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Argus *Global Polypropylene*

Polypropylene prices and global coverage

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HIGHLIGHTS

US
November prices expected to fall

Latin America
Braskem lowers December prices in Brazil

Europe
Buyers await December offers, fundamentals weak

Russia and CIS
Prices fall on expectations of new supply

Turkey
Prices fall ahead of new offers

Middle East
Prices hold for December

China
Import prices rise with crude

Southeast Asia and Vietnam
Weaker demand limits discussions

India
Prices hold as buyers restock

Pakistan
Prices stable as buyers bid aggressively

Dalian futures market
PP futures rise with crude futures

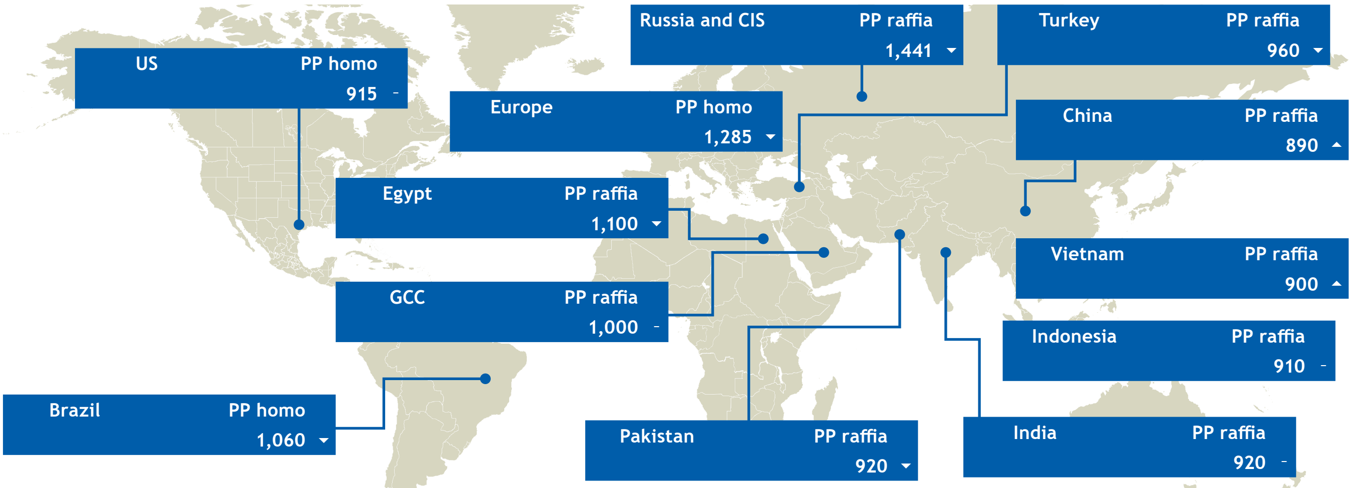
Fundamentals to watch
LyondellBasell restarting Berre complex ahead of plan
European recyclers see automotive industry potential
South Korean petchem producers cut cracker run rates
Auto producers to take holiday closures
Packaging industry gives mixed response to EU rules
US Senate votes to avoid rail strike

Global polymer freight rates

Contract prices			$/t
	Timing	Contract marker	±
US			
Copolymer	Nov	1,345 ▼	-44.00
Homopolymer	Nov	1,301 ▼	-44.00
Western Europe			
Copolymer	Nov	1,662 ▲	+35.0
Homopolymer	Nov	1,589 ▲	+35.0

Spot prices			$/t
	Basis	Price	±
US			
Homopolymer	fas/Houston bagged	904-926 -	0
Homopolymer	dap/Laredo railcar	838-926 ▼	-11
Brazil			
Homopolymer	cfr	1,050-1,070 ▼	-15
Copolymer	cfr	1,180-1,200 -	0
West Coast South America			
Homopolymer	cfr	1,020-1,050 ▼	-15
Copolymer	cfr	1,150-1,160 ▲	+30
Northwest Europe			
Homopolymer	del	1,206-1,363 ▼	-15
Raffia	del	1,180-1,337 ▼	-15
Russia and CIS			
Raffia	cpt	1,431-1,451 ▼	-22.0
PP homopolymer	cpt	1,458-1,492 ▼	-39.5
Block copolymer	cpt	1,622-1,642 ▼	-3.0
Turkey			
Raffia Mideast Gulf origin	cfr	940-980 ▼	-5
Non-woven fibre Mideast Gulf origin	cfr	960-1,000 ▼	-15
Fibre Mideast Gulf origin	cfr	960-1,000 ▼	-15
Block copolymer Mideast Gulf origin	cfr	1,020-1,060 ▼	-60
Block copolymer South Korea origin	cfr	1,090-1,150 ▼	-35
Egypt			
Raffia Mideast Gulf origin	cif	1,050-1,150 ▼	-25
Fibre Mideast Gulf origin	cif	1,080-1,180 ▼	-15
GCC			
Raffia	del	980-1,020 -	0
BOPP film	del	1,020-1,060 -	0
Jordan/Lebanon			
Raffia	del	1,080-1,100 -	0
Saudi Arabia (CMP)			
Copolymer	fob	853-883 ▲	+21
Raffia	fob	853-873 ▲	+26
China			
Copolymer	cfr	880-910 -	0
Copolymer domestic	import parity	903-932 ▲	+5
Raffia	cfr	880-900 ▲	+5
Raffia domestic	import parity	891-909 ▲	+7
Raffia	fob	890-930 ▲	+5

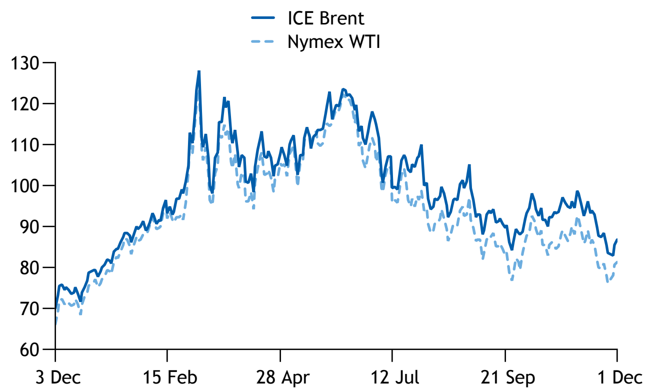
GLOBAL SNAPSHOT



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				1,622-1,642	1,020-1,060	880-910	920-940	
PP homopolymer	Dec	904-926	1,206-1,363					
PP raffia			1,180-1,337	1,431-1,451	940-980	880-900	890-910	910-930

FEEDSTOCKS

Crude futures $/t



Spot prices				$/t
	Basis	Price		±
Southeast Asia dutiable				
Copolymer	cfr	920-940	-	0
Raffia	cfr	890-910	-	0
Southeast Asia duty free				
Copolymer	cfr	990-1,030	-	0
Raffia	cfr	970-1,000	▲	+5
Vietnam				
Raffia	cfr	890-910	▲	+10
Indonesia				
Copolymer Mideast Gulf origin	cfr	920-940	-	0
Raffia Mideast Gulf origin	cfr	900-920	-	0
India				
Raffia	cfr	910-930	-	0
Pakistan				
Raffia	cfr	910-930	▼	-10
Bangladesh				
Raffia	cfr	970-990	-	0
Sri Lanka				
Raffia	cfr	990-1,010	▼	-70
Nepal				
Raffia	cpt	980-1,000	-	0

Crude				$/bl
	Effective date	Price		±
Ice Brent	2 Dec	85.57	▲	+0.16
Nymex WTI	1 Dec	81.22	▲	+3.28

Crude oil

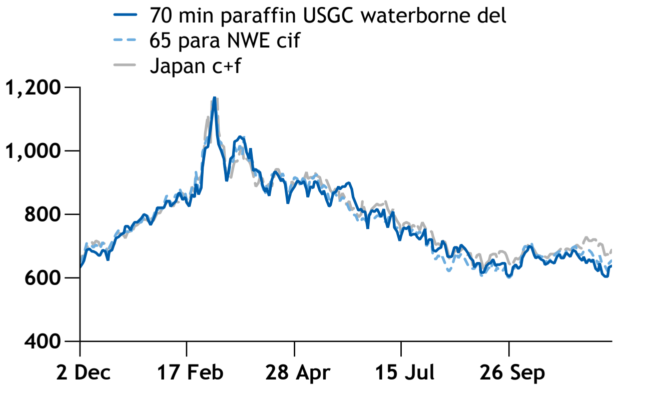
Crude prices firmed this week as Covid-19 curbs eased in more parts of China, which might help to increase its oil demand. And US oil inventories posted the largest weekly drop in more than three years, owing to higher refinery runs and exports.

Crude prices also found support from a weaker dollar, spurred by signals from the Federal Reserve that it may slow its pace of rate hikes as soon as this month amid signs of easing US inflation. Meanwhile, US and other G7 policymakers are awaiting the outcome of the EU discussions in Brussels on setting a price cap level for Russian crude exports ahead of the 5 December implementation deadline.

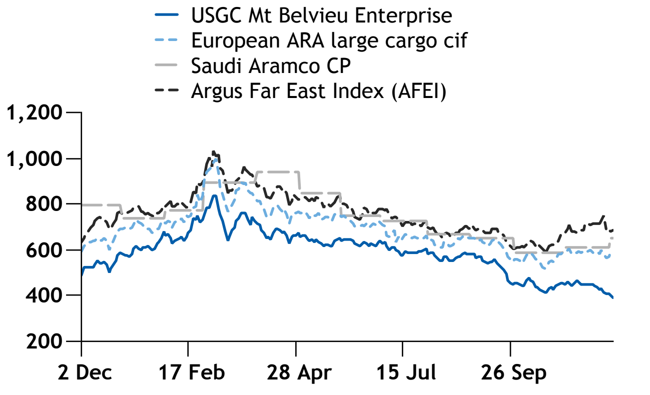
Naphtha				$/t
	Effective date	Price		±
70 min paraffin USGC waterborne del	1 Dec	638.30	▲	+24.88
65 para NWE cif	2 Dec	637.75	▼	-1.50
Japan c+f	2 Dec	670.00	▼	-29.00

Propane				$/t
	Effective date	Price		±
Mt Belvieu Enterprise	1 Dec	393.36	▼	-20.18
ARA large cargo	2 Dec	577.00	▼	-2.00
Saudi Aramco CP	2 Dec	650.00	▲	+40.00
Argus Far East Index (AFEI)	2 Dec	658.00	▼	-51.75

Naphtha spot prices $/t



Propane key prices $/t



Naphtha

On the US Gulf coast, depressed buying interest persisted across the naphtha grades, but differentials for full-range N+A naphtha found room to inch higher behind a weakened gasoline basis. Some exports were heard done, which cleaned up some of the Gulf coast naphtha length and bolstering pricing sentiment. But year-end inventory taxes also weighed on naphtha demand, with most participants seeking to minimize inventory levels.

Northwest European naphtha margins fell to -$15/bl on 1 December, from around -$10/bl last week. Wider discounts for naphtha may point to annual destocking as trading firms are try to sell their supplies by the end of the year. One major demand outlet for naphtha, gasoline blending, is declining currently. The US, which is one of the biggest export markets for European gasoline, is building stocks of the product, limiting the westbound transatlantic gasoline arbitrage. This has combined with increased supply in northwest Europe as refinery runs rebound from a period of unplanned shutdowns, maintenance and strikes. Naphtha averaged around €28/t lower in November.

Activity was subdued in the Asian naphtha spot market. No petrochemical producers issued any tender to buy spot cargoes this week. But South Korean cracker operators have been engaging in private negotiations instead for their deals, market sources said. A South Korea-based trader said South Korean petrochemical producers have been doing private negotiations to get their cargoes from domestic suppliers or from commercial tank sources. This is likely because named origin cargoes are currently too expensive and would weigh further on cracker margins.

Propane

On the US Gulf Coast, propane fell to a 19-month low on rising domestic inventories as well as increasing delays at the Panama Canal that limit demand for incremental exports. Weak demand from the petrochemical sector and for seasonal heating kept propane prices from tracking crude gains.

In Europe, rebounding crude oil prices provided an upward direction to large cargo propane value. In terms of demand, the temperature forecast indicates the return of more seasonal winter demand. But the petrochemical outlook remains gloomy, with the recent widening of propane-naphtha paper spread unlikely to incentivise additional buying.

Propane prices in the Asia-Pacific eased this week, defying gains in crude prices. Supply tightness in the first-half January arrival market had apparently eased with faster crossing times on the southbound voyage across the Panama Canal, traders said, despite official reports of 23 days of waiting times at the Neopanamax Locks. AFEI propane was at $658/t on 2 December, down from $709.75/t on 25 November. Meanwhile, state-controlled firm Saudi Aramco raised the December propane Contract Price (CP) to $650/t,

New PDH start-ups							
Status	Plant	Location	Grade	Capacity '000t/yr	Start-up	Remarks	Source
	Qixiang Tengda	China	Propylene	700	Mar	Plant shut from 18 June for 25-30 days maintenance, extended to September	Industry
	Jiangsu Sailboat	China	Propylene	700	Apr	Plant is operating at 60pc	Industry
	Zibo Xintai	China	Propylene	300	Jun	Plant restarted	Industry
	Puyang Far East Technology	China	Propylene	150	Mid-Jun	Plant shut from 27 June because of technical issues	Industry
	Shandong Huifeng Haiyi Petrochemical	China	Propylene	250	Sep	Plant is operating at 50pc	Industry
	Wanda Tianhong	China	Propylene	450	Nov	Plant is operating at 40pc	Industry

up by $40/t on the month, despite a nearly 10pc drop in front-month Brent values over the same period. Saudi Arabia was expected to maintain its LPG term supply in December, market participants said.

PDH margins

China PDH margins recovered largely, to negative $47/t, up by $72/t against last week. Asia propane prices fell by $40/t to a weekly average of $686/t in northeast Asia. Downstream propylene prices also rose by $20/t to $885/t cfr northeast Asia.

China PDHs

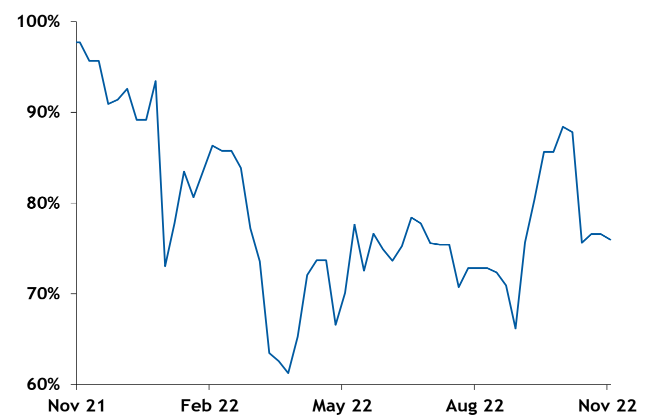
The average operating rates of Chinese PDH operators were 76pc this week. Market participants are expecting propylene supplies to become tighter in the coming weeks on more plant turnarounds. Jinneng Technology will be shutting its 900,000 t/yr PDH plant on 3 December for one month along with its 450,000 t/yr PP unit, resulting in a production loss of 37,500 t/month of propylene. Chambroad's 115,000 t/yr mixed-feed dehydrogenation (MDH) plant also started a shutdown on 23 November. The MDH plant will restart after 40-50 days of maintenance. Hebei Haiwei's 500,000 t/yr unit has continued to stay shut since 10 November with a restart date remaining unclear.

Liaoning Kingfa has commissioned its new 600,000 t/yr PDH plant in Panjin city, Liaoning province and achieved on-specification propylene early this week. The PDH plant is equipped with downstream 260,000 t/yr ACN lines that will feed into its 600,000 t/yr acrylonitrile-butadiene-styrene units. The PDH plant is currently operating at reduced rates of not more than 70pc, according to sources close to the company. Liaoning Kingfa will have an estimated excess propylene supply of 306,000 t/yr or 25,500 t/month for sale when its PDH and ACN plants start running at full capacity.

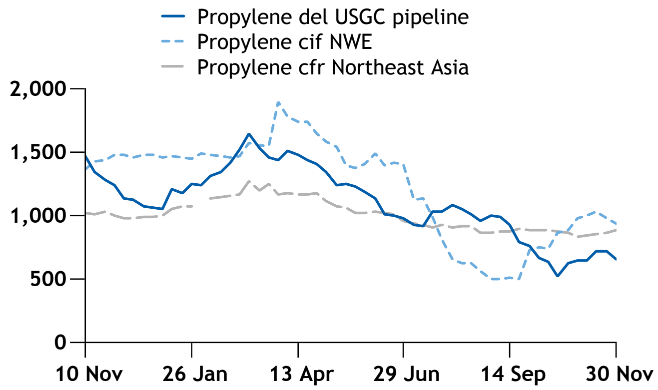
Propylene

The traded range for US prompt-month spot polymer-grade propylene (PGP) fell this past holiday week to between 29.5-30¢/lb with all five recorded trades totaling 21mn lb occurring the Monday after Thanksgiving. The US PGP market is ending the year with weaker prices stemming from surplus capacity and shaky demand. PGP spot prices fell just shy of 3¢/lb this week despite operational issues at two of the US Gulf coast's three PDH units. The November PGP contract price settled up by 1¢/lb to 33¢/lb the Monday after Thanks-

China PDH operating rates %



Propylene spot prices $/t



Market highlight

The European propylene monthly contract price (MCP) for December settled on 29 November at €1,170/t, a decrease of €30/t from November.

giving. This was slightly above Argus's 45-day weighted average.

The European propylene monthly contract price (MCP) for December settled on 29 November at €1,170/t, a decrease of €30/t from November. This was only slightly more than the average fall in naphtha prices in November of around €28/t. Operating rates across European crackers are heavily reduced, probably below those seen in the fourth quarter of 2008 at the start of the financial crisis. Producers with multiple crackers are choosing to run them all at lower rates rather than take one off line at this time of year, when freezing conditions can cause damage. *Argus* estimates that overall the operating rate is 60-65pc, against nameplate capacity. This includes crackers that are off line in France and the UK as well as those reduced for technical and commercial reasons. Operating rates vary widely, with some as low as 40pc while others are at 75pc — the higher rates are where crackers have access to alternative feedstock with stronger economics, albeit with lower yields of propylene.

Asian propylene prices extended gains on anticipation of reduced supplies in the coming weeks in China, which underpinned domestic prices and lifted buying ideas in the cfr northeast Asia market. Market participants are expecting supplies to become tighter in the coming weeks on plant turnarounds. Wanhua's new 400,000/250,000 t/yr phenol/acetone plant achieved on-specification production last week. Other start-ups such as Qixiang Tengda's 300,000 t/yr propylene oxide (PO) unit also resulted in more demand for propylene. Satellite Lianyungang's 400,000 t/yr PO production line is also set to start up by early December. Shenghong Petrochemical fed in feedstock naphtha to its 1.1mn t/yr cracker on 26 November and the company expects to achieve on-specification olefins production in a couple of days. Southeast Asian market participants are focusing on term negotiations, resulting in limited spot discussions. Most cited this year's term negotiations as being more challenging given the uncertainty in economic outlook and bleak demand in 2023. Indonesia's Chandra Asri is yet to restart its Cilegon cracker, while Thailand's SCG is likely extending its ROC cracker turnaround until at least the end of December. Malaysia's Petronas possibly has restarted its Pengerang cracker as the company issued tender to sell late last week.

Propylene	Basis	Effective date	Price		±
PGP USGC contract ¢/lb	Nov	28 Nov	33.00	▲	+1.00
PGP USGC contract $/t	Nov	28 Nov	727.52	▲	+22.0
PGP NWE contract €/t	Dec	30 Nov	1,170.00	▼	-30.00
PGP NWE contract $/t	Dec	30 Nov	1,206.81	▼	-30.94
cfr NE Asia $/t	spot	30 Nov	885.00	▲	+20.00

The company concluded to sell a 5,000t propylene cargo for 10-11 December loading on a fob Pengerang basis but the results could not be confirmed.

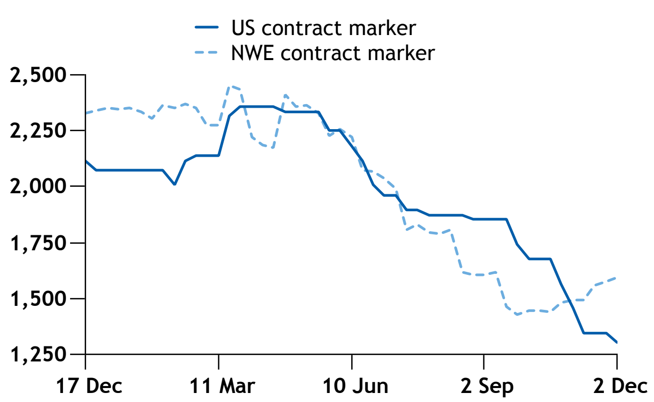
PRICING ANALYSIS

US

US polypropylene (PP) contract discussions for November are not yet fully settled, but market participants are expecting a decrease of 2¢/lb, including a 1¢/lb increase in polymer grade propylene (PGP) contracts and a 3¢/lb PP margin reduction aimed at narrowing the gap between spot and contract prices. Sentiment for December remains bearish, with some market participants seeing the potential for further margin compression this month as producers continue to offer concessions as part of the 2023 contract negotiations.

PP supply remains widely available, with no major production problems heard in the market, but plants still running at lower rates as producers attempt to limit any inventory build at the end of the year. Sources indicated that the new Canadian unit was not running at the moment, but

US vs west Europe PP homopolymer prices $/t



US contracts				¢/lb
	Timing	Argus Δ (month-on-month change)	Contract marker	Low / High ±
Copolymer contract marker	Nov	-2.0	61	-2.0/+1.0
Homopolymer contract marker	Nov	-2.0	59	-2.0/+1.0

US exports				¢/lb
	Basis	Price		±
Homopolymer	fas/Houston bagged	41-42	-	0
Homopolymer	dap/Laredo railcar	38-42	▼	-1

is still selling some inventory, as it finalizes connections with its new propane dehydrogenation (PDH) unit. The PDH unit is expected to come online in the coming days, but no official information on start-up expectations could be confirmed. New product was still expected this month from ExxonMobil's new Baton Rouge, Louisiana, plant, but it was not clear whether the plant was running now.

Spot material is still available, with generic prime PP offered in the upper 40s¢/lb level. While producers' inventories are still heavy, traders said they are no longer interested in selling product at heavily discounted prices for now.

According to final, revised October data, total PP production fell to 1.347bn lb, down by 0.6pc from September levels, with plants operating at around 72.9pc of total capacity. Total sales reached 1.351bn lb, up by 2.7pc from September, with exports up by 123pc and domestic sales down by 0.3pc over the period. With sales exceeding output, producers added 14mn lb to inventories in October.

Year-to-date production is down by 4.2pc compared with the same period in 2021. Year-to-date sales ae down by 3.3pc, with exports up by 2.8pc and domestic sales down by 3.5pc.

Of those year-to-date domestic sales, multiple segments have seen declines, including: appliances (-24.9pc), furniture (-11.5pc), housewares (-16.5pc), rigid packaging (-1.6pc), blow molding (-2.3pc), extrusion (-3.7pc), and fiber and filaments (-13pc). Sales to distributors also fell by 8.2pc and sales to compounders are down by 2.8pc. A few segments have seen some year-to-date improvement, including: transportation (+15.9pc), film (+5.1pc), sheet (+2.2pc), and sales to resellers (+7.3pc).

Demand in November was lacklustre, and expectations are for similar conditions in December. Most sectors have experienced a slowdown in orders and multiple converters are expected to take longer-than-normal downtime at the end of the month for end-of-year holidays.

While some producers continue to describe demand as decent, recent economic news has been worrying. The Intitute for Supply Management's Manufacturing PMI contracted in November for the first time since May 2020 following 29 consecutive months of growth. The November PMI fell to 49pc, with measures for new orders, new export orders, and employment showing contraction.

In positive news for the market, the US President Joe Biden approved a bill to override union objections to a proposed rail worker contract, allaying the potential for a nationwide rail strike.

Export activity remains slow, with producers uninterested in trying to meet lower-priced offers from overseas. DAP Laredo prices held steady for now, but traders said they do expect prices to rise slightly before the end of the month.

Mexico

In Mexico, PP demand is still sluggish, according to a market participant. Local buyers are continuing to buy only as needed, not wanting to build inventories at the end of the year. Economic concerns are beginning to weigh on converters, with reports heard of downstream orders cancelled or pushed off into 2023. Fresh offers out of the US were limited. However, one trader said it had heard very aggressive offers for PP raffia into Mexico from one major US producer.

Traders said they expect business to be stronger in the first few weeks of the month, before activity slows significantly in the last few weeks of the year ahead of end-of-year holidays.

Latin America

For the second consecutive week, Latin American demand for polypropylene (PP) has been supported by increased consumption stimulated by the Fifa World Cup tournament being held in Qatar since 20 November, but not all local markets are pointing upward on sales.

Meanwhile, speculation on bids and offers has been the rule, according to market participants.

Argus heard deals done in Peru for PP copolymer made in South Korea at $1,140/t, but the majority of local importers keep struggling with very high stock levels.

Still in the west coast South America (WCSA), Chilean demand is failing to rebound and remains sluggish. Another concern for buyers in the WCSA region is that many customers are tied to contracts signed with Brazilian resin producer and exporter Braskem, which forces them to buy a certain amount of PP on a monthly basis. The issue limits the ability to purchase imports from other origins.

On the supply side, the availability of US produced PP has been falling for South American buyers, despite an abrupt decline in freight from the North American country, especially to Brazil's northern port of Manaus. Local buyers have been trying to take advantage of a cut in antidumping duties over US PP, issued by the government in October, but they face shortened PP supply from that origin.

Argus heard from a source that Canadian material has been successfully taking advantage of the shortage of US material in the region, with several contracts closed. Furthermore, the Canadian PP producer has freed traders to start offering this material across Latin America due to its positive acceptance.

Chinese material offers exist, but at smaller volumes and higher fob prices. Declining Asian freight could turn this material more competitive in the coming weeks, *Argus* heard.

Middle Eastern offers were also heard. As this origin's prices continue to be higher than other sources, declining freight prices and lower delivery times could also become a competitive advantage in the near future.

With more available PP from the international market at very competitive prices, Brazil's Braskem has been reducing PP domestic prices since June, and in December, they fell $38/t, the sixth consecutive fall. The cumulative price contraction from June to December is $502/t, converted by the BRL/USD rate of 5,2747 recorded in November's average.

In Argentina, the government announced a 20pc increase in the minimum wage to guarantee purchasing power in the face of high inflation in the country, forecast to hit 100pc this year. The government action happened after reaching an agreement with business and trade union entities. The measure will favor local consumers and producers.

Argentina's PP domestic prices rolled in November after falling 10pc in October from September. A new pricing policy for December should be presented during next week.

Europe

The European polypropylene (PP) market remains fundamentally weak at the start of December, with demand depressed. Market participants remained largely on the sidelines and awaited clarity on feedstock propylene's December monthly contract price (MCP), which settled earlier this week at a €30/t decrease. It remains too early to assess pricing of freely negotiated PP contracts for December, with many sellers yet to table their offers. But against the backdrop of weak fundamentals and a lack of confidence in the market, producers are expected to continue to struggle to defend their margins.

Demand weakness stems from the entire value chain remaining focused on keeping inventories low, with buyers and sellers avoiding taking positions with excess inventories ahead of an uncertain economic outlook for the first quarter.

Western Europe contracts				€/t
	Timing	Argus Δ (month-on-month change)	Contract marker	Low / High ±
Copolymer contract marker	Nov	+10.0	1,585	-25.0/+50.0
Homopolymer contract marker	Nov	+10.0	1,515	-25.0/+50.0

Northwest Europe spot				€/t
	Basis	Price		±
Homopolymer	del	1,150-1,300	▼	-25
Raffia	del	1,125-1,275	▼	-25

The only exceptions are in cases where some buyers could be maintaining their contractual offtake to reach the thresholds required for higher rebates on their contract prices. But with fears of a prolonged recession, hesitation is widespread and buyers are mostly procuring on a hand-to-mouth basis.

Economic indicators remain gloomy, with inflation above average at double digits, with the latest reading of 10pc for November doing little to alleviate concerns, despite a slight decrease of 60 basis point from a month earlier. The eurozone's manufacturing sector contracted again in November, although by less than in October. The eurozone's manufacturing purchasing managers index (PMI) was 47.1 in November, compared with 46.4 in October. This was the fifth successive month of a reading below 50, which indicates contraction. But it is too early to interpret this as a turning point, especially as Europe's energy supply security will be put to the test in the coming weeks as temperatures are expected to drop and natural gas stocks are drawn down. In the worst case, another surge in natural gas and electricity prices could revive challenges for European industries, and the risk of power shutdowns continues to exacerbate the concerns of many, with the polymers value chain being no exception.

Consumer confidence remains low as the cost of living crisis continues to bite, dampening discretionary spending in particular but also on basic outgoings to an extent. Measures have been announced by various governments to alleviate the impact on social welfare, but so far hardly any segment appears to be immune from this cyclical downturn. The only exception arguably could be for medical applications, but that makes up a relatively small share of the market.

Some converters have hinted at their intention to cut down contractual offtake, or even to opt against renewing some of their annual contracts — particularly those with formula pricing tied to the propylene MCP. These buyers are looking to take a more flexible position on procurement, replenishing supplies as needed through spot volumes. And a minority of buyers have indicated their intent to shift to spot procurement entirely, to take advantage of lower prices — especially on imports — owing to the expected weakness ahead in the spot market. But not all buyers have the flexibility to switch supplies, especially when constrained by stringent requirements on specifications.

Producers in Europe are focused on keeping their plants' run rates reduced. In many cases, *Argus* understands these have been at around operational minimums in the fourth quarter so far. Some sellers are still keen to increase sales, where under pressure to reduce inventories, but many producers are not eager to produce and sell extra volumes, given the risks of supply overhangs and a further loss in margins. As such, constrained supplies in Europe are ample to meet weak demand, and a fragmented picture has emerged, with availability of some specific grades becoming more limited.

European producers remain at a cost disadvantage to their peers in other regions — particularly those in the Middle East and Asia-Pacific. And they have recognised that defending margins on their core demand base — as opposed to sales maximisation — could be a strategy more suited in the current market paradigm. This is leading market participants to anticipate a fragmented pricing picture persisting for an extended period, with prices of many European grades remaining at a disconnect to their substitutes from overseas.

Import arbitrages remain open from the Middle East and Asia-Pacific. Softening freight rates in recent weeks on front-haul container shipping routes from these regions have also contributed to the disconnect with European pricing. But shipping lead times of 5-6 weeks or more mean that any fresh imports now being arranged would arrive in January at the earliest, if not later. But offers on imports with December arrival have been heard at reduced levels, with their ddp equivalent prices working out at lower levels compared with prices of domestic volumes. Given depressed demand in Europe, it remains unclear how many imports from east of Suez will make it to Europe's main ports in December and the first quarter. Some reports were also heard of Canada-origin PP being offered to Europe at competitive prices, but few details were known on the product grade specifications and quality.

The spot market was devoid of activity this week as market participants awaited offers from European producers for December supplies. In view of price indications, we have revised down the spot price range of PP homopolymer injection by €25/t to €1,150-1,300/t ddp northwest Europe. The spot price of PP raffia was also assessed €25/t lower, at €1,125-1,275/t ddp northwest Europe.

Some indications for spot volumes of PP block copolymer grades were heard at €1,300-1,350/t ddp, but for now, some grades could continue being priced at or close to €1,400/t ddp.

We have finalised the November *Argus* deltas for all PP grades at €10/t increases this week. Given the €20/t increase in feedstock propylene's November MCP, producers pushed to expand margins and targeted increases of as much as €50/t on freely negotiated PP contract prices. But buyers pushed back against these efforts and were focused on arresting the upside pressures on contract pricing. Consequently, settlements were heard in a wide range of between rollovers and €50/t increases, depending on the grades and inventory positions of the counterparts, among other reasons. And settlements in the second half of November were more skewed towards the lower end of the range and rollovers were more prevalent, with some suggestions of buyers' appetite waning further.

Russia and CIS

Prices for PP homopolymer injection grade fell this week on expectations of new supply in the Russian market.

The price range for PP homopolymer injection grade was Rbs89,167-91,250/t ($1,458-1,492/t) cpt Moscow, down from Rbs89,167-93,750/t. Ufaorgsintez will start to load PP homopolymer injection grade volumes next week.

Prices for PP raffia were assessed at Rbs87,500-88,750/t ($1,431-1,451/t) cpt Moscow, compared with Rbs87,500-89,167/t a week earlier.

PP raffia produced by Neftekhim (Kazakhstan) was offered at Rbs86,667/t cpt Moscow for the second week in a row. But there was no information about offers of PP raffia grade TPP D30 S produced by the Turkmenbashi refinery in Turkmenistan.

Prices for PP block copolymer volumes rose to Rbs99,167-100,417/t ($1,622-1,642/t) cpt Moscow from Rbs98,333-99,167/t a week earlier owing to tight supply in the market.

Russia and CIS domestic				*Roubles/t*
	Basis	Price		±
Raffia	cpt inc VAT	105,000-106,500	▼	-250.0
PP homopolymer	cpt inc VAT	107,000-109,500	▼	-1500.0
Block copolymer	cpt inc VAT	119,000-120,500	▲	+1250.0

Turkey

Polypropylene (PP) import prices to Turkey fell this week, owing to low demand and aggressive offers.

With year end approaching, market participants are seeking to reduce stocks to improve their financial liquidity. This is one factor pushing prices down, although most market participants believe that they have reached a floor.

The pricing policy implemented by Russian suppliers prompted other market participants to reduce their offers, and the long-term trend shows that the share of Russia-origin grades in the Turkish market is increasing. South Korean truck drivers were on strike this week, disrupting the supply chain, providing some support to South Korea-origin PP prices and making them less competitive. Major Egyptian producer EPP will carry out its regular three-year maintenance this month, tightening supply of Egypt-origin material next month. But major suppliers are yet to announce December offers, despite the month having started. Prices will become clearer next week.

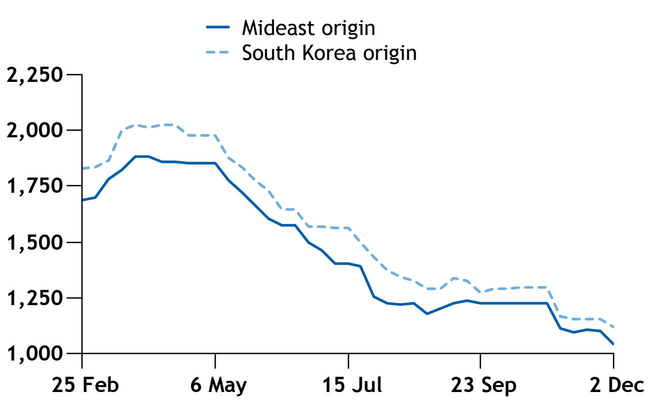
Middle East-origin PP raffia was assessed at $940-980/t cfr, a decrease of $10/t at the low end of the range and stable at the high end compared with last week. Russian offers were available at $910-960/t cfr and South Korean offers were available at $920-940/t fob, equivalent to $1,020-$1,061/t cfr, given the $100-121/t freight rate.

Middle East-origin PP fibre was assessed at $960-1,000/t cfr, a decrease of $10/t at the low end of the range and $20/t at the high end from last week. Russian offers were available at $970-1,000/t cfr.

Middle East-origin PP fibre non-woven was assessed at $960-1,000/t cfr, a decrease of $10/t at the low end of the range and $20/t at the high end from last week.

Middle East-origin PP block copolymer was assessed at $1,020-1,060/t cfr this week, down by $60/t at both ends of the range compared with the last week's assessment. South Korea-origin PP block copolymer was assessed at $1,090-1,150/t cfr, down by $20/t at the low end and $50/t at the high end from last week. Russian material was available at $1,030-1,050/t cfr.

Turkey copolymer prices $/t



Egypt

Polypropylene (PP) import prices in Egypt slightly decreased this week, with trading activity being very limited.

The market remains subdued and procurements are on standby, with buyers unable to obtain letters of credit for new transactions. The central bank has restricted buyers' access to credit and the government has prioritised clearing the material stuck at ports for the past several months, in efforts to improve the deficit on balance of payments and clear backlogs at ports. There are discussions as to whether to devalue the Egyptian pound further by 10pc to better align its value with the US dollar shortage in the country. Some PP sellers ask for full payment in advance as a condition to their offers. Upticks in shipments of new imports into Egypt are not expected to take place until January at the earliest. Also, the country's major PP producer, EPP, will undergo its regular three-year maintenance throughout December as stated on 15 September 2022. Some market participants also confirmed EPP's stance for the coming month.

Middle East-origin PP raffia was assessed $1,050-1,150/t cif, stable on the low end and down by $50/t on the high end compared with last week's assessment. Middle East-origin PP fibre was assessed at $1,080-1,180/t cif, an increase of $20/t on the low end and a decrease of $50/t on the high end compared with last week's assessment.

Middle East

Gulf Co-operation Council (GCC) PP prices held stable as producers announced new offers for December shipments. PP raffia held at $980-1,020/t del GCC. Middle East producers offered cargoes at $1,030-1,050/t del. But it could not be confirmed if any deals were done. Negotiations are expected to continue next week. Biaxially-oriented PP film was also assessed stable in line with PP raffia at $1,020-1,060/t del GCC. PP raffia in Jordan and Lebanon was stable at $1,080-1,100/t del Jordan/Lebanon. Buyers are awaiting the announcement of new offers for December shipments next week.

Shrinking global demand continues to keep market participants cautious. Buyers in the Middle East have avoided making unnecessary purchases. The continued price falls in previous months have deterred buyers from overstocking on fears of continued losses if the bearish run continues. Most buyers are only looking to purchase as needed to fulfill contractual obligations and orders of finished goods.

PE producers are also looking to offload excess inventories. Supplies have outweighed demand in recent months. Producers are keen on offloading excess cargoes to improve balance sheets for the end of the year. But this has not been easy with buyers' cautious attitudes. Supplies were expected to tighten this month with state-owned petrochemical producer Sabic's 1.22mn t/yr PP plant Ibn Zahr having a turnaround in November. But the impact on supply was minimal as demand remained soft and outweighed by supplies.

Saudi PP producer Yansab, an affiliate of Sabic, will start a 53-day turnaround at its petrochemical complex in Yanbu on 10 January next year. 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.

As demand has stayed muted for an extended period this year, participants expect producers to announce more turnarounds scheduled for the first and second quarter of next year. This could hopefully balance out supply with demand, firm up prices and bring some stability to the market. Expectations for a V-shaped recovery in the coming months are limited. But participants are hoping for some stability heading into 2023.

Freight rates have helped producers recover netbacks to certain regions, as rates approach pre-Covid-19 pandemic levels. Demand for imports of consumer goods has shrunk globally, resulting in more available vessels. But the fall in demand for consumer goods has also resulted in weaker resin demand as consumers tighten their spending.

China

PP prices in China edged higher along with PP futures, tracking higher crude futures.

PP futures surged after a sharp fall on 28 November, following the volatility of crude futures. Trades waned as downstream converters still purchased on a need-to basis. Plastic woven industry operating rates inched higher to 45pc, while run rates for biaxially-oriented PP (BOPP) kept steady at 63pc.

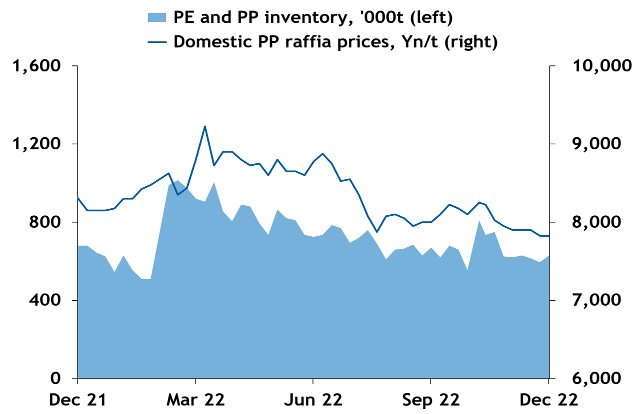
Major Chinese producers' inventories of PP and polyethylene increased to 630,000t on 1 December, up by 35,000t from 24 November. Average operating rates at Chinese PP plants inched lower to 81pc, down by a percentage point from the previous week. Qingdao Jineng is carrying out a one-month maintenance at its 450,000 t/ yr unit from 30 November. Sinopec Yangzi has extended its maintenance at its 100,000 t/yr unit from the original plan of 30 November to 14 December.

Ex-works prices for PP raffia were assessed in a narrower range of 7,750-7,900 yuan/t in east China, or an import parity equivalent of $889-907/t. PP co-polymer prices were assessed at Yn7,850-8,100/t ex-works in east China, down by Yn50/t from the previous assessment's high end.

The import market was active with fresh offers emerging throughout the week. Oman-origin PP raffia, PP injection and BOPP film grade traded at $880-890/t cif China, loading in December. UAE-origin PP thin-wall grade and PP co-polymer traded at $880/t cif China, while PP random co-polymer was at $900/t cif China. An Indian producer also quoted December-loading PP raffia and PP injection at $900/t cif China with deals done at this price level. Vietnamese trading firms and producers were eager to quote December-loading cargoes to China as well. PP raffia and PP injection with zero import tariffs were offered at $960-970/t cfr China, PP co-polymer was offered at $960-1,000/t cfr China. Both PP raffia and PP co-polymer with zero import tariffs traded at $960/t cfr China. Saudi origin PP raffia and PP injection were offered for December-loading cargoes at $900/t cif China, while PP co-polymer was offered at $920/t cif China. Deals were done at these prices, destined for south China. South Africa-origin PP raffia and PP injection were finalized at

China domestic				Yn/t
	Basis	Price		±
Copolymer	ex-works	7,850-8,100	▼	-25
Raffia	ex-works	7,750-7,900	-	0

Sinopec and PetroChina inventory vs PP prices



Market highlight

- Chinese trades waned as downstream converters still purchased on a need-to basis.

$880/t cif China, loading in January because of weak transportation capacity at ports.

PP raffia prices were assessed at $880-900/t cfr China, up by $10/t from the previous week's high end. PP copolymer prices were assessed unchanged at $880-910/t cfr China.

Export trade opportunities were narrowly open. Chinese producers offered PP raffia at $970-1,010/t fob China, while domestic trading firms quoted re-exporting PP raffia at $930-980/t fob China. Limited notional buying ideas were at $890-900/t fob China. BOPP film grade traded at $1,000/t fob China, likely destined for the Middle East. Limited volumes of China-origin PP fiber traded at $1,000/t fob China, destined for southeast Asia. Freight rates from China to Vietnam were at $15-20/t, while China to India was at $40-50/t, according to market participants. Export prices for PP raffia were assessed at $890-930/t fob China, up by $5/t from the last assessment.

Southeast Asia and Vietnam

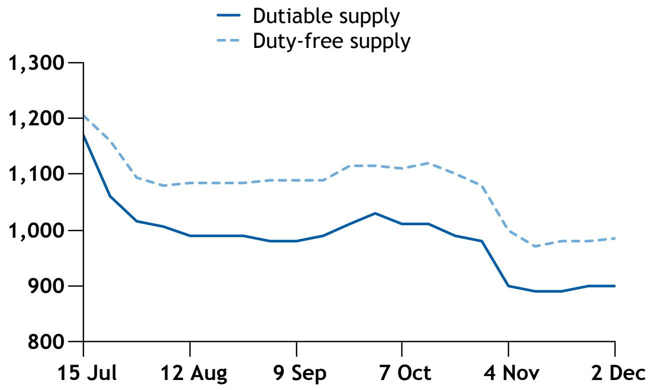
PP prices increased slightly in southeast Asia with producers trying to raise offers with tighter supplies. The easing of Covid-19 restrictions in China has allowed regional producers to increase PP exports to China in the past few weeks, alleviating inventory pressure. But a resurgence in Covid-19 cases in China raised uncertainty about future Chinese demand, weakening market sentiment.

Regional producers are considering further production cuts from this month or January next year because of persistently poor margins. But the seasonal demand lull in December could again balance the market, capping any potential price recovery. Converters have continued to buy on as-needed basis, with domestic and regional supplies remaining largely available despite production cuts, forcing regional producers to sell with losses. The uncertainty in Chinese demand and a challenging global economic outlook next year also continued to affect market sentiment.

Malaysia's PRefChem is restarting its 1.3mn t/yr naphtha cracker at Pengerang following a shutdown since 27 October. The producer is expected to restart its No.1 450,000 t/yr PP unit and No.2 450,000 t/yr PP unit in late December and January respectively.

Thailand's SCG will extend the shutdown of its Rayong-based cracker, capable of producing up to 400,000 t/yr of propylene to late December. Its PP production will remain lower during the same period. Malaysia's Lotte Titan and Philippine producer JG Summit have continued operating their PP plants at 70-80pc because of weaker margins. Indonesia's Chandra Asri has shut its sole cracker and downstream 590,000 t/yr PP plant from 11 November for maintenance, in response to earlier unresolved issues at its cracker facilities. The shutdown duration was unclear. Vietnam's Hyosung was considering future production cuts because of poor margins, shortly after its restarted its 600,000 t/yr PP plant from late October.

SE Asia PP raffia prices $/t



Dutiable PP raffia prices were stable at $890-910/t cfr southeast Asia. India- and UAE-origin PP homopolymer offers were at $910-920/t cfr southeast Asia. Dutiable PP block copolymer prices rose to $920-940/t cfr southeast Asia. UAE- and Saudi Arabia-origin PP block co-polymer offers were at $940/t cfr southeast Asia for December shipments.

Duty-free PP raffia prices rose to $970-1,000/t cfr southeast Asia. Vietnam-, Malaysia- and Philippines-origin PP raffia offers were at $970-1,020/t cfr southeast Asia to consumers. Duty-free PP block co-polymer prices were maintained at $990-1,030/t cfr southeast Asia with limited new offers. Thailand-origin PP block co-polymer offers were available at $1,140-1,180/t cfr southeast Asia but attracted limited buying interest. South Korea-origin PP block co-polymer offers were competitive at $960/t cfr Indonesia on a duty-free basis to consumers.

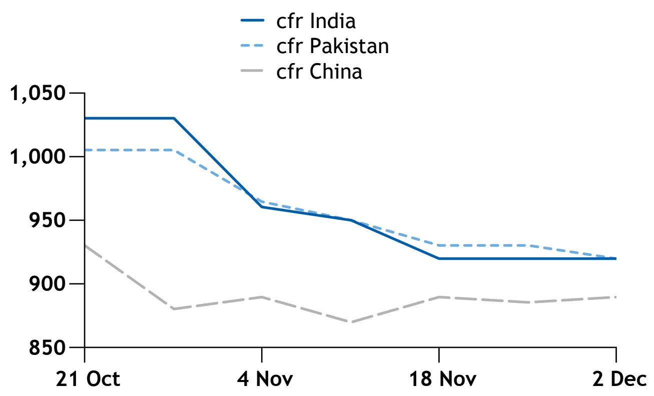
PP raffia prices rose slightly to $890-910/t cfr Vietnam. India- and Middle East-origin PP raffia offers were at $900-920/t cfr Vietnam. Domestic PP prices in Vietnam were at $910/t on an import parity basis. A key producer in Vietnam is considering cutting its PP production because of high feedstock costs and weaker margins, although further details were unclear.

South Asia

Indian PP raffia was stable at $910-930/t cfr India. Cargoes from the UAE were offered at $930/t cfr India. Offers for December shipments were mostly in the range of $920-940/t cfr with deals done in the price range assessed. Indian producers rolled over domestic prices.

Margin pressures continue to affect Indian producers with some producers incurring negative margins. Higher feed-

South Asia vs China raffia prices $/t



stock costs and lower polymer prices have shrunk margins considerably. Producers with integrated refineries are also considering the possibility of selling feedstock instead of polymers, according to market participants. This is because of better profits that could be obtained from taking advantage of the current high feedstock environment.

Converters focused on exporting finished goods have been hit the hardest as demand for finished goods from the US and Europe has been muted, given current economic uncertainty. Run rates at these converters have fallen. Sellers have noted reduced buying interest from affected customers. But converters and final goods manufacturers that are focused domestically have shown more interest in restocking. These buyers were comfortable with restocking at current price levels as they feel that it is low enough.

Pakistani PP raffia was $10/t lower at $910-930/t cfr Pakistan, with offers from the Middle East mostly hovering in this range. Deals for cargoes from Oman were done at $890/t cfr for select customers. Deals for cargoes from other Middle East producers were concluded at $910-930/t cfr. Buyers remain cautious and only purchased as needed. But sentiment has turned slightly positive, with some buyers stocking up on expectations that prices could be bottoming out soon.

Bangladeshi PP raffia was stable at $970-990/t cfr Bangladesh. Cargoes from the Middle East were sold at $980/t. Some producers tried offering cargoes at $1,000/t. But this was difficult for buyers to accept. Sri Lankan PP raffia was $70/t lower at $990-1,010/t cfr Sri Lanka as key producers began announcing new offers for December. Saudi cargoes were offered at $1,010-1,020/t cfr Sri Lanka.

Nepalese PP raffia was stable at $980-1,000/t cpt Nepal. A key Saudi producer initially offered cargoes at $1,120/t cif Kolkata. This was later reduced to $930/t cif Kolkata. Delivery costs from Kolkata to Nepal's inland port of Birgunj were $70/t.

FUNDAMENTALS

Global production news

LyondellBasell restarting Berre complex ahead of plan

LyondellBasell said it will begin the process of restarting its petrochemical and polymer complex in Berre-l'Etang, southern France on 5 December.

The steam cracker at the site has been offline since a fire on 2 August and its restart had previously been delayed until 2023 because of poor market conditions and high costs. The full restart of the stream cracker is now scheduled for 15-17 December and the restart phase for the whole site could last until late December.

The cracker has a capacity of 456,000 t/yr of ethylene and 250,000 t/yr of propylene. The ethylene and propylene feed LyondellBasell's own 320,000 t/yr low-density polyethylene (LDPE) and 340,000 t/yr polypropylene (PP) plants. The Berre complex is also part of a wider regional pocket of petrochemical and downstream production units, including for the vinyls chain.

European recyclers see automotive industry potential

Two European petrochemical companies have announced plastic recycling projects targeting the automotive industry in the past week, demonstrating continued focus on providing recyclates that can satisfy demand from carmakers.

LyondellBasell announced a partnership with German carmaker Audi on 28 November, under which the former will procure pyrolysis oil from Austrian chemical recycler Syncycle to allow it to provide Audi with plastic for car parts that is attributed as recycled via mass balance accounting. Audi plans to use the material for plastic seatbelt buckle covers in its new Q8 car.

Syncycle is currently in the latter stages of construction for a pyrolysis unit in Austria, which will have a target throughput of 7000t/yr of mixed polyolefin waste. The plant is expected to start up next year, and will use mixed automotive plastic waste, which LyondellBasell said is currently "mostly only suitable for energy recovery" as one of its feedstocks.

"Audi's vision is to use secondary materials wherever it is technically possible, economically viable and ecologically beneficial", Audi's project manager for circular economy in the supply chain, Philipp Eder, said.

And TotalEnergies announced on 25 November that it will install a new line aimed at providing mechanically recycled polypropylene (PP) compounds for the automotive industry, at its site in Carling, France.

The new line is expected to start up in 2024, and produce around 15,000t/yr of compounds containing up to 100pc recycled PP.

Just as the need to reduce weight has driven a switch from metal to plastic in recent years in the car sector, many companies are interested in exploring recycled plastics as a way to reduce their carbon footprint. For example, Swedish firm Volvo is aiming that 25pc of the plastics that it uses will be recycled or biobased by 2025, and Germany's BMW has a goal to increase the recycled plastic content of the thermoplastic components that it uses to 40pc by 2030.

One plastic recycler told *Argus* earlier this year that they were seeing an increase number of enquiries for recyclers from automotive manufacturers, which they linked to expectation of potential mandatory recycled content targets for the car industry in Europe. So far no new mandatory targets have been announced, although the European Commission is examining more wide-ranging targets in other sectors to drive the recycling industry.

As in the packaging industry, the need for consistent quality makes it harder for carmakers to use recyclates in many parts of their cars, and they must be particularly cautious about compromising safety in any way. But this also creates an opportunity for recyclers to introduce a higher value product to the market, which some are looking to grasp.

South Korean petchem producers cut cracker run rates

Several South Korean petrochemical producers have further reduced their cracker operating rates to ease mounting inventory pressures, the result of an ongoing truckers' strike.

The indefinite truckers strike began on 24 November, causing disruptions to transportation of downstream goods including polyethylene, polypropylene and styrene monomer (SM). This resulted in inventory buildups, causing cracker operators to reduce run rates to balance excess olefins supplies.

Lotte Chemical is now running its 1.05 mn t/yr Daesan-based naphtha cracker and 1.2mn t/yr Yeosu-based naphtha cracker at 82pc and 85pc respectively, down from 90pc each. GS Caltex has also reduced run rates at its sole 700,000t/yr cracker in Yeosu from 80pc to 75pc this week. Hanwha Total has so far maintained its cracker run rates, but will have to cut rates at its cracker, polymer and SM units if the strike continues for another week.

The petrochemical sector is yet to see further impact of the strike, as there is no timeline for when the action will end.

Most South Korean cracker operators have opted for reduced operating rates this year also because of eroding production margins. Naphtha-based cracker margins have averaged minus $243/t this year, much lower than $96/t in 2021, according to *Argus*' calculations.

Lockdowns hammer petrochemical firm margins

Rising costs and weak domestic demand are cutting into the margins of China's private-sector mega refiners. Poor profitability is likely to challenge their ability to repay massive debts brought on by heavy capital investments.

This modern generation of refiners — with Shenghong having recently joined established firms Rongsheng and Hengli — has proved resilient despite volatile transport fuel prices since the Covid-19 pandemic first emerged in 2020. Their high level of downstream integration allowed them to focus on petrochemicals — including materials needed to make personal protective equipment (PPE) — at times when other refiners were struggling because Covid lockdowns were squeezing gasoline margins. But the profitability of their operations deteriorated significantly in July-September owing to China's pandemic-related lockdowns continuing while global PPE demand was declining. Shanghai-listed Hengli was hardest hit, with profits tumbling by 150pc (see table).

China has massively expanded its domestic manufacturing capacity of propylene and ethylene in recent years. Shenghong is bringing another 1.1mn t/yr steam cracker on stream in late November. But depressed margins may discourage Shenghong from running the unit at full capacity — typically, steam crackers must operate above 95pc in order to be profitable.

Northeast Asian naphtha cash cracking margins are averaging minus $341/t this month. Things are little better further downstream. Hengli is operating its polypropylene (PP) and polyethylene (PE) units at 90pc of capacity — which is down by 10 percentage points from a year earlier. The firm is losing around Yn1,000/t ($153/t) on PP and PE sales, a company source says.

The companies' paraxylene (PX) output is used mainly to feed downstream purified terephthalic acid (PTA) units. But Chinese polyester plants — the major outlet for PTA — are running at 70pc of capacity, compared with normal rates of 80-85pc. Hengli, which relies on PTA sales for almost a quarter of its revenue, is on the verge of shutting its PTA units because of negative margins.

PTA sales account for around 12-14pc of total revenue for Shenghong and Rongsheng. Asia's regional PX surplus has doubled from the start of the year in response to sluggish PTA demand, to 800,000t, *Argus* estimates (see graph: Asia PX balance).

Hengli attributes the Yn1.9bn loss it reported in July-September — the firm's first since opening its Liaoning complex in 2019 — to a maintenance turnaround at its Changxing

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
	Ibn Zahr	Saudi Arabia	PP	320	Nov for 30 days	Planned maintenance	Industry
	Ibn Zahr	Saudi Arabia	PP	440	Nov for 30 days	Planned maintenance	Industry
	Ibn Zahr	Saudi Arabia	PP	500	Nov for 30 days	Planned maintenance	Industry
	Yansab	Saudi Arabia	PP	400	10 Jan for 53 days	Planned maintenance	Producer
	HPCL-Mittal Energy Limited	India	PP	400	Mid-Feb until present	Plant is operating at 40pc from August	Industry
	Indian Oil Corporation	India	PP	350	30 Sep - early Dec	Shutdown in Panipat alongside refinery turnaround	Producer
	Indian Oil Corporation	India	PP	700	Sep	Reduced operating rates, unable to ramp up production after turnaround at Paradip site	Producer
	Wuhan Petrochemical	China	PP	120	10 Nov until present	Maintenance	Producer
	Haiguo Longyou Daqing Lianyi Petrochemical	China	PP	200	Apr until present	Maintenance due to margin concerns	Producer
	Haiguo Longyou Daqing Lianyi Petrochemical	China	PP	350	3 Apr until present	Maintenance due to margin concerns	Producer
	Sinopec Tianjin No.2	China	PP	200	1 Jul until present	Unplanned outage due to technical problems	Producer
UPDATE	Qinghai Saltlake	China	PP	160	13 Oct until present	Maintenance	Producer
UPDATE	Sinopec Yangzi No.1	China	PP	100	11 Nov - 14 Dec	Maintenance	Producer
	Zhenhai Refinery No.3	China	PP	300	11 Nov - 8 Dec	Unplanned outage due to technical issues	Producer
	Ningbo Fund	China	PP	400	28 Oct until present	Reduced operating rates to 80-85pc	Producer
	Fujian Refinery No.1	China	PP	120	10 Nov until present	Maintenance	Producer
	Hebei Haiwei	China	PP	300	6 Nov until present	Unplanned outage due to technical issues	Producer
	SK Wuhan Petrochemical	China	PP	200	16 Nov until present	Maintenance due to margin concerns	Producer
UPDATE	Qingdao Jineng Chem	China	PP	450	30 Nov for one month	Planned maintenance	Producer
NEW	Fujian Refinery	China	PP	330	7 - 14 Dec	Maintenance	Producer
	IRPC	Thailand	PP	775	End Sep - Nov	Plant is expected to operate at 50pc	Industry
	Thai Polypropylene	Thailand	PP	720	Mid-Sep - Dec	Plant is expected to operate at reduced rates alongside upstream cracker shut-down	Industry
UPDATE	Lotte Chemical Titan	Malaysia	PP	640	Dec	Plant is expected to operate at 75pc with reduced propylene supplies	Producer
	Chandra Asri	Indonesia	PP	590	11 Nov - end Nov	Plant is shut alongside upstream cracker shutdown	Producer

refinery in July-August, and on weak petrochemical margins. Rongsheng's 800,000 b/d ZPC refinery on Zhoushan island made just Yn300-400mn net income in July-September, compared with Yn2.8bn-2.9bn in April-June, analysts estimate. This is partly because of a write-down of the value of Rongsheng's crude inventory and a foreign exchange loss of Yn610mn for January-September — the yuan has fallen by over 12pc against the dollar this year. Shenghong produced on-specification PX at its 2mn t/yr PX unit in Lianyungang late last month, but the refinery is currently only running at 60pc of capacity. Even Shenghong reported a quarterly loss.

China's Liaoning Kingfa launches new PDH unit in Panjin

Chinese private-owned petrochemical producer Liaoning Kingfa has commissioned its new 600,000 t/yr propane dehydrogenation (PDH) plant in Panjin city, Liaoning province and achieved on-specification propylene early this week.

Liaoning Kingfa adopted US firm Lummus technology for the development of its PDH unit. The PDH plant is also equipped with downstream 260,000 t/yr acrylonitrile (ACN) lines that will feed into its 600,000 t/yr acrylonitrile-butadiene-styrene units.

The PDH plant is currently operating at reduced rates of not more than 70pc, according to sources close to the company. Liaoning Kingfa will have an estimated excess propylene supply of 306,000 t/yr or 25,500 t/month for sale when its PDH and ACN plants start running at full capacity.

Feedstock propane for the PDH unit will come from imports at nearby Liaoning ports. The PDH's propane demand is estimated at 720,000 t/yr.

China's Shenghong starts up naphtha-fed cracker

Chinese private-sector producer Shenghong Petrochemical started up on 1 December a new 1.1mn t/yr naphtha-fed cracker at Lianyunang in east China's Jiangsu province.

The cracker achieved on-specification ethylene production five days after it was fed with feedstock naphtha on 26 November. On-specification propylene was achieved two days after the feeding in. The company said it needs to observe operations for another three days to determine whether the cracker is running stably.

Shenghong is also due to start up its downstream integrated 100,000/900,000 t/yr ethylene oxide (EO)/ethylene glycol (MEG) unit and a 400,000/250,000 t/yr phenol/acetone unit to consume ethylene and propylene output.

The other derivative units — including 1mn t/yr of MEG,

New start-ups

Status	Plant	Location	Grade	Capacity '000t/yr	Start-up	Remarks	Source
	Inter Pipeline	Canada	PP	525	Jul	Plant started	Industry
	ExxonMobil	US	PP	450	Nov		Industry
	Borouge	UAE	PP	480	Feb	Plant started	Producer
	Kazakhstan Petrochemical Industries	CIS	PP	500	2H Sep		Industry
	Zhejiang Petrochemical No.3	China	PP	450	End Dec 2021		Producer
	Zhejiang Petrochemical No.4	China	PP	450	Mar		Producer
	Huating Zhongxu Coal Chemical	China	PP	200	End Mar		Producer
	Tianjin Bohua	China	PP	300	Mid-Jun	Plant shut from 28 September for maintenance due to technical issues	Producer
	Xuzhou Haiding	China	PP	100	End Feb	Plant started	Producer
	Sinopec Zhenhai	China	PP	300	Feb	Plant started and operating at 70pc	Producer
	Shandong Shouguang Luqing Petrochemical	China	PP	300	Mar	Delayed from 4Q 2021	Producer
	Fujian Zhongjing Petrochemical	China	PP	600	Early Sep	Delayed from April 2022	Producer
UPDATE	Fujian Zhongjing Petrochemical	China	PP	600	Dec	Delayed from May 2022	Producer
	Jingbo Petrochemical	China	PP	400	Oct	Delayed from September 2022	Producer
	Jingbo Petrochemical	China	PP	200	Oct	Delayed from September 2022	Producer
	Petrochina Guangdong Petrochemical	China	PP	500	Oct	Plant started on 13 October	Producer
UPDATE	Sinopec Hainan	China	PP	200	Jan 2023		Producer
UPDATE	Sinopec Hainan	China	PP	300	Jan 2023		Producer
	Guangxi Hongyi New Material	China	PP	300	4Q		Producer
	CNOOC Ningbo Daxie	China	PP	300	End Aug	Plant started from 30 August with low operating rates	Producer
	Oriental Maoming	China	PP	500	End 2022		Producer
	Guangzhou Juzhengyuan	China	PP	300	End 2022		Producer
	Guangzhou Juzhengyuan	China	PP	300	End 2022		Producer
NEW	Ningbo Jinfa New Material	China	PP	800	1Q 2023		Producer
NEW	Zhejiang Yuanjin New Materials	China	PP	450	2Q 2023		Producer
NEW	Anhui Tianda	China	PP	300	3Q 2023		Producer
NEW	Baofeng Energy Phase 3	China	PP	500	Jun 2023		Producer
NEW	Shenhua Baotou Phase 2	China	PP	350	2023		Producer
NEW	Oriental Maoming	China	PP	500	2023		Producer
NEW	Jinneng Petrochemical	China	PP	450	End 2023		Producer
	Hyundai Chemical	South Korea	PP	500	Early Nov 2021	Plant started	Producer
	HPCL-Mittal Energy Limited	India	PP	500	Jun	Plant has started but operating at reduced rates	Industry
UPDATE	PRefChem	Malaysia	PP	450	Aug	Plant is shut after a fire at the Pengerang Integrated Complex, expected to restart in late December	Industry
UPDATE	PRefChem	Malaysia	PP	450	Oct	Plant is shut after a fire at the Pengerang Integrated Complex, expected to restart in January 2023	Industry
	HMC Polymers	Thailand	PP	220	Dec	Trial runs expected in December	Producer
	Long Son Petrochemical	Vietnam	PP	450	1Q 2023		Producer

300,000 t/yr of vinyl acetate monomer, 300,000 t/yr of ethylene vinyl acetate (EVA), 200,000/450,000 t/yr of propylene oxide/styrene monomer and 260,000 t/yr of acrylonitrile (ACN) — are expected to start operations through the first half of 2023.

Shenghong plans to shut its methanol-to-olefins (MTO) plant with 370,000 t/yr of ethylene capacity and 460,000 t/yr of propylene to balance out the excessive ethylene supplies, once the cracker reaches stable operations expected this weekend. Downstream units integrated to the MTO plant — including 300,000 t/yr of EVA, 260,000 t/yr of EO and 780,000 t/yr of ACN — will then be fed with ethylene and propylene from the cracker.

This is the fourth large-scale cracker started up in China this year. Sinopec Zhenhai's 1.2mn t/yr No.2 naphtha-fed cracker began operations at the beginning of the year, with Zhejiang Petrochemical's 1.4mn t/yr naphtha-fed cracker and Lianyungang Petrochemical's 1.25mn t/yr No.2 ethane-fed cracker starting up in late August.

Malaysia's PRefChem restarts Pengerang cracker

Malaysia's PRefChem restarted its 1.29mn t/yr Pengerang-based naphtha cracker earlier this week after being shut since late October because of a fire.

The cracker is likely running at reduced rates of 50pc currently, according to sources close to the company. Downstream polymers units, including 750,000 t/yr polyethylene and 900,000 t/yr polypropylene production lines, are expected to restart by January 2023.

PRefChem is expected to have more olefins for sale with downstream plants idle for December. The company issued a tender this week to sell a 6,500t ethylene cargo loading over 8-9 December, which closed on 29 November. PRefChem also emerged last week with a propylene tender to sell a 5,000t propylene cargo for 10-11 December loading on a fob Pengerang basis.

PRefChem is a joint venture between Malaysia's state-owned Petronas and Saudi Arabia's state-controlled Aramco. The cracker was shut on 27 October after a fire hit an inter-connecting pipeline at the complex.

Packaging and downstream applications

HeadlineAuto producers to take holiday closures

North American auto producers are planning to take weeks of downtime at their plants during the back half of December for the holidays.

BMW, Hyundai, Kia, Mercedes-Benz, Nissan and Toyota will all take off time between 23 December-3 January. Toyota will close all of its 14 plants in North America during that time period.

Nissan operates three plants in the US, while BMW, Hyundai, Kia and Mercedes-Benz each have one plant in the US.

Regional auto manufactures have lost a significant portion of production in 2022 ,as the industry has remained hampered by shortages of semiconductor chips and other parts. The North American industry was estimated last week to have lost production of 851,000 vehicles, with another 500,000 listed at risk, according to figures from AutoForecast Solutions.

That is lower than the 2.29mn vehicles lost in 2021 when the industry was going through the worst of the semiconductor shortages.

Eurozone Nov manufacturing contracted, inflation eased

The eurozone's manufacturing sector contracted again in November, although less so than in the prior month and the recent inflationary pressures showed signs of easing.

In its monthly survey, S&P Global said the region's manufacturing Purchasing Managers Index (PMI) was 47.1 in November, compared with 46.4 in October. This was the fifth successive month of a reading below 50, which indicates contraction.

S&P Global said output and new orders both fell, and input purchasing dropped at the fastest rate since May 2020, when public-policy reactions to the Covid-19 pandemic were at their peak. But stocks of inputs still rose, partly because of the arrival of previously-delayed orders, and stocks of finished goods are increasing as demand drops.

The survey found the supply chain issues that had caused delays earlier in the year are easing, and this contributed to a lessening of input-cost inflation to its weakest in almost two years. Output price inflation was its weakest since March 2021 as the sector shifts to a buyers' market from a sellers' market at both ends of the chain.

But S&P Global's chief economist Chris Williamson said there is "no immediate respite in sight" for manufacturers.

"How manufacturers fare over the winter months will of course be conditional to a large extent on the weather, with any cold snaps likely to fuel concerns over energy resources and potentially hitting production and supply chains further," he said.

EU polishes tighter recycling targets

The European Commission is expected to table a far-reaching proposal on 30 November calling for minimum recycling rates on plastics, wood, ferrous metals and aluminium packaging. EU member states and the European Parliament will have to approve the final text of the regulation.

The commission is also expected to propose a deposit and return system for single-use plastic beverage bottles up to three liters and single-use metal and aluminium beverage containers, also up to 3 liters. It calls for EU countries to have the system up and running by 1 January 2029.

Officials see packaging as a "key environmental concern", accounting for 36pc of municipal solid waste in the EU. Packaging has grown faster than gross national income in recent years, leading to "soaring" CO2 and other emissions and "overexploitation of natural resources, biodiversity loss and pollution", according to a leaked draft from the commission.

The commission wants recycling targets to be in place in EU countries by 31 December 2025, covering at least 65pc of all packaging waste by weight. From 31 December 2025 the commission proposes minimum recycling targets for packaging waste of 50pc for plastic, 25pc for wood, 70pc for ferrous metals and glass, 50pc for aluminium and 75pc for paper and cardboard — all by weight.

Under the proposal these targets rise from 31 December 2030 to 55pc for plastic, 30pc for wood, 80pc for ferrous metals, 60pc for aluminium, 75pc for glass, and 85pc for paper and cardboard. The commission will allow member states to postpone recycling deadlines by up to five years under certain conditions.

The commission is also targeting minimum recycled content in plastic packaging from 1 January 2030. It wants recycled content recovered from "post-consumer plastic waste" to exceed 30pc for contact sensitive packaging made from polyethylene terephthalate (PET), 10pc for non-PET plastic contact sensitive packaging and 30pc for single-use plastic beverage bottles. A target of 35pc recycled material is set for “other” packaging.

Post-consumer recycled plastics rose by nearly 20pc to

5.5mn t in 2021 compared with 2020, according to industry association Plastics Europe. Increased use of recyclates is "solid progress" but there is still a "need to hasten systemic change", it said.

The European Commission is also setting requirements for compostable packaging for a range of products including tea bags, filter coffee pods and pads, sticky labels on fruit and vegetables and very lightweight plastic bags. It proposes this takes effect 24 months after the regulation enters into force.

The 110-page draft regulation also calls for the weight and volume of packaging to be "reduced to the minimum necessary for ensuring its functionality". It sets out reuse requirements for "transport packaging" such as pallets, plastic crates, foldable plastic boxes, pails and drums. Reuse should exceed 30pc from 1 January 2030 and 90pc from 1 January 2040.

FMCGs

Packaging industry gives mixed response to EU rules

The EU's new draft recycling and reuse targets have received mixed responses from affected industries, while campaigners noted there are now lower targets than in earlier drafts.

The European Commission published targets on 30 November that will push EU countries to ensure, by 31 December 2025, a minimum of 65pc recycling by weight of all packaging waste generated, with specific minimums for plastic (50pc), wood (25pc), ferrous metals and glass (70pc), aluminium (50pc) and paper and cardboard (75pc).

The commission also proposed mandatory EU-wide targets for certain products to use reusable or refillable packaging, including 20pc by 2030 and 90pc by 2040 for cold and hot beverages, 10pc by 2030 and 20pc by 2040 for beer and 10pc by 2030 and 40pc by 2040 for take-away prepared meals. It said 10pc of e-commerce transport packaging must be reusable by 2030, and 50pc in 2040.

Packaging industry association European welcomed the harmonization of regulation across Europe, which it said could "end the plethora of divergent national measures that are… undermining the transition to a circular economy." But it said other measures would be required, such as mandatory collection and investment in collection and sorting infrastructure, and it criticized a "failure to recognize that packaging recyclability or reusability alone will not suffice unless backed up by a system capable of triggering investments in recycling infrastructure and reuse across Europe."

The proposed regulation contains a mandate for countries to introduce deposit return schemes for plastic beverage bottles, but this does not extend to all packaging types. Plastics Europe's managing director Virginia Janssens said the targets need to be "applied equally to all materials", and that the recycled content targets for contact sensitive plastic packaging will require a "significant" contribution from chemical recycling.

"There is a rapidly closing window of opportunity for industry to make the necessary investments in chemical recycling in Europe, which must be seized," said Janssens, pointing to a need for "clear and urgent" rules on plastic packaging's recycled and virgin feedstock balance.

There is a need for independent "science-based evaluation" of recyclable and reusable options, said the Confederation of the European Paper Industries (Cepi) director general Jori Ringman. Cepi said recycling is the first source for pulp and paper more than all other materials combined. The industry already has recycling targets of 90pc by 2030, far exceeding current legal requirements of 85pc.

European Aluminium said its sector is already recycling three out of four aluminium beverage cans on the European market. But packaging director Maarten Labberton said the group supports the focus on extended producer responsibility (EPR), notably whereby EPR fees are based on recyclability performance taking into account whether packaging is recycled multiple times or only with limits.

"Recycling performance grades are being introduced for the first time," he said. "However, the commission missed the opportunity to differentiate between the qualities of secondary raw materials and promote materials that can be recycled multiple times without losing their intrinsic properties."

Non-governmental organization the European Environmental Bureau welcomed the shift towards waste prevention, reuse and recycling but said measures lost ambition compared with previous drafts. Reuse targets were reduced by as much as 50pc, and a ban on expanded polystyrene was dropped, it said, and technical details defining recyclability were scaled back.

Stricter requirements may still be introduced to the proposal by the European Parliament but would require approval by EU member states.

Supply chain and shipping

US Senate votes to avoid rail strike

The US Senate has approved a bill to override union objections to a proposed rail worker contract, allaying the potential for a nationwide strike that threatened widespread economic disruption.

The Senate voted 80-15 to require unions to accept a rail labor agreement brokered by the White House in September,

Global polymer freight rates $/t

Origin	Destination	Argus Low	Argus High	±	Source
Americas					
Houston	Shanghai	30	45	-	Freightos Derived
Houston	Mersin	52	52	-	Freightos Derived
Houston	Genoa	14	55	-	Freightos Derived
Houston	Valencia	14	40	-	Freightos Derived
Houston	Antwerp	24	43	-	Freightos Derived
Houston	Santos	37	65	-	Freightos Derived
Houston	Buenos Aires	46	71	-	Freightos Derived
Houston	Buenaventura	102	107	▲	Freightos Derived
Houston	Callao	102	111	▲	Freightos Derived
Houston	Guayaquil	102	107	-	Freightos Derived
Houston	Valparaiso	150	175	-	Freightos Derived
Santos	Rotterdam	89	89	▼	Freightos Derived
Middle East and North Africa					
Jubail	China	24	29	▼	Argus
Jubail	Indonesia	70	75	▲	Argus
Jubail	Karachi	78	82	-	Argus
Jubail	Mumbai	25	30	▼	Argus
Jubail	Turkey	100	105	▼	Argus
Jebel Ali	Shanghai	6	16	-	Freightos Derived
Jebel Ali	Singapore	8	8	-	Freightos Derived
Jebel Ali	Melbourne	214	220	-	Freightos Derived
Jebel Ali	Tauranga	243	269	-	Freightos Derived
Jebel Ali	Antwerp	101	101	-	Freightos Derived
Jebel Ali	Buenaventura	285	285	-	Freightos Derived
Jebel Ali	Callao	282	282	-	Freightos Derived
Port Said	Mersin	15	15	-	Freightos Derived
Port Said	La Spezia	20	25	-	Freightos Derived
Port Said	Antwerp	40	45	-	Freightos Derived
Southeast Asia					
Singapore	Karachi	40	57	-	Freightos Derived
Singapore	Mumbai Nhava Sheva	40	57	-	Freightos Derived
Singapore	Colombo	44	52	-	Freightos Derived
Singapore	Melbourne	159	200	-	Freightos Derived
Singapore	Tauranga	232	277	-	Freightos Derived
Vung Tau	Antwerp	112	160	▼	Freightos Derived
Vung Tau	Genoa	125	143	-	Freightos Derived

Global polymer freight rates $/t

Origin	Destination	Argus Low	Argus High	±	Source
Northeast Asia					
Busan	Mersin	100	121	▼	Freightos Derived
Busan	Koper	149	149	▼	Freightos Derived
Busan	Genoa	114	128	▼	Freightos Derived
Busan	Valencia	121	149	▼	Freightos Derived
Busan	Antwerp	75	113	▼	Freightos Derived
Busan	Durban	210	210	▼	Freightos Derived
Busan	Santos	71	101	▼	Freightos Derived
Busan	Buenaventura	91	101	▼	Freightos Derived
Busan	Callao	91	101	▼	Freightos Derived
Busan	Melbourne	88	95	-	Freightos Derived
Busan	Tauranga	154	178	-	Freightos Derived
Shanghai	Nagoya	20	22	-	Freightos Derived
Shanghai	Laem Chabang	19	21	▲	Freightos Derived
Shanghai	Port Klang	18	30	-	Freightos Derived
Shanghai	Karachi	48	63	▼	Freightos Derived
Shanghai	Mumbai Nhava Sheva	48	53	▼	Freightos Derived
Shanghai	Chennai	40	70	▼	Freightos Derived
Shanghai	Colombo	69	71	-	Freightos Derived
Shanghai	Chittagong	80	100	-	Freightos Derived
Shanghai	Mersin	108	155	-	Freightos Derived
Shanghai	Koper	146	158	▼	Freightos Derived
Shanghai	Genoa	114	134	▼	Freightos Derived
Shanghai	Valencia	111	140	▼	Freightos Derived
Shanghai	Antwerp	68	87	▲	Freightos Derived
Shanghai	Rotterdam	65	89	▲	Freightos Derived
Shanghai	Durban	207	210	▼	Freightos Derived
Shanghai	Santos	63	95	▼	Freightos Derived
Shanghai	Manzanillo	69	86	▼	Freightos Derived
Shanghai	Buenaventura	73	86	▼	Freightos Derived
Shanghai	Callao	72	78	▼	Freightos Derived
Shanghai	San Antonio, Chile	72	86	▼	Freightos Derived

FREIGHTOS

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.

even though the contract remains unratified by four of the 12 major unions that collectively represent over 100,000 US rail workers. The House of Representatives passed the bill on 30 November.

Senate passage sends the bill to President Joe Biden, who said he would sign legislation to allay a strike that would have been set to begin on 9 December.

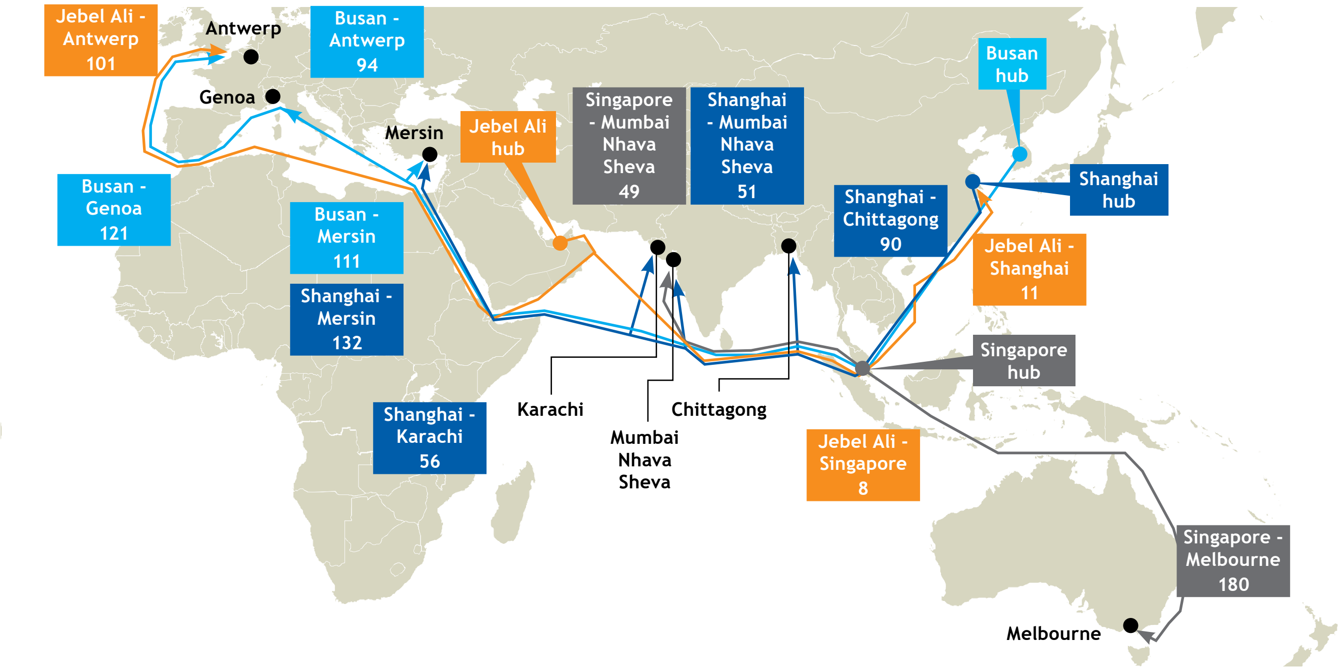
"This week's bipartisan action pulls our economy back from the brink of a devastating shutdown that would have hurt millions of families and union workers in countless industries," Biden said.

The White House had warned that a strike could spur 765,000 US job losses and "cripple the American economy" with shortages spanning virtually every segment of the US supply chain, ranging from gasoline and home heating fuels to fertilizers and retail goods.

"The Senate acted with leadership and urgency with today's vote to avert an economically devastating rail work stoppage," said Ian Jefferies, chief executive of the Association of American Railroads, a trade group representing major freight railroads.

The Senate voted down two amendments to the House rail bill. One amendment sponsored by Vermont independent senator Bernie Sanders would have given more paid sick days

POLYPROPYLENE ROUTES BY EXPORTING PORT



to railroad workers, an issue that has been a key sticking point in the negotiations between the rail unions and the carriers. It would have matched a separate House-approved measure to raise the number of paid sick leave days to seven days from one day. Biden said he would seek future legislation to secure more paid sick leave for rail workers.

The other amendment would have required a 60-day "cooling off" period and sent the labor deal back to the parties for more negotiation. Republicans said Congress should not be placed in a position to arbitrate private industry labor deals. "We also don't want Congress to become the de facto end game for all future negotiations," said Alaskan Democrat senator Dan Sullivan, one of the amendment's sponsors.

Congress has acted to avert rail strikes 16 times in the past, most recently in 1992, under the authority of the Railway Labor Act, which gives lawmakers broad authority to intervene in rail labor disputes. The last national rail labor strike was in 1991 and lasted less than 24 hours before then-president George Bush signed congressional legislation to end it.

The American Fuel & Petrochemical Manufacturers, which lobbies for many US refiners, had warned that a strike would "throttle production and delivery of critical products such as gasoline, diesel, heating oil, and petrochemicals" at a time of high demand and low inventories.

QUOTE OF THE WEEK

"The first quarter of 2023 will be difficult."
— *Southeast Asian participant*

Cargo handling at Brazil's Santos port rose in Oct

Cargo handling in Brazil's Santos port rose to 14.4mn metric tonnes (t) in October, a record for the month, led by higher exports of agricultural products.

That is a 34.5pc increase from the same month last year.

Exports from the port totaled 10.5mn t, up by 48pc from a year earlier, according to the Santos Port Authority. Corn exports reached about 2.5mn t compared with 1.1mn t a year earlier. Soybean complex exports more than doubled to 1.5mn t.

Imports in the Santos port reached 3.9mn t in October, up by 8.1pc from a year earlier. Fertilizer imports totaled almost 727,250t, up by 0.3pc from October 2021.

Cargo handling in Santos rose by 5.9pc in October from the previous month and amounted to 138.2mn t during January-October this year, up by 12pc from the same period a year earlier. That is the highest volume for the first 10 months of a year in the port's history.

Soybean complex exports in the 10-month period rose to

32.9mn t, up by 17pc from a year earlier, while corn exports increased by 89pc to 11mn t. Fertilizer imports rose by 6pc from a year earlier to 6.9mn t.

The Santos port handles other commodities such as wheat, fuels and vegetable oils, as well as industrial goods.

Announcement

All data change announcements can be viewed online at www.argusmedia.com/announcements.
Alternatively, to be added to the email distribution list for all announcements, please email: **datahelp@argusmedia.com**.

ANNOUNCEMENTS

Proposed origin restriction on European naphtha prices

Argus proposes that 65 para naphtha cif NWE prices for loading in or delivery to or within Europe will be for product of non-Russian origin beginning on 3 January 2023 because of the February 2023 imposition of EU sanctions restricting the trade of Russian-origin oil products.

Argus will accept comments on this proposal until 12 December. To discuss comments on this proposal, please contact Elliot Radley at Elliot.radley@argusmedia.com or 02077804205. Formal comments should be marked as such and may be submitted by email to londonproducts@argusmedia.com and received by 12 December. Please note, formal comments will be published after the consultation period, unless confidentiality is specifically requested.

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