos Derived
Shanghai	Nagoya	21	21	-	Freightos Derived
Shanghai	Laem Chabang	5	11	▼	Freightos Derived
Shanghai	Port Klang	8	13	▼	Freightos Derived
Shanghai	Karachi	40	65	▲	Freightos Derived
Shanghai	Mumbai Nhava Sheva	27	63	-	Freightos Derived
Shanghai	Chennai	39	67	▲	Freightos Derived
Shanghai	Colombo	44	65	▲	Freightos Derived
Shanghai	Chittagong	75	95	-	Freightos Derived
Shanghai	Mersin	98	135	▲	Freightos Derived
Shanghai	Koper	127	145	▲	Freightos Derived
Shanghai	Genoa	101	122	▼	Freightos Derived
Shanghai	Valencia	99	137	-	Freightos Derived
Shanghai	Antwerp	53	82	▲	Freightos Derived
Shanghai	Rotterdam	48	83	▲	Freightos Derived
Shanghai	Durban	175	189	-	Freightos Derived
Shanghai	Santos	61	69	▲	Freightos Derived
Shanghai	Manzanillo	57	62	-	Freightos Derived
Shanghai	Buenaventura	53	58	▼	Freightos Derived
Shanghai	Callao	58	61	▼	Freightos Derived
Shanghai	San Antonio, Chile	58	62	▼	Freightos Derived

Argus freight rates are as of the day of publication. Rates derived from Freightos data are of the previous day. Selected polymer spot freight rates are calculated by Argus methodology, based on underlying data from the online freight marketplace, Freightos. Visit www.freightos.com for complete lists of $/FEU rates in the wider spot container market.

are signed, some analysts say. But long-term freight rates are not expected to fall below spot rates during the first half of 2023, according to shipping experts.

More ships added to California shore power law

Additional vessel types will now have to comply with California emissions measures aiming to curb particulate matter and nitrogen oxide emissions.

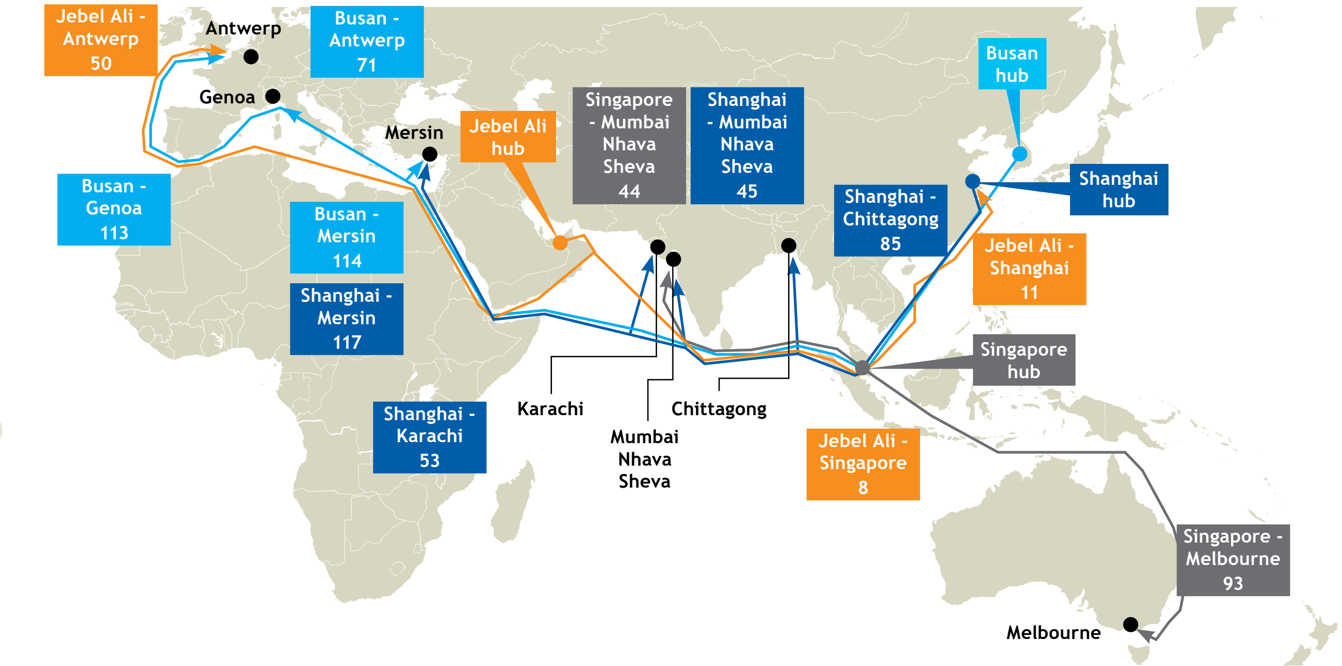
Container ships, cruise and refrigerated cargo ships visiting California ports, such as Los Angeles and San Francisco, are required to adopt a method to cut their emissions as of 1 January 2023.

Shipowners will most likely comply with this regulation by plugging into shoreside power, which is also known as cold ironing. This enables a ship to be plugged into electric power while docked at a port and to turn off its engine, keeping the vessel in operation. If a ship is not equipped with shore power capability, a shipowner can apply for a temporary exception to the California Air Resources Board, the state agency in charge with implementing this law.

This initiative was originally passed in 2007 and went into effect in 2014. An updated version was signed into state law in 2020 to add more vessel types that would need to comply.

In addition to the ships that fall under this regulation be-

POLYPROPYLENE ROUTES BY EXPORTING PORT



ginning this month, other vessels such as roll-on/roll-off ships are required to comply beginning 1 January 2025. Tanker vessels calling the ports of Los Angeles and Long Beach must also begin compliance on that date. All other tanker vessels must comply by 1 January 2027. Government and military ships are exempt from this law.

California commercial harbor craft vessels, like bunker barges, ferries, pilot boats, must burn renewable diesel as of 1 January 2023. This measure is also aimed at cutting particulate matter and nitrogen oxide emissions.

QUOTE OF THE WEEK

"It remains to be seen if the US winter storm will tighten supplies like in 2021."
— *Southeast Asian participant*

Brazil's cargo handling by rail fell in November

Brazil's cargo handling by rail fell in November 2022 from a year earlier, driven by a decrease in iron ore shipments.

Rail cargo totalled 30.1bn metric tonnes transported/kilometer (t/km) in November 2022, down by 3.3pc from 31.2bn t/km in November 2021, according to Brazil's national association of railway carriers (ANTF). Cargo transport by rail in November fell by 11pc from the previous month.

Iron ore handling reached 20.7bn t/km, down from 22.3bn t/km a year earlier. Container transport rose to 393mn t/km from 346mn t/km.

Fuel volumes reached 649mn t/km, compared with 605mn t/km a year earlier. Agricultural bulk cargo totalled 5.9bn t/km, up from nearly 5.2bn t/km last year. Handling of other cargoes reached 2.45bn t/km from 2.44bn t/km.

Freight transport totalled 340.7bn t/km in January-November 2022, practically stable from the same period in 2021.

In the same period, 94.8pc of iron ore and 49pc of soybean and soybean meal exported from Brazil reached ports by rail, according to ANTF data, up by 0.5 and 3 percentage points, respectively, from the same period in 2021.

Rail transport accounted for 50.5pc of corn and 48.7pc of sugar exports, down by 6.8 and 4.8 percentage points, respectively.

ANTF represents railroad operators responsible for cargo transport on the 13 rail networks run by Brazil's private sector, which covers about 30,000km (18,640 miles). It monitors agricultural bulk cargo, iron ore, fuels, containers and other cargoes, such as cellulose, coal and steel.

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