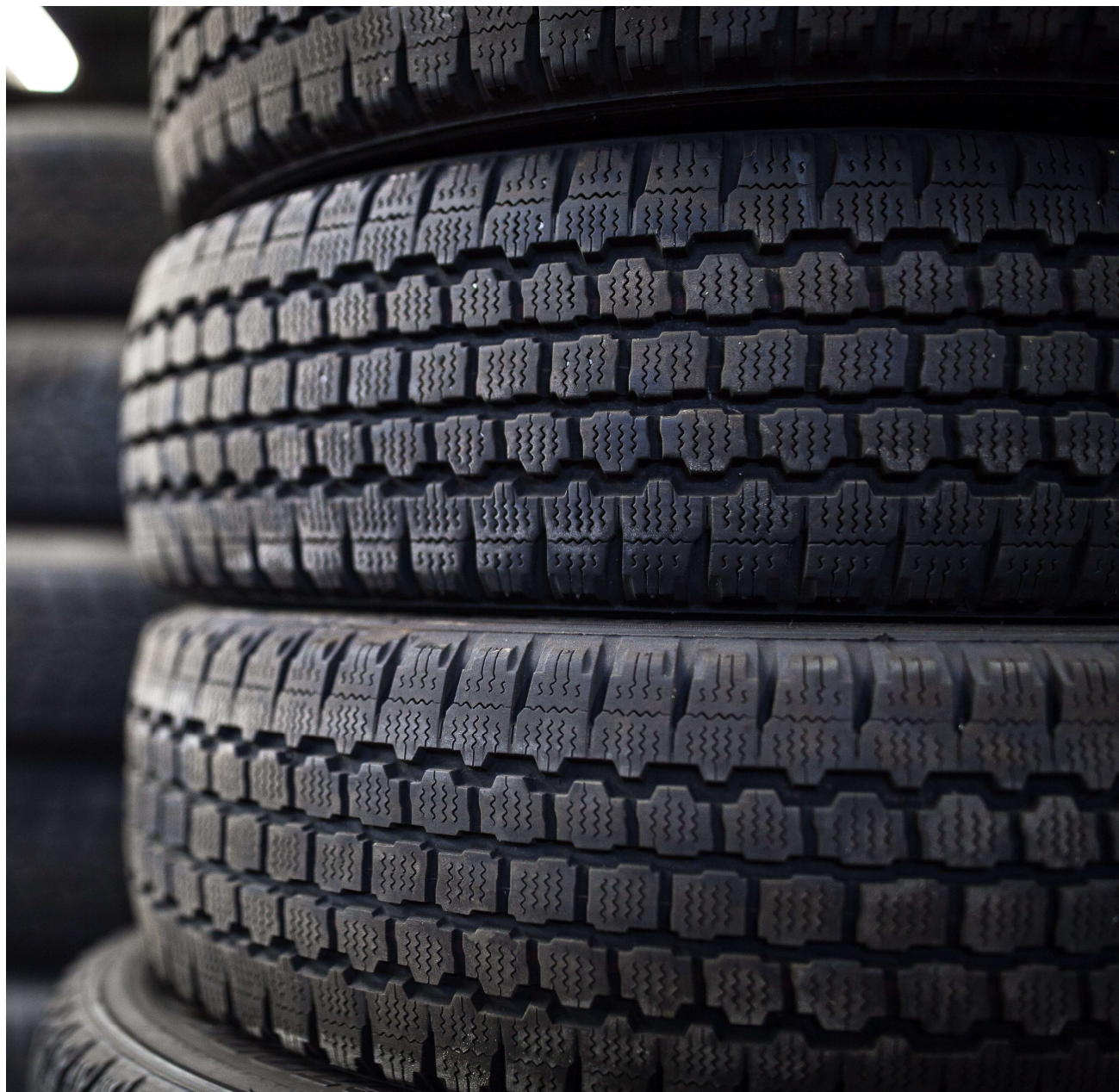


# Rubber Market Overview

APIC 2024

By Angie Joe  
and Brian Leonal



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Headquartered in the UK, Argus has over 1,300 staff working in 29 offices in the world's principal commodity trading and production centres.

Argus publishes more than 42,000 daily and weekly spot and forward price assessments, along with commentary, news and analysis for global commodities and energy markets.

**Coverage includes markets for:**

- Oil, natural gas, power, hydrogen, coal, biomass, asphalt, base oils, emissions and carbon
- Biofuels
- Fertilizers
- Agriculture
- Chemicals, including petrochemicals and oleochemicals
- Metals, ferrous, non-ferrous, battery materials, and scrap

**Services:**

- Market reporting, news, and analysis
- Consulting and forecasting
- Conferences

**Argus prices are used as benchmarks worldwide, including for:**

- US crude oil
- European gasoline and biofuels
- Asia-Pacific LPG
- Coal
- European steel
- US and European environmental markets



# | Aromatics, butadiene overview

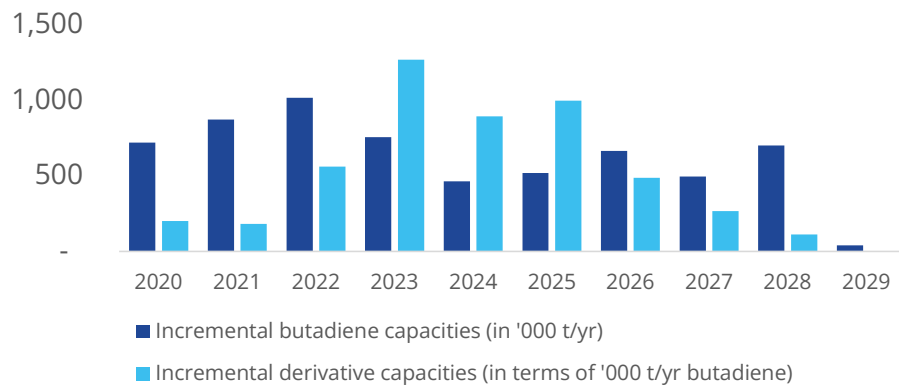
- Asia butadiene overview
- Argus' butadiene methodology
- Asia styrene overview
- World butadiene overview

# Asia Butadiene view

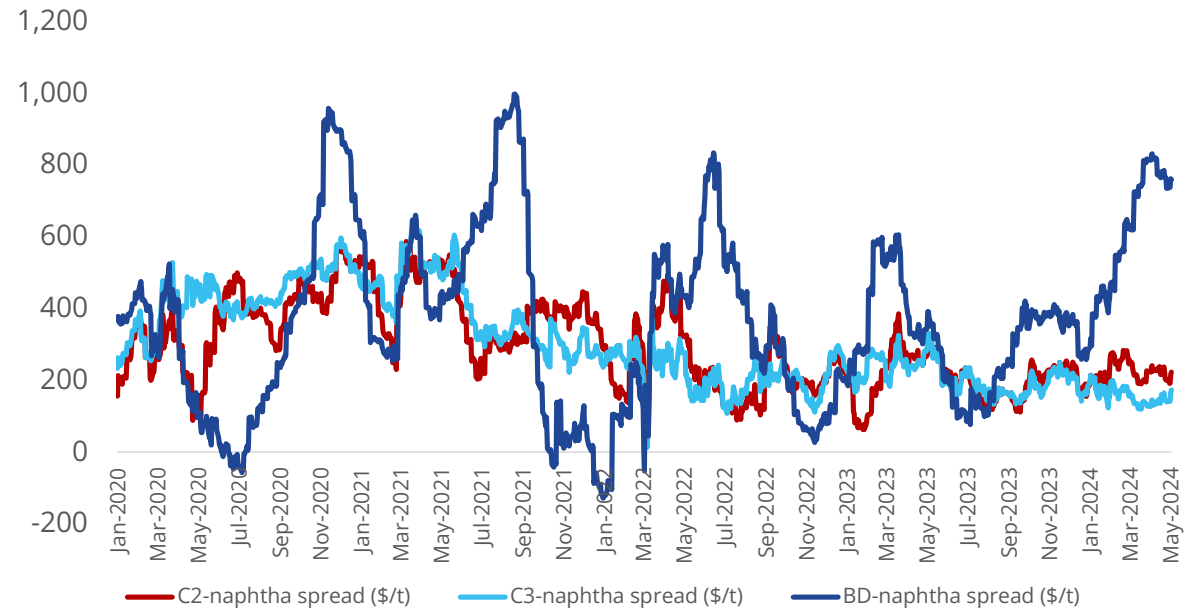
# Butadiene Strength

- Widespread LPG cracking.
- Persistently low operating rates arising from weak cracking margins.
- Persistent tightness through 2025, when incremental downstream capacities exceed that of upstream.

## Incremental supply vs demand capacities



## Olefins Spread

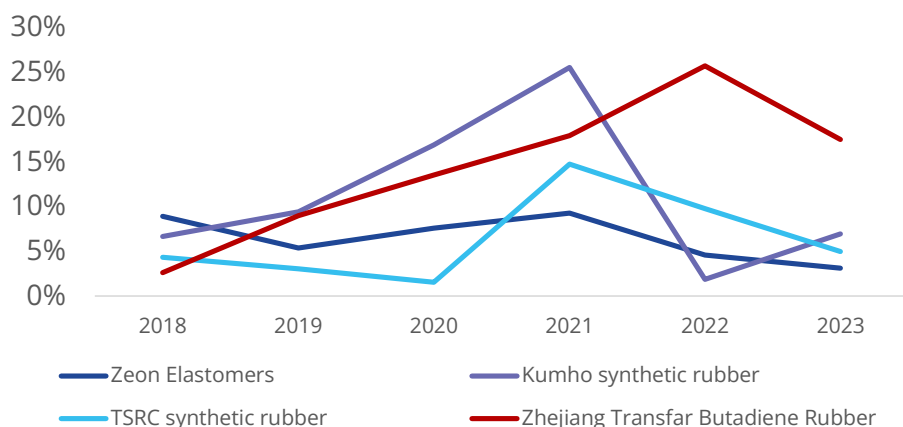


Source: Argus

# Butadiene Strength

- Rubber producers are hardy.
- Since 2019, there is only one closure – Asahi Kasei’s SBC plant.

## Operating Profit Margin



	2018		2019		2020	
Company segments	Revenue	OP	Revenue	OP	Revenue	OP
Zeon Elastomers (in JPYm)	198,087	17,691	178,847	9,642	161,626	12,283
Kumho Synthetic Rubber (in KRWm)	3,753	249,793	3,524,690	332,794	3,340,170	564,965
TSRC Synthetic Rubber (in '000 NTD)	28,123,268	1,226,488	27,108,301	827,226	23,214,325	354,059
Zhejiang Transfar Butadiene Rubber (in '000 RMB)	844,532	21,974	496,352	44,610	441,103	59,714

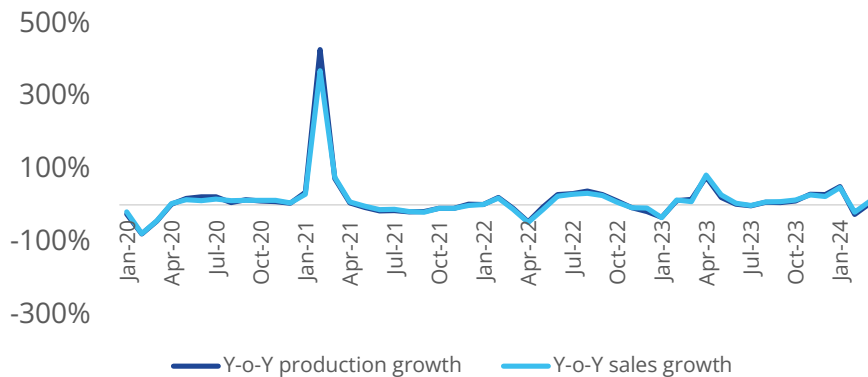
	2021		2022		2023	
Company segments	Revenue	OP	Revenue	OP	Revenue	OP
Zeon Elastomers (in JPYm)	200,566	18,623	222,230	10,184	212,000	6,600
Kumho Synthetic Rubber (in KRWm)	5,304,070	1,356,221	39,883,752	747,319	4,833,066	335,685
TSRC Synthetic Rubber (in '000 NTD)	31,440,582	4,638,104	33,194	3,249,724	30,930,592	1,547,151
Zhejiang Transfar Butadiene Rubber (in '000 RMB)	525,681	94,493	1,351,461	348,093	1,595,318	279,840

Source: Zeon, Kumho, TSRC, Zhejiang Transfar annual reports

# Butadiene Limits

- Narrowing synthetic rubber margins.
- Weakness in China's economy drives down demand for new vehicles.

## China's car production and sales growth

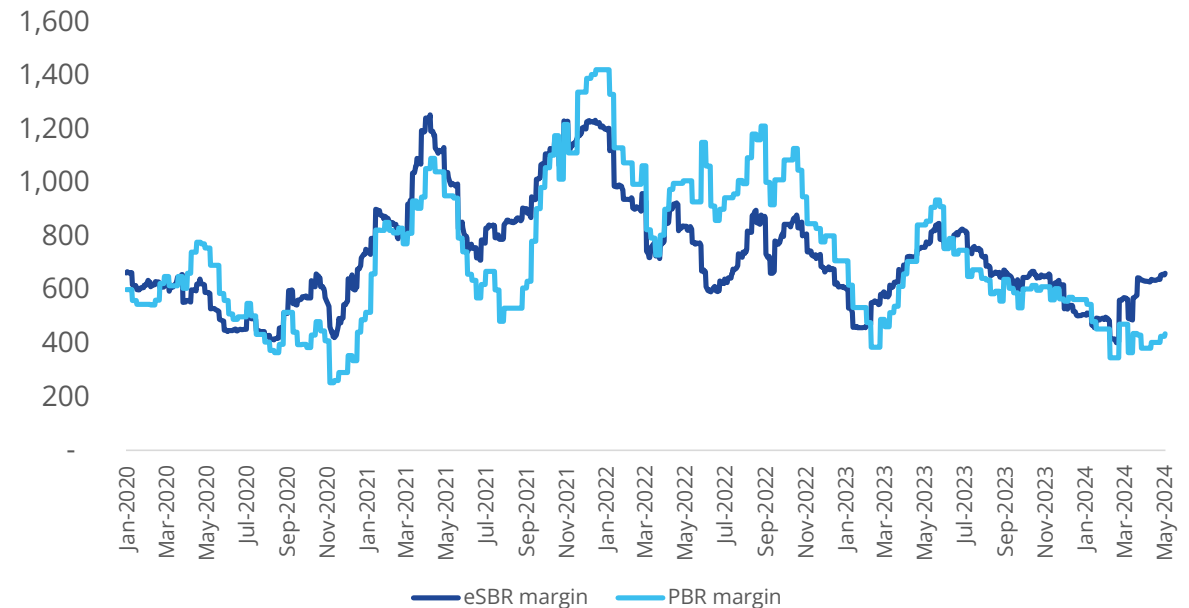


Source: China Association of Automobile Manufacturers



(in US\$/t)

## SBR and PBR margins



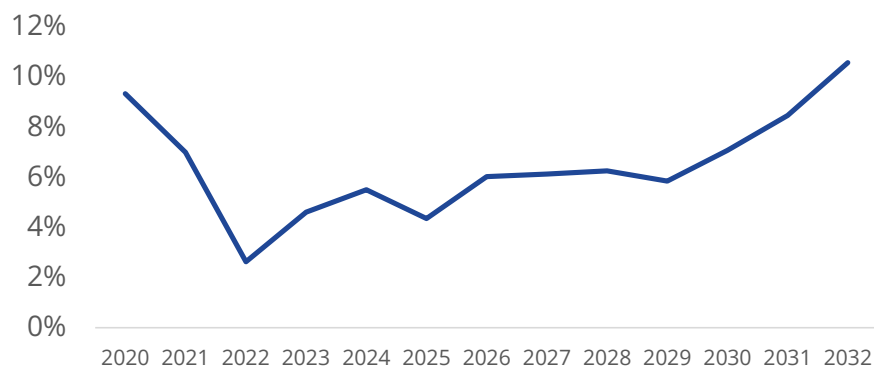
Source: Argus



# Butadiene – supply demand outlook

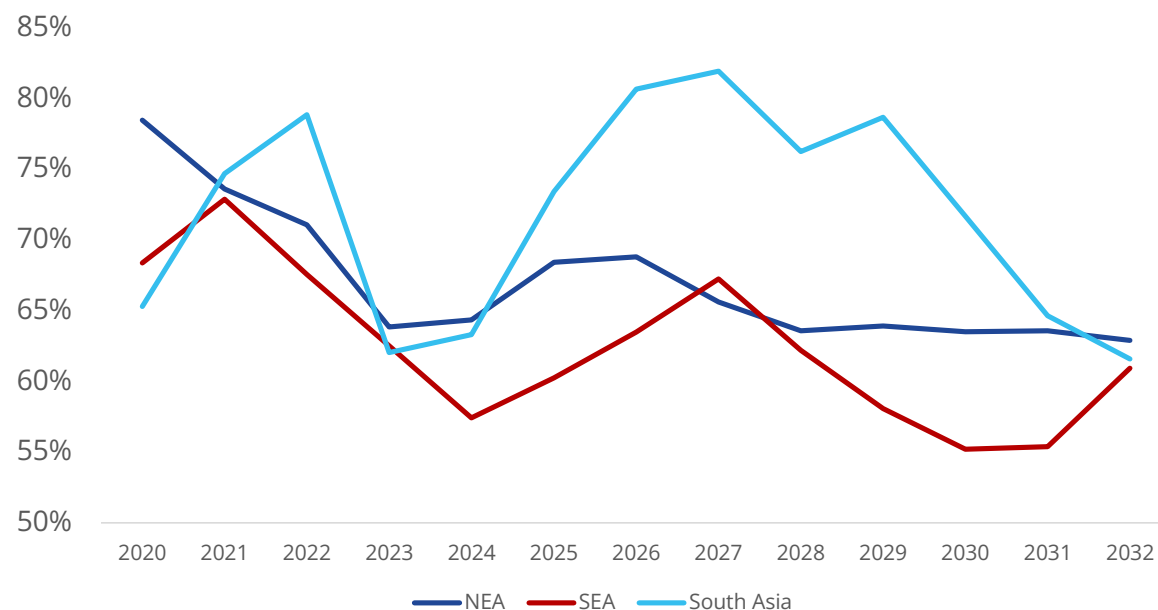
- Higher operating rates of BD units owing to sharp incremental derivative capacities.
- In response, co-cracking rates are expected to decrease.

### Co-cracking rates



Source: Argus

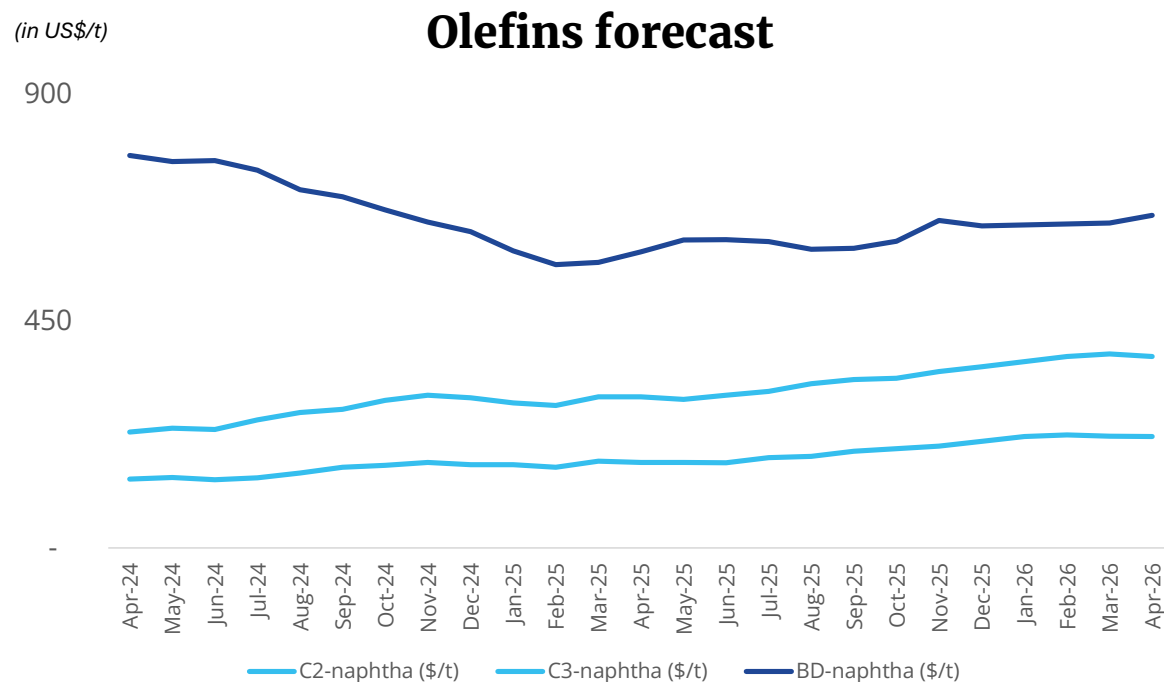
### Asia BD operating rates



Source: Argus

# Butadiene – Price outlook

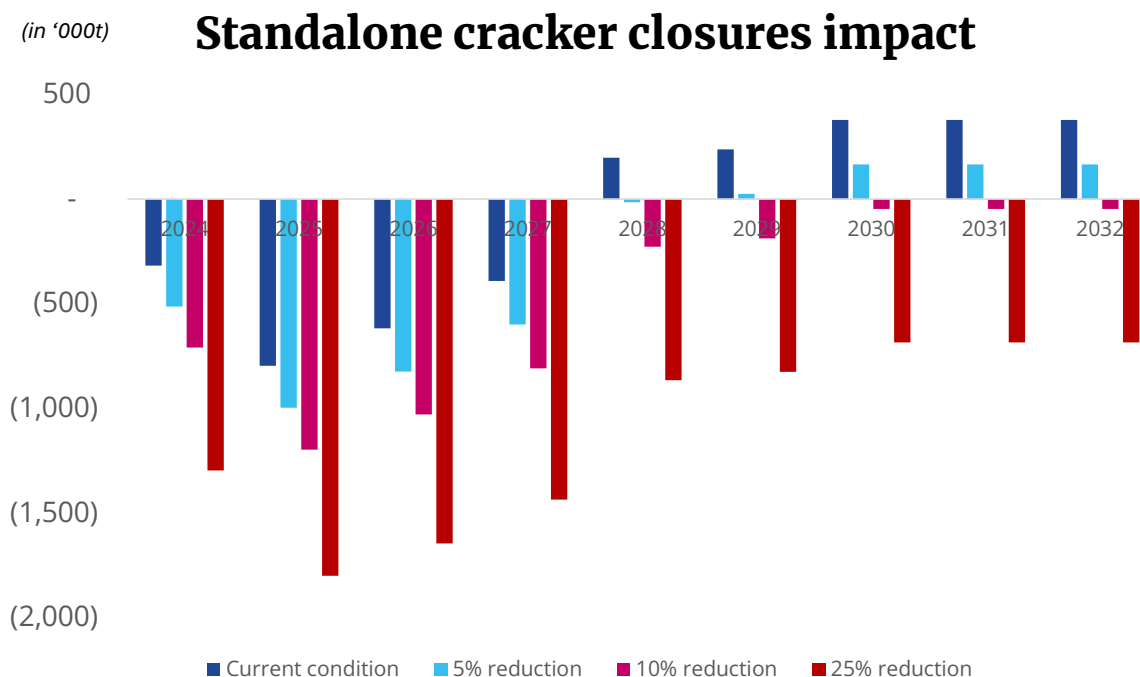
- Narrower BD-naphtha spread, with widening of C2, C3-naphtha.
- Incremental demand capacities of C2 outweigh incremental supply capacities.
- Higher incentives to raise run rates and longer BD supplies.



Source: Argus

# Butadiene – how consolidation looks

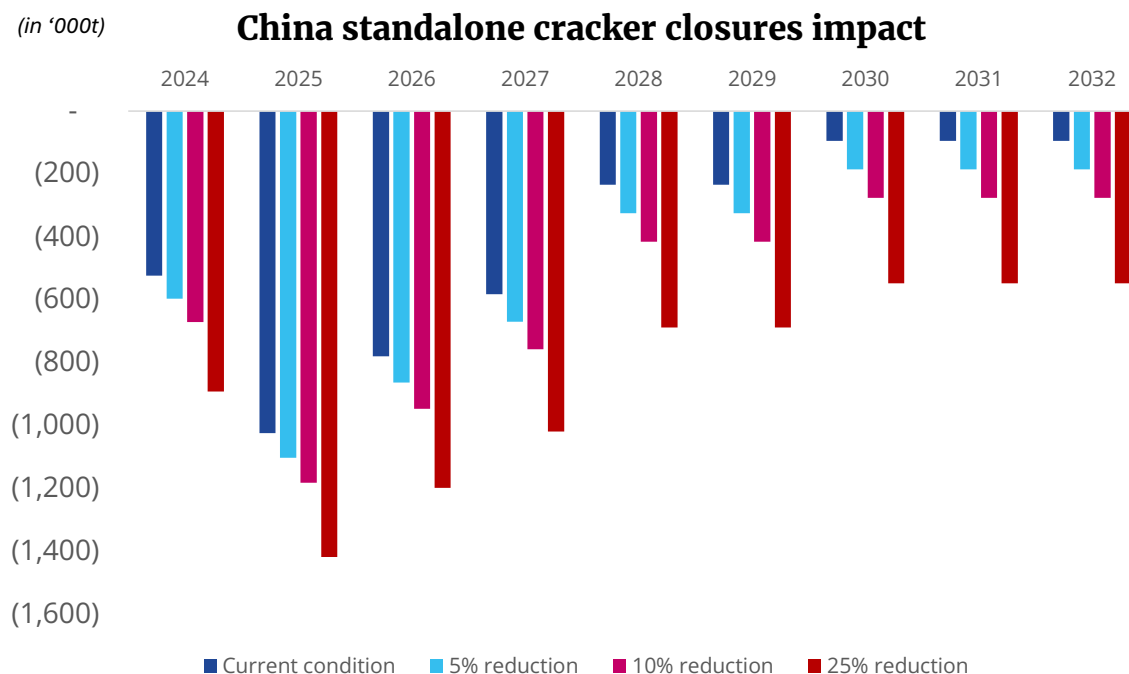
- 38 stand-alone crackers in northeast Asia were sensitised.
- Southeast and South Asian crackers were excluded, given a good proportion of them were sole crackers in their own countries.
- Sensitivities are done by reducing ex-standalone cracker BD by 5%, 10%, and 25%.
- Asia 2024-2032 shortage averages 61,000 t/yr at current condition.
- Results show between 2024-2032 Asia would generally face BD shortages of:
  - 269,000 t/yr based on 5% reduction
  - 477,000 t/yr based on 10% reduction
  - 1.102mn t/yr based on 25% reduction



Source: Argus

# How standalone cracker closure looks in China

- 19 stand-alone crackers were sensitised, both Sinopec and non-Sinopec crackers.
- China's 2024-2032 shortage averages 406,000 t/yr at current condition.
- Results show between 2024-2032 China would generally face BD shortages of:
  - 493,000 t/yr based on 5% reduction.
  - 579,000 t/yr based on 10% reduction.
  - 838,000 t/yr based on 25% reduction.



Source: Argus

# Auto recovery?

- The market has been taking inventories out since December.
- Sales and production growth point upwards.

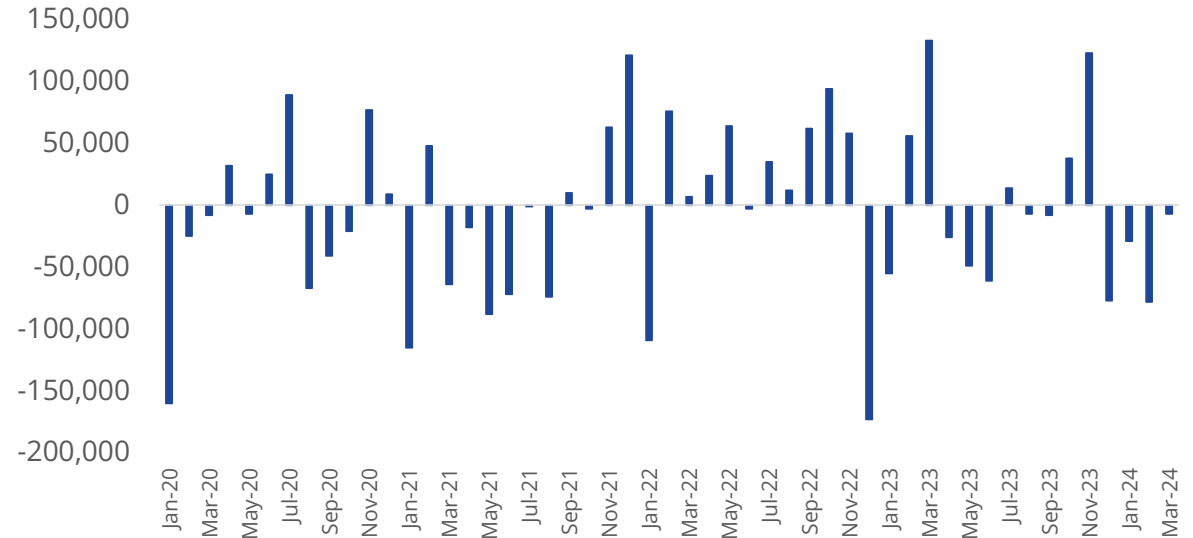
## China car sales production and sales growth



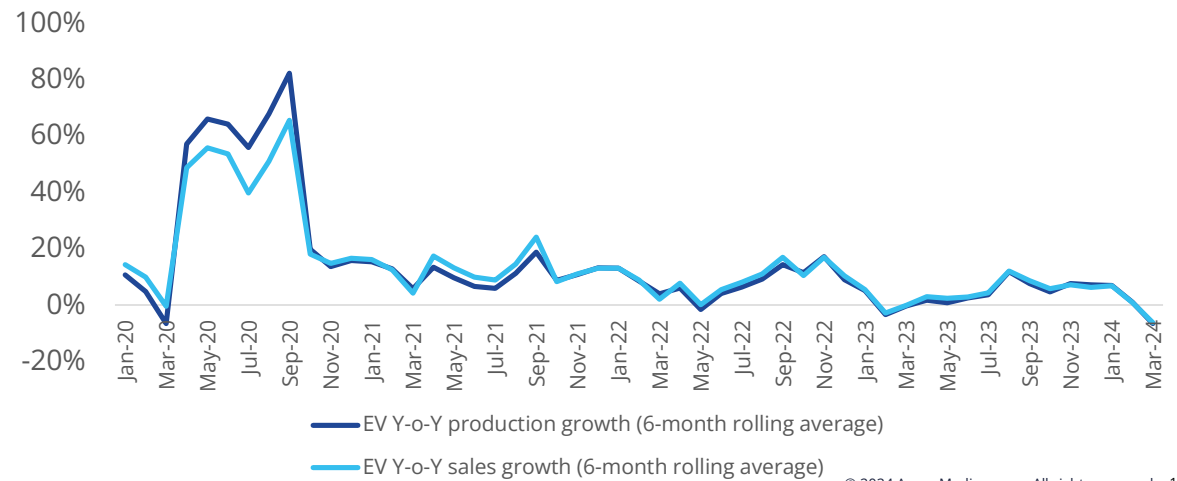
Source: China Association of Automobile Manufacturers



## China's car inventory movement



## China EV production and sales growth



# Asia Butadiene methodology

# Argus Butadiene methodology

	<b>fob NEA</b>	<b>cfr NEA</b>	<b>fob SEA</b>	<b>cfr SEA</b>
Locations	Korea, China, Taiwan or Japan	Korea, China, Taiwan or Japan	Indonesia, Thailand, Malaysia, Philippines or Singapore	Indonesia, Thailand, Malaysia or Singapore
Timing	2-6 weeks from assessment date	2-8 weeks from assessment date	2-6 weeks from assessment date	2-6 weeks from assessment date
Minimum trade size	2000t	2000t	2000t	2000t
Price assessment basis	Survey of bids, offers, and deals in the market.	Survey of bids, offers, and deals in the market.	Survey of bids, offers, and deals in the market. In the absence of fixed price discussions, ocean freight differential to cfr NEA is applied.	Survey of bids, offers, and deals in the market. In the absence of fixed price discussions, ocean freight differential to cfr NEA is applied.
Frequency	Weekly (Friday)	Weekly (Friday)	Weekly (Friday)	Weekly (Friday)

# Argus Butadiene methodology

Key features:

- Two weeks forward for starting laycan means we exclude distressed cargoes.
- Eight weeks forward for ending laycan means we include some deep-sea cargoes.
- 2,000t of minimum trade size is aligned with market norms and exclude distressed cargoes.

	Argus fob NEA	Argus cfr NEA	Friend 1 fob Korea	Friend 2 cfr NEA
Locations	South Korea, China, Taiwan, or Japan	South Korea, China, Taiwan, or Japan	South Korea only	South Korea, China, Taiwan
Timing	2-6 weeks from assessment date	2-8 weeks from assessment date	3-6 weeks from assessment date	0-6 weeks from assessment date
Cargo size	2,000t minimum	2,000t minimum	1,500-5,000t	1,000-7,000t
Frequency	Weekly (Friday)	Weekly (Friday)	Daily + Weekly (Friday)	Weekly (Friday)

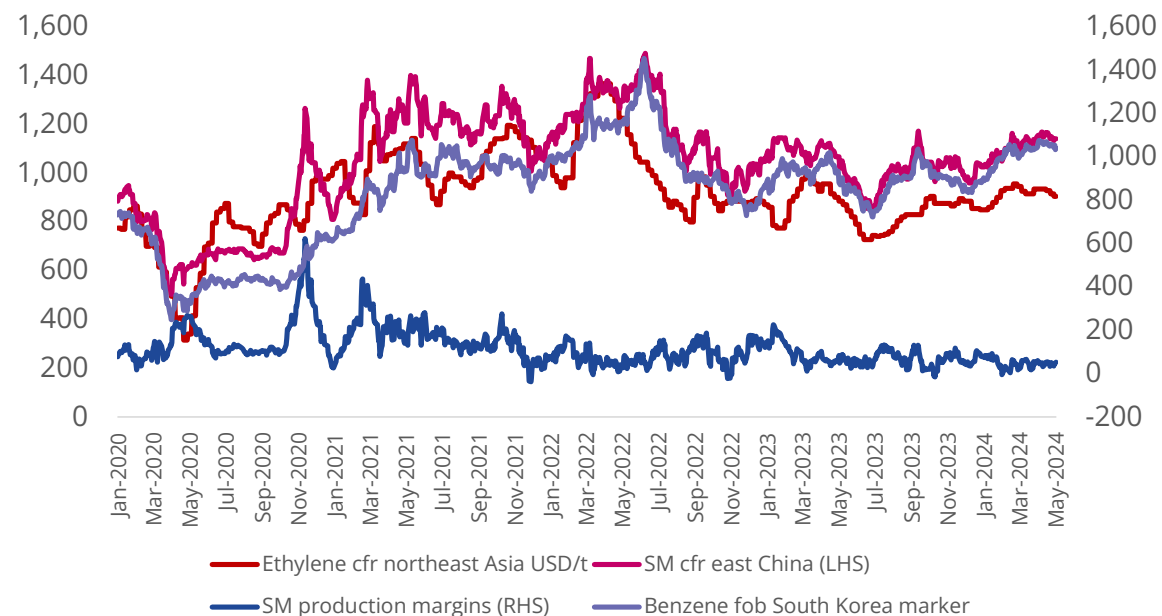


# Asia Styrene view

# The styrene view

- SM losses remained, with construction and real estate markets in China still weak.
- In terms of feedstock purchases, SM makers found a new competitor in the US gasoline market.
- Oversupply remains, consolidations are slow.

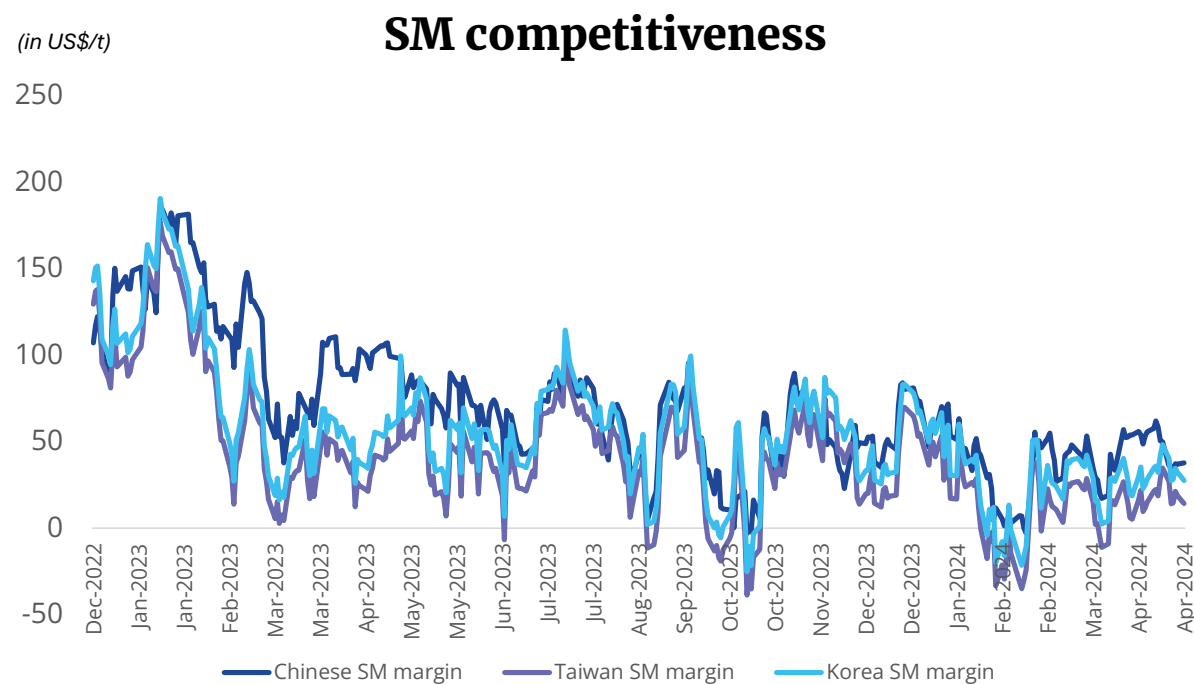
**SM margins (US\$/t)**



Source: Argus

# The styrene view

- China's SM units remained the most competitive.
- The premium of benzene in China has been narrowing, helping to support production margins.
- POSM starts to feel the heat too.

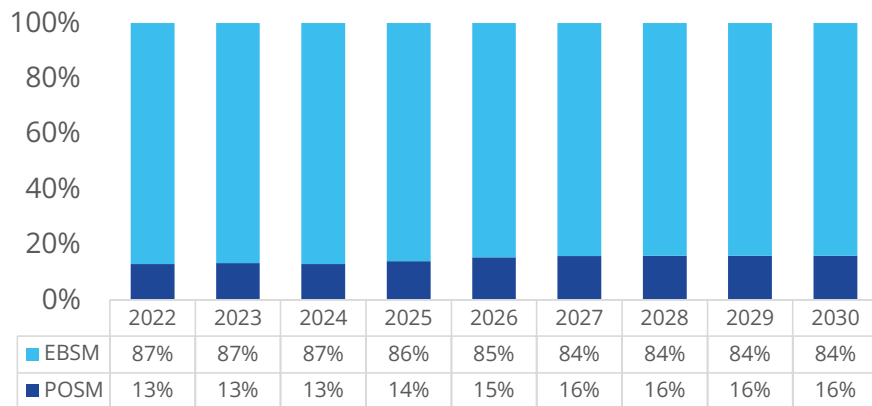


Source: Argus

# What the SM market will look like

- Higher operating rates with wider SM margins.
- Diversification with POSM helps to buffer some margins.
- Increased integration means SM will increasingly be seen as by-product credits.

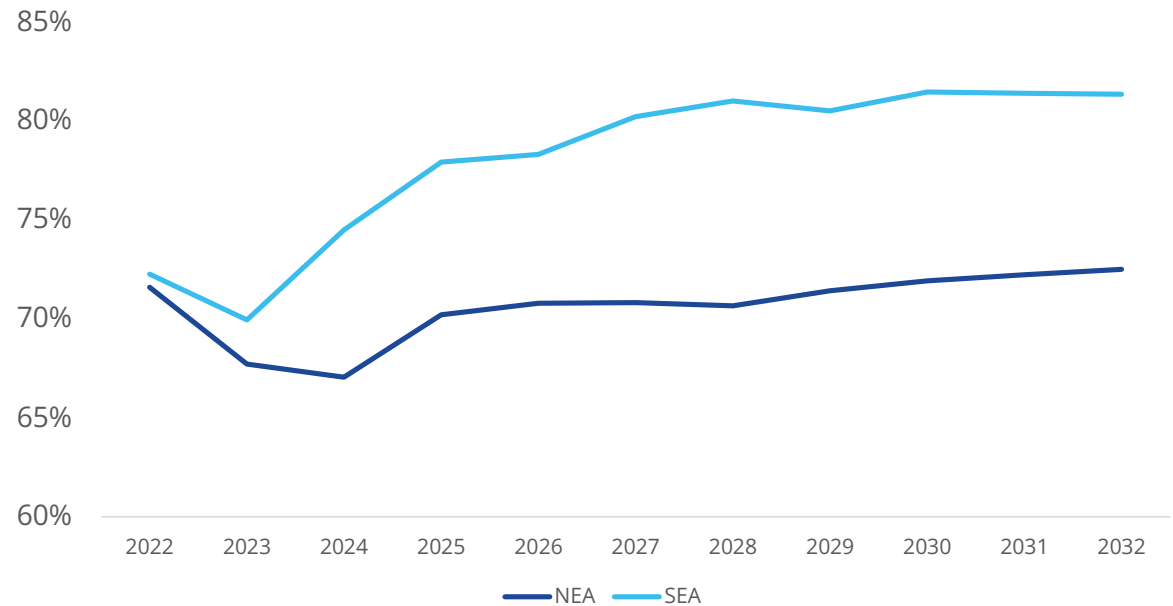
## EBSM vs POSM



Source: Argus



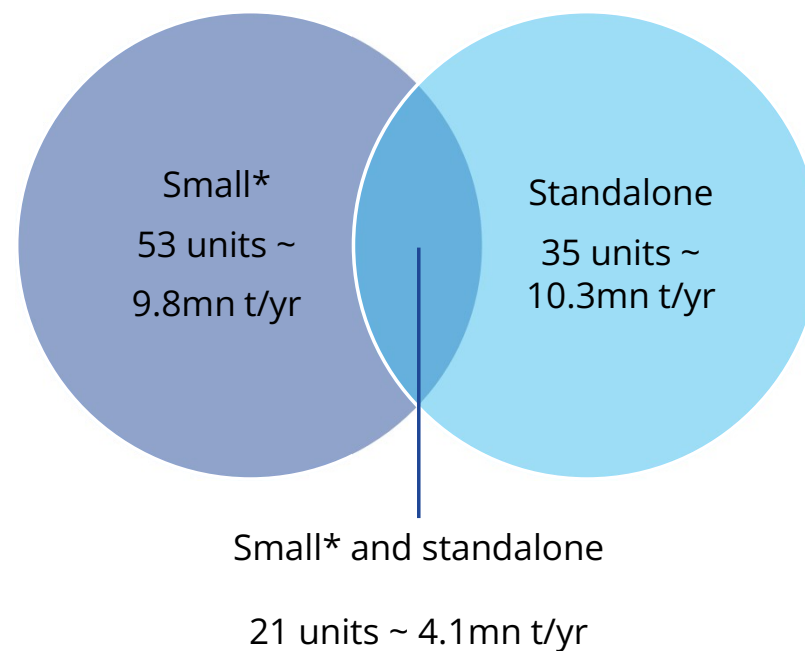
## SM operating rates outlook



Source: Argus

# What the SM market will look like

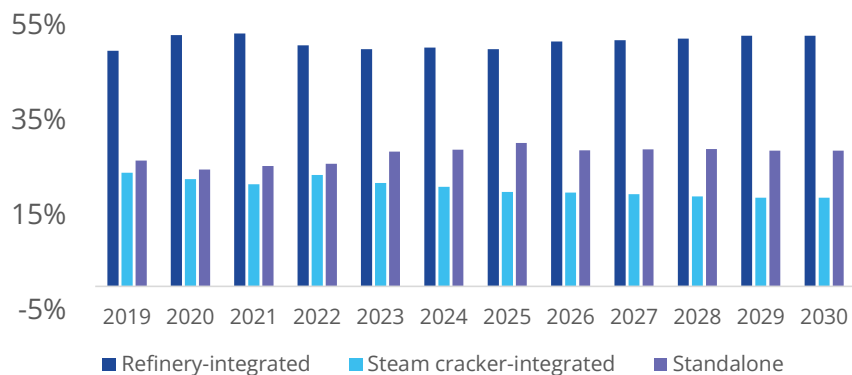
- Higher refinery-integration – lowest hanging fruit in terms of converting benzene.
- Lower steam cracker integration – low benzene output, challenges with finding sufficient benzene to meet economics of scale.
- Consolidations among small and standalone units.



\*Small is defined as capacities below 400,000 t/yr

Source: Argus

## Integration profile



Source: Argus

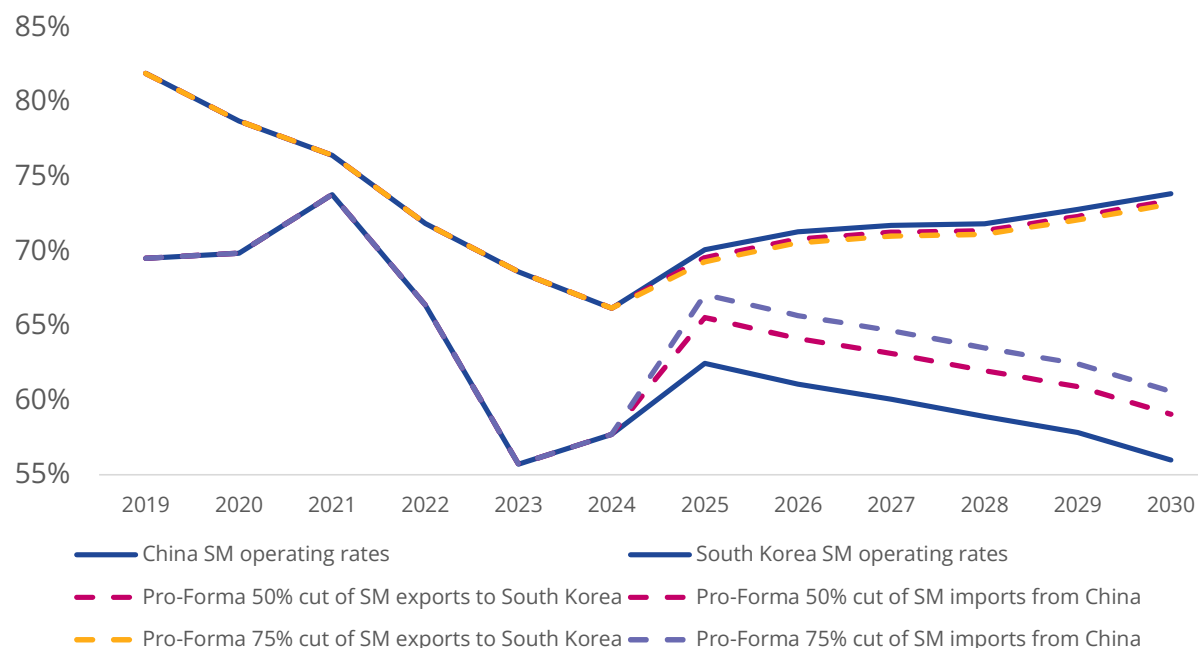
# What the SM market will look like

- As customary, ADDs will only result in re-organization of trade flows.
- South Korean SM producers are expected to ramp up rates.
- Chinese SM producers are expected to decrease rates.
- ADD impact is more pronounced to South Korea, given lower base.

Chinese exports to South Korea (t)	2020	2021	2022	2023
	23,000	62,800	185,000	272,000

Source: Customs data

## Pro-forma ADD sensitivities



Source: Argus

# World butadiene view

# World butadiene industry overview, 2018–2032

**Still, China remains the global demand centre, adding both supply and demand.**

- The extended slump in China’s demand for polyethylene has damped the outlook for the olefins chain.
- There have been cracker rationalizations, project delays and cancelations compared to the previous forecast published in March of 2023.
- Global C2 demand during the 10-year forecast declines by almost 20mn t, with a majority lost in the first five years. The downward adjustment is attributed to lower GDP growth, weak demand in the short term, high inflation and elevated interest rates.

Top 10 Countries – Butadiene Production Capacity



Top 10 Countries – Butadiene Consumption Capacity



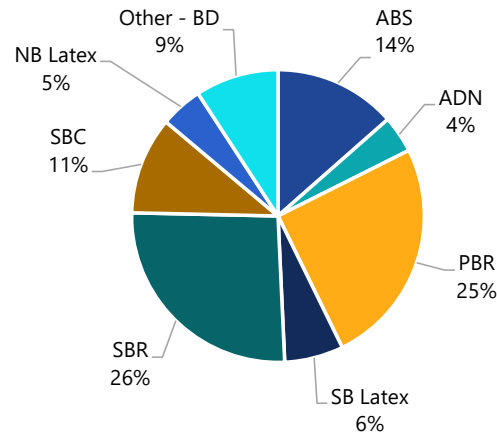


# World butadiene industry overview

## BD production slowed in 2023, with a mild rebound in 2024.

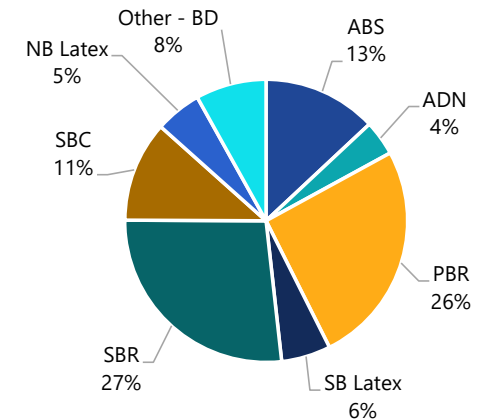
- Demand in 2023 started off the year on a positive note although the second half was weak. This is why global BD year-on-year production was about 600,000t lower.
- Logistics will play a significant role in trade flow. In 2023, Panama Canal restrictions curbed trade, although conditions have improved. However, starting in late 2023, geopolitical conflict spread into the Red Sea. The Red Sea is connected to the Mediterranean by the Suez Canal and is the shortest shipping route between Europe and Asia.
- Global BD consumption in 2024 has been higher than planned, which is why there has been an uptick in demand. Technical problems, high freight rates, lower cracker operating rates and lighter feedslates have also tightened supply.

Global butadiene demand 2022



**Year 2022**  
-Argus Consulting Services

Global butadiene demand 2023



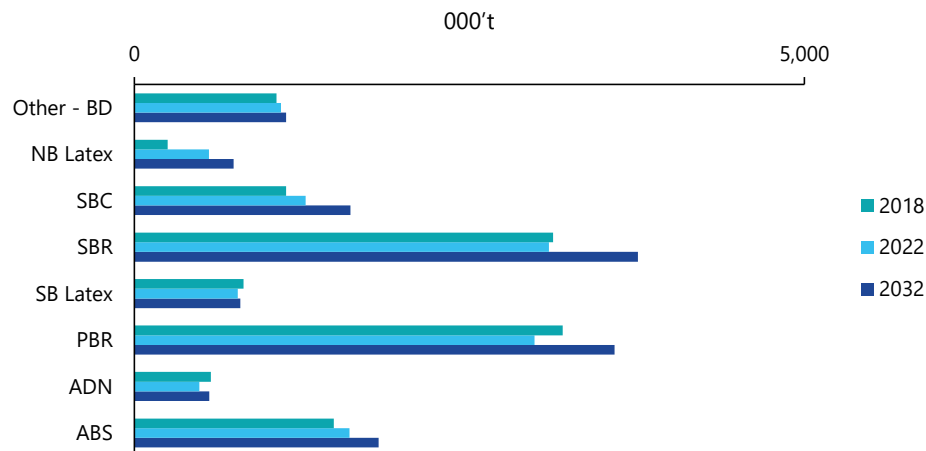
**Year 2023**  
-Argus Consulting Services

# World butadiene industry overview

## BD production set to slow in 2023, with a mild rebound in 2024.

- So far in 2024, there has been a positive tone for the first quarter but there is much uncertainty for the balance of the year. We are projecting a small bump in production from 2024 for the balance of the forecast.
- Derivatives with the highest growth from 2022-2032 are solution styrene butadiene rubber (sSBR), nitrile rubber latex (NBL) and styrene block copolymer (SBC).
- Of note is that NB latex demand escalated during the pandemic but has normalized in 2023 and beyond.

Global butadiene derivative demand 2018-2032



'000t

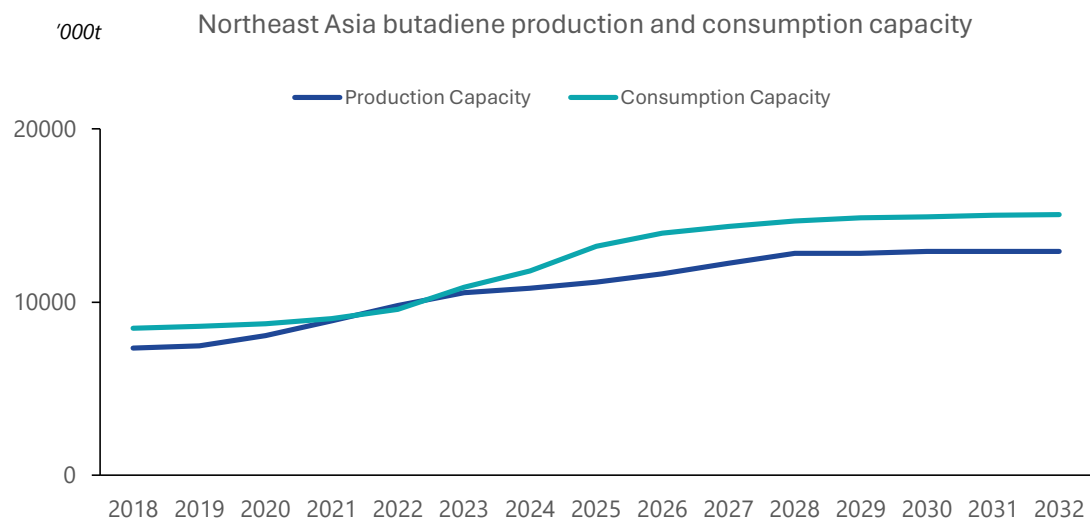
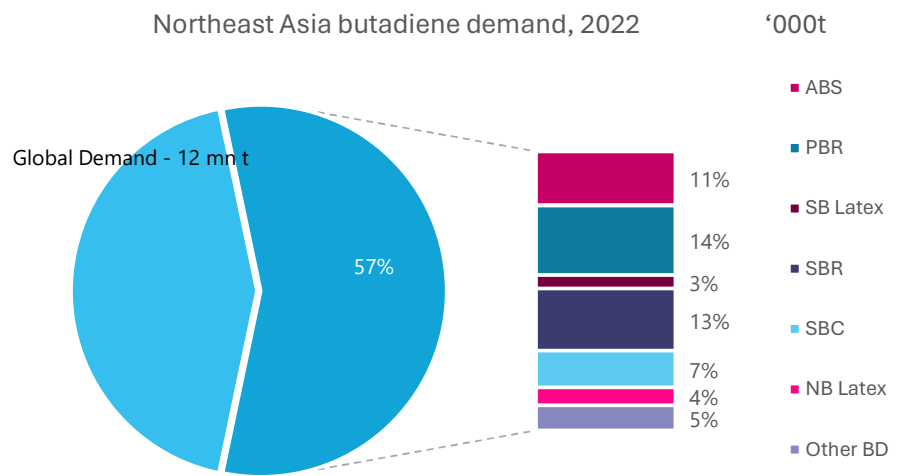
Regional butadiene demand



# Northeast Asia demand, 2018-2032

## The 2024 demand outlook is only mildly better than 2023.

- Overall sentiment for BD in Asia-Pacific has been slightly more optimistic for 2024 compared to 2023, but no one anticipated the degree of the recovery. This is why some major consumers term up for less volume in 2024, forcing them into the spot market and lifting prices. Cracker turnarounds and a preference for LPG have added to the tightness in late first quarter and part of the second quarter 2024.
- Longer term, many industry players have cited rising BD capacity in Asia-Pacific. Note though that consumption capacity has also grown.

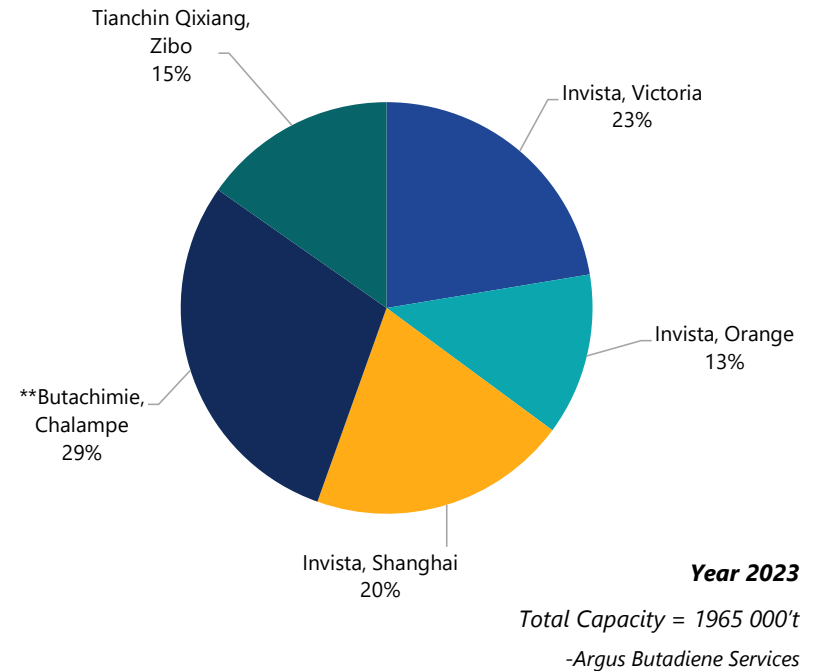


# Adiponitrile

## Invista permanently shut a Texas unit on a global oversupply of ADN.

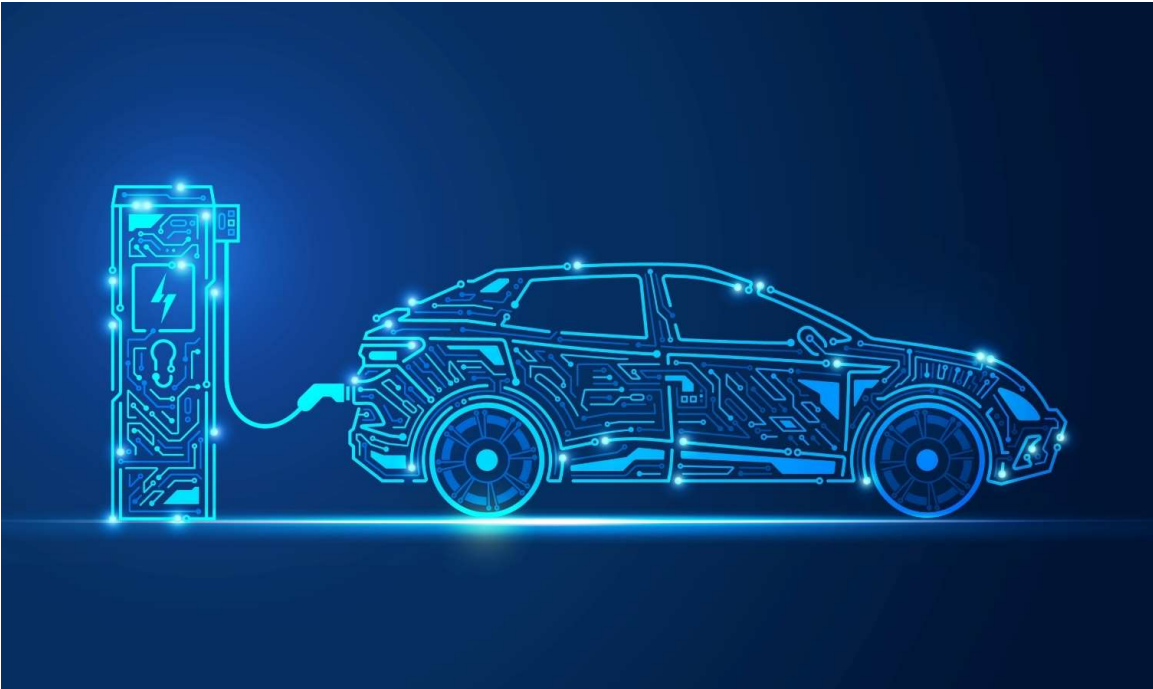
- Invista in October 2023 permanently shut its 250,000t/yr facility in Orange, Texas, citing “lower-than-anticipated growth and an increase in global supply.
- In China, two new ADN facilities using BD as a feedstock began operations: Invista with its 400,000 t/yr unit in Shanghai and Tianchen Qixiang’s 300,000 t/yr asset in Zibo.
- Meanwhile, plants using alternative technologies expanded. In 2019, Ascend Performance Materials said it added 90,000 t/yr of ADN capacity to its plant in Decatur, Alabama. China-based ADN producers could add more than 1mn t/yr of capacity, on top of what Invista and Tianchen Qixiang can manufacture.
- The shutdown at Orange means that Invista will no longer be the largest consumer of BD on a nameplate capacity in North America.
- Butachimie fell from the top consumer in western Europe, because of oversupply, volatile energy and a slow demand rebound in 2023. In positive news, the French consumer’s operations improved in 2024 after the closure of the Invista adiponitrile plant in Orange, Texas. But there is much uncertainty beyond this period.

Global adiponitrile capacity based on butadiene feedstock



# China's NEV market is set to grow

## NEV sales, production and exports rise



- China's new energy vehicle (NEV) sales are expected to hit 11mn in 2024, with their share of total car sales climbing to 40pc, CAAM estimates. Year-on-year production jumped 36pc to 9.587mn in 2023. NEVs refer to battery-electric vehicles, plug-in hybrids, and fuel-cell vehicles in China.
- In January, the Party Central Committee and State Council set a goal of raising the new NEVs to account to 45pc total vehicle sales by 2027. New NEV sales accounted for 26pc in 2022 and 31.6pc in 2023.
- NEV exports rose by 78pc from a year earlier to 1.2mn units in 2023, according to the ministry of industry and information technology (MIIT). But there are looming hurdles as the European Union is considering an anti-subsidy investigation on NEV imports from China.



# Thank you

# Contact us



## **Angie Joe**

### **Vice President Global Butadiene and Derivatives**

Angie leads the crude C4, butadiene and derivatives consulting practice at Argus. She spearheads the creation and production of the butadiene newsletter, monthly outlook and long-term supply and demand analytics publications. Angie has more than 15 years' experience in the petrochemical industry, including roles as an analyst and broker, and in business development and communications. She also has expertise in styrenics, aromatics, olefins and methanol. Angie enjoys tapping her experience along the entire petrochemical value chain to piece together market information in a global context.



## **Brian Leonal**

### **Editor – Chemicals Asia**

Brian Leonal is the Asia Pacific editor of Argus' petrochemicals desk. He has nine years of experience in the hydrocarbon industry. Before joining Argus for the second time, he was a corporate banker in DBS Bank covering oil and gas as well as petrochemical markets. He has been involved in a diversity of transactions, including asset-backed, project, trade, and M&A financing, as well as clean corporate loans. He started his career in Argus in 2015 as part of the petrochemical team, with exposures to olefins, aromatics, and polymers.



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