Navigating Pine Chemicals Amid Uncertainty, and Supply-Demand Shifts

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- European steel
- US and European environmental markets

Agenda

- Global pine oleoresin and gum rosin markets overview
  - Brazil: pricing, supply and demand dynamics
  - Southeast Asia industry analysis
- Gum turpentine
  - Supply-demand dynamics
  - Tariff effects and market insights
- Tall oil, tall oil derivatives and competing products
  - US and European CTO market dynamics
  - US and European TOFA markets
  - Tariffs, rosin esters (gum and tall oil-based) and HCR trends
- Concluding thoughts

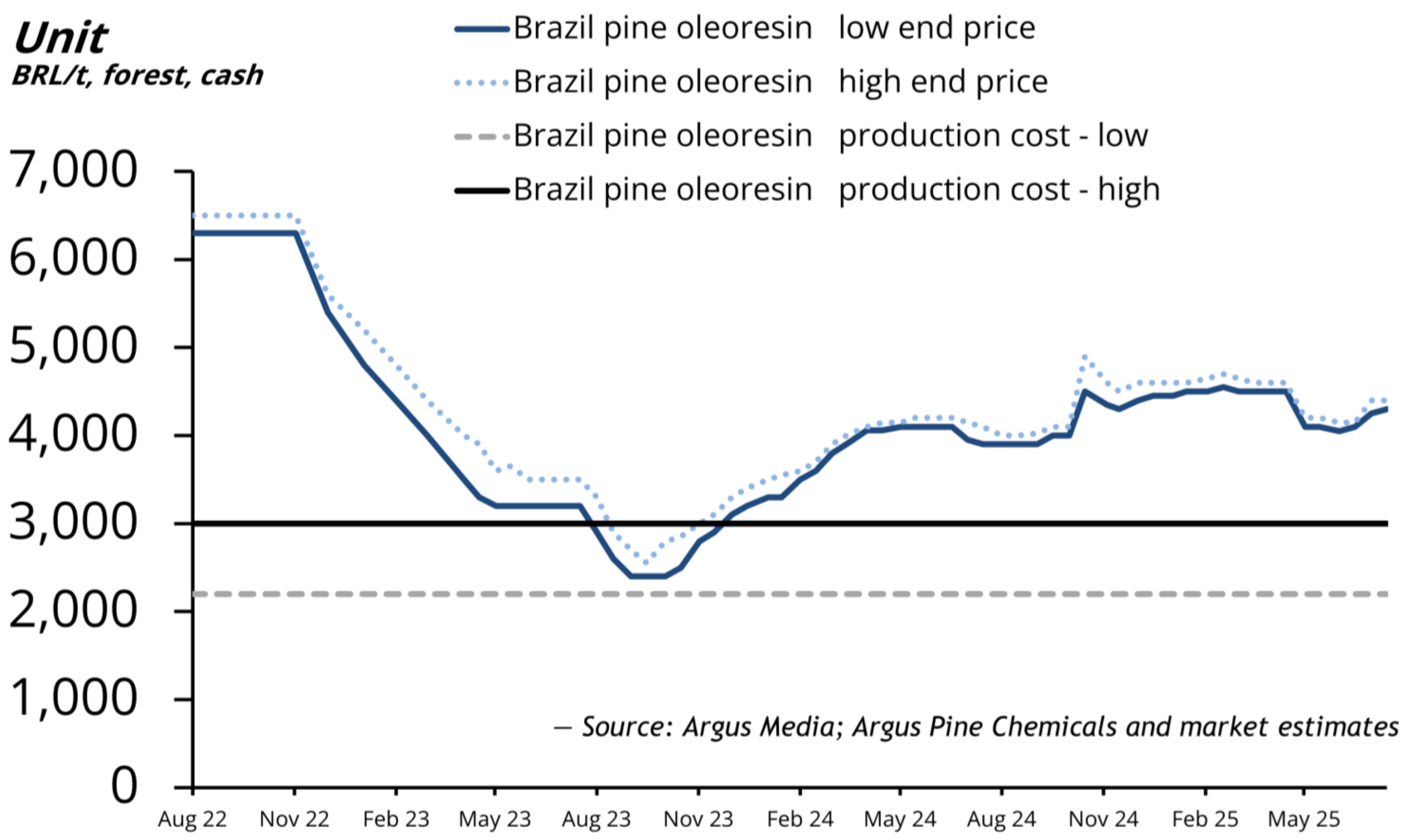
Global

pine oleoresin and gum rosin markets overview

Brazil: pricing, supply and demand dynamics

- Slight rebound from 2023 lows but far from 2022 and earlier peaks
- Transition from tight supply during 2024-25 offseason to uncertain 2025-26 tapping cycle
- Future at stake: Balancing higher-quality reforestation with market dynamics

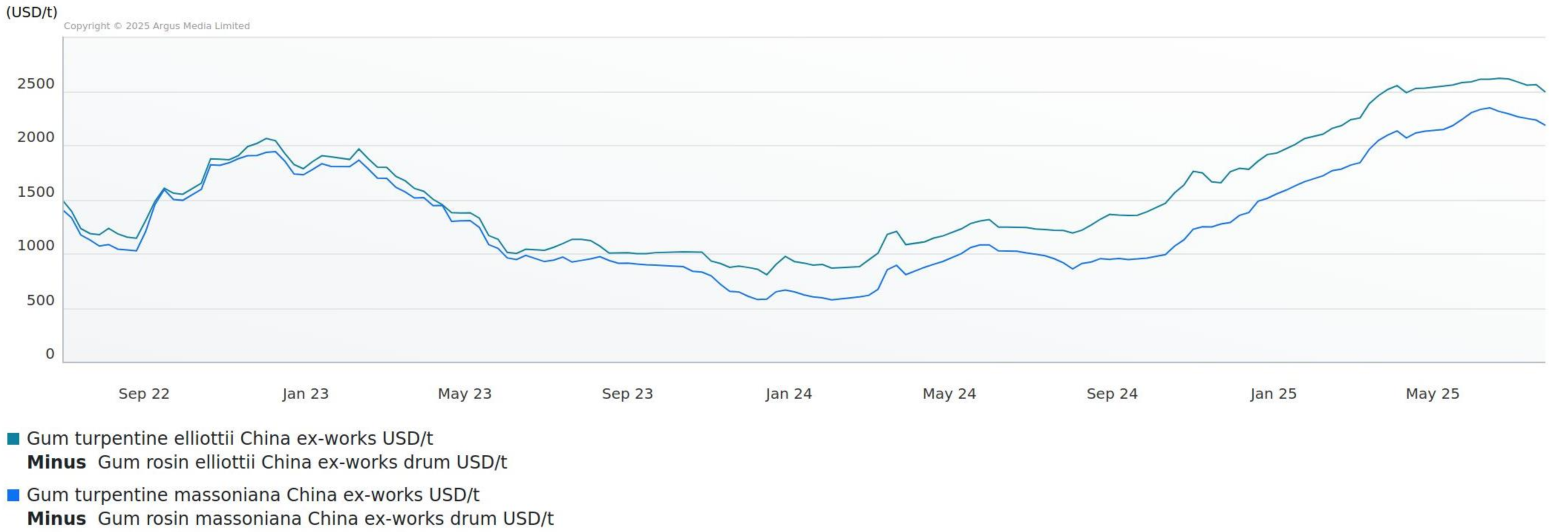
Brazil pine oleoresin prices vs. low-high cost scenarios



Southeast Asia industry analysis

- Higher oleoresin costs eroding gum rosin margins
- Rising turpentine prices offset thin, negative rosin margins
- Bottlenecks in Vietnamese, Indonesian oleoresin, gum rosin and turpentine markets during Apr-Jul

China gum turpentine spreads over rosin (CGT minus CGR)



Source: Argus Media

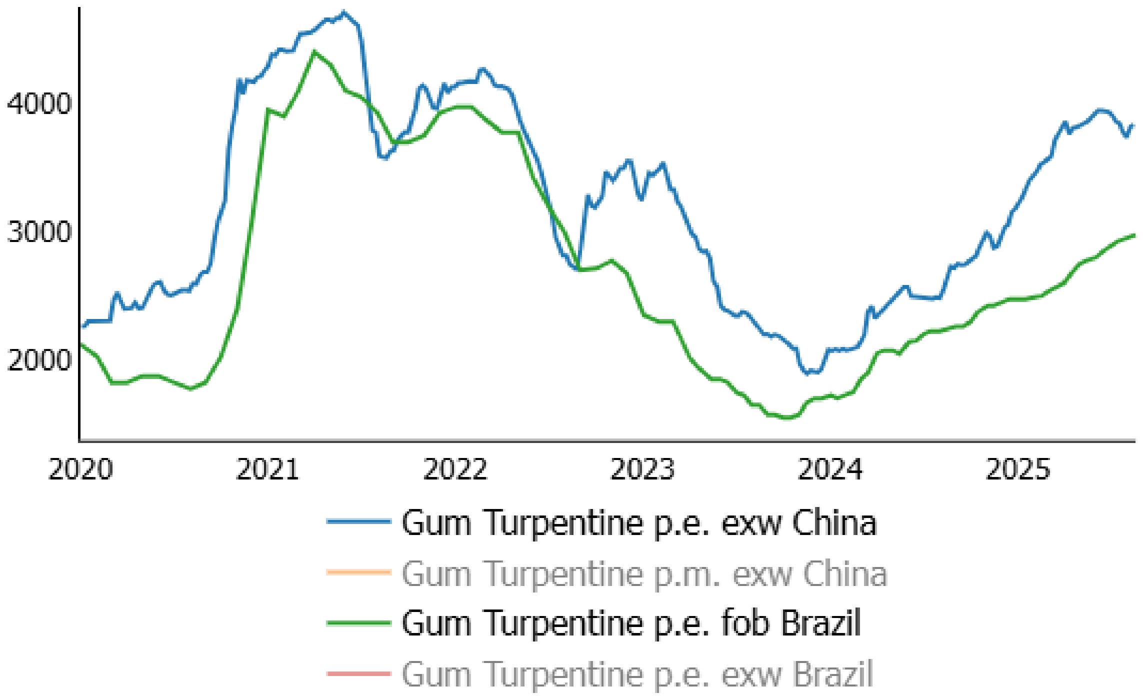
Gum turpentine

Supply-demand dynamics, tariffs and market insights

Gum turpentine supply-demand dynamics

- Shift from lower prices and elevated buyer/seller stocks in 2023 to tight gum turpentine supplies and rising prices in 2025
- Rosin-turpentine unbalance exacerbating turpentine price volatility
- Managing risk: Elevated costs and uncertain outlook may lead to product replacement or demand destruction

Brazil, China *elliottii* gum turpentine prices (USD/t)

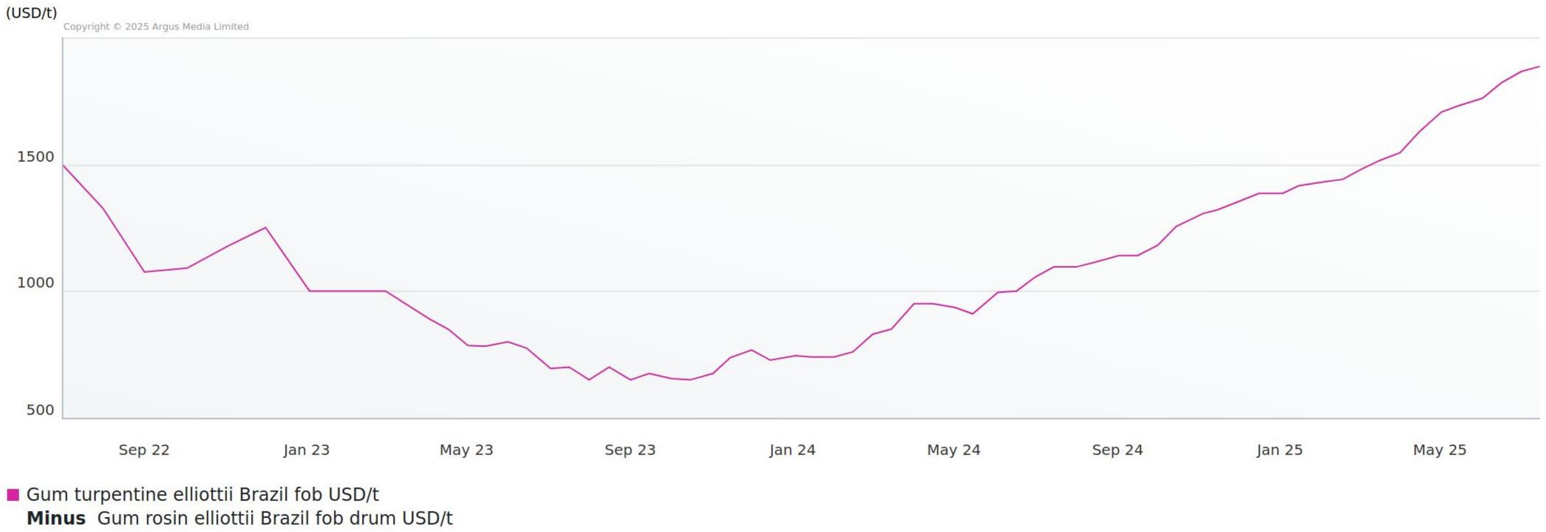


Source: Argus Media, Argus Pine Chemicals

Tariffs and market insights

- Tariffs and unpredictable rosin scenario to persist through end-2025 and early 2026
- Customers hit with 50pc US tariffs on Brazil
- US CST market firmer in 2025
- Limited stocks supporting current market levels

Brazil gum turpentine spreads over gum rosin (USD/t fob)



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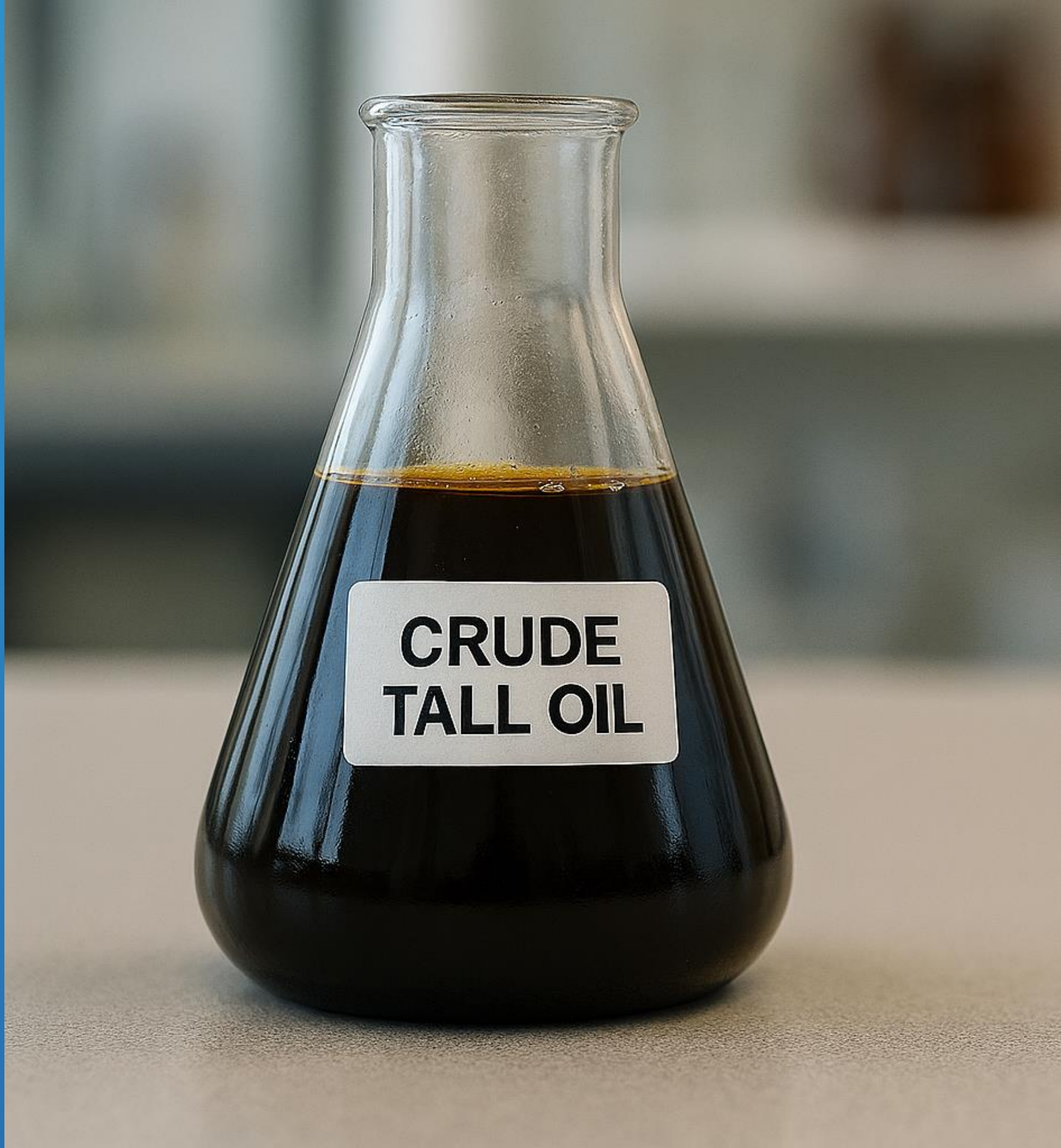
Crude tall oil

and tall oil fatty acid (TOFA)



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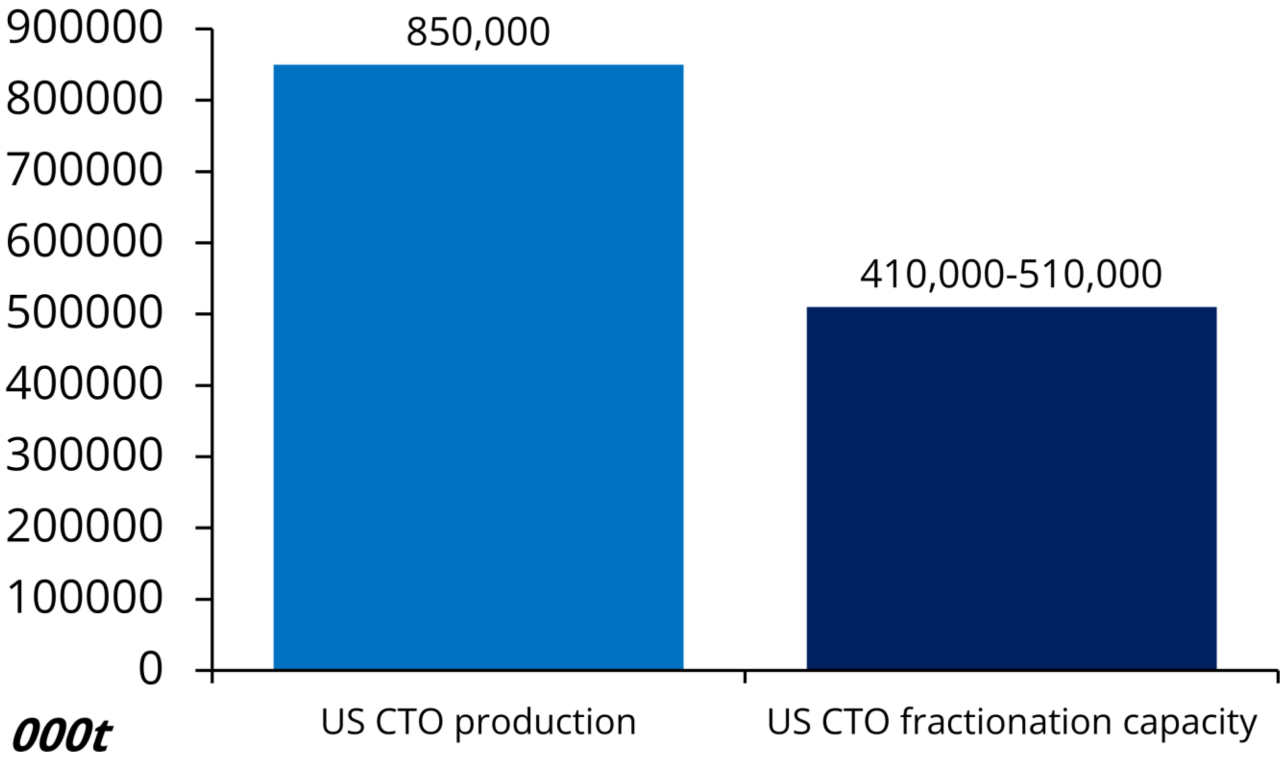
US, European CTO market dynamics

- US CTO fractionation capacity significantly down after fractionation plant closures
- Less US CTO volumes due to pulp mill shutdowns, but supply is available
- Competitively-priced US and European tall oil rosin (TOR) esters over gum rosin esters in both regions owing to lower feedstock costs

US CTO production vs domestic refining capacity



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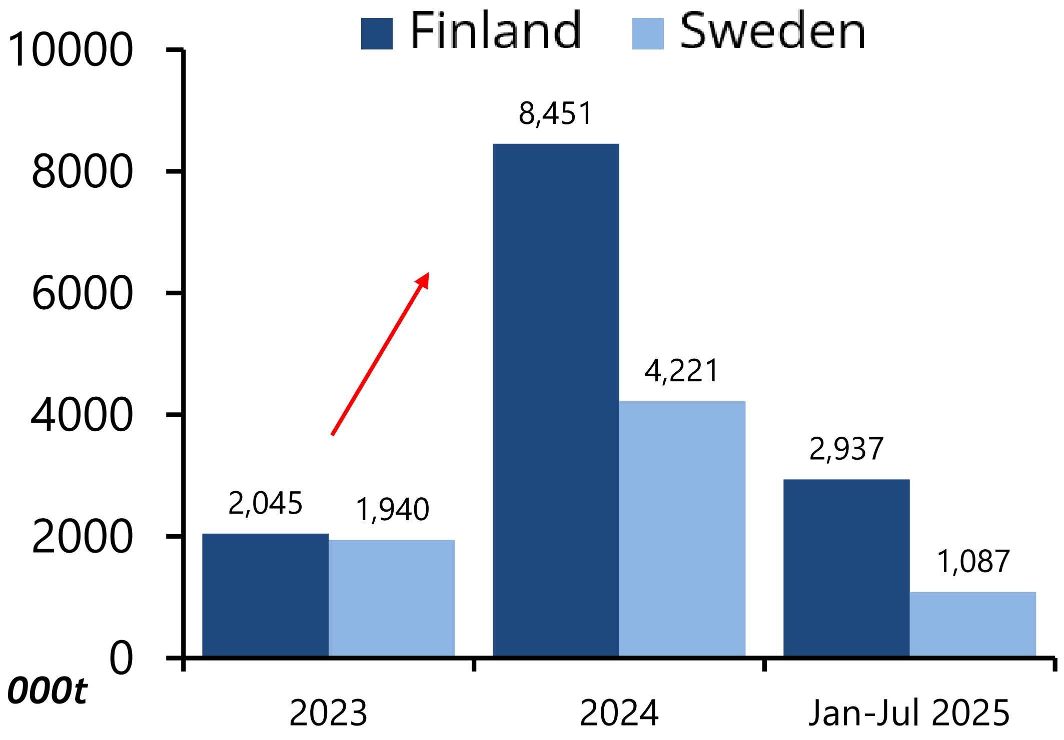
US, European TOFA markets

- US TOFA shorter in 2024, especially for the lower rosin grades, due to refiner shutdowns and firm demand
- Larger Swedish and Finnish TOFA imports address reduced US domestic supply. Steady to slightly softer markets in 2025
- Slower European TOFA markets in 2025. Weaker biofuels demand in 2024 and 2025
- Rebound in biofuels demand for European crude fatty acid (CFA). Pricing competitive over used cooking oil (UCO)

US imports of Swedish and Finnish TOFA



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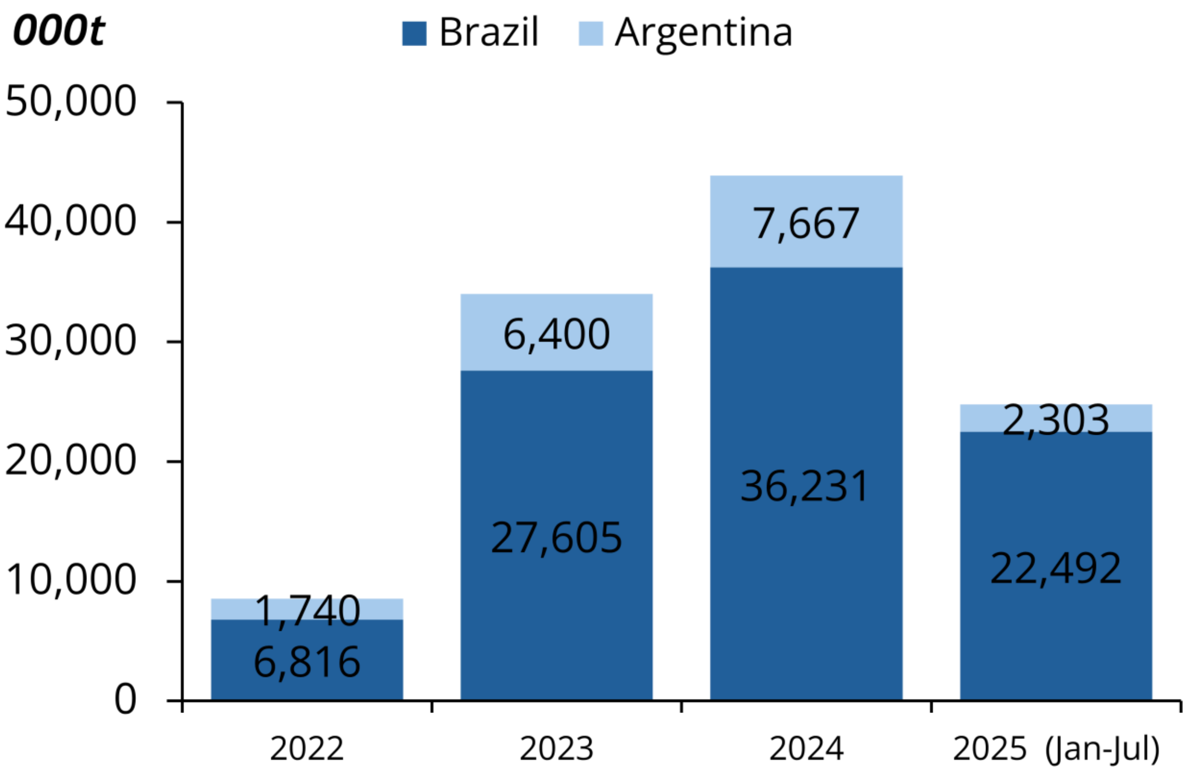
Rosin esters

(gum and tall oil based) and
hydrocarbon resins (HCR)

Rosin esters supply-demand fundamentals

- Southern Europe mainly sources gum rosin feedstock for rosin esters production from Brazil
- European gum rosin esters compete with Brazilian gum rosin esters, C5 HCR and regional TOR esters
- TOR esters in Europe and US competitive due to lower CTO feedstock pricing

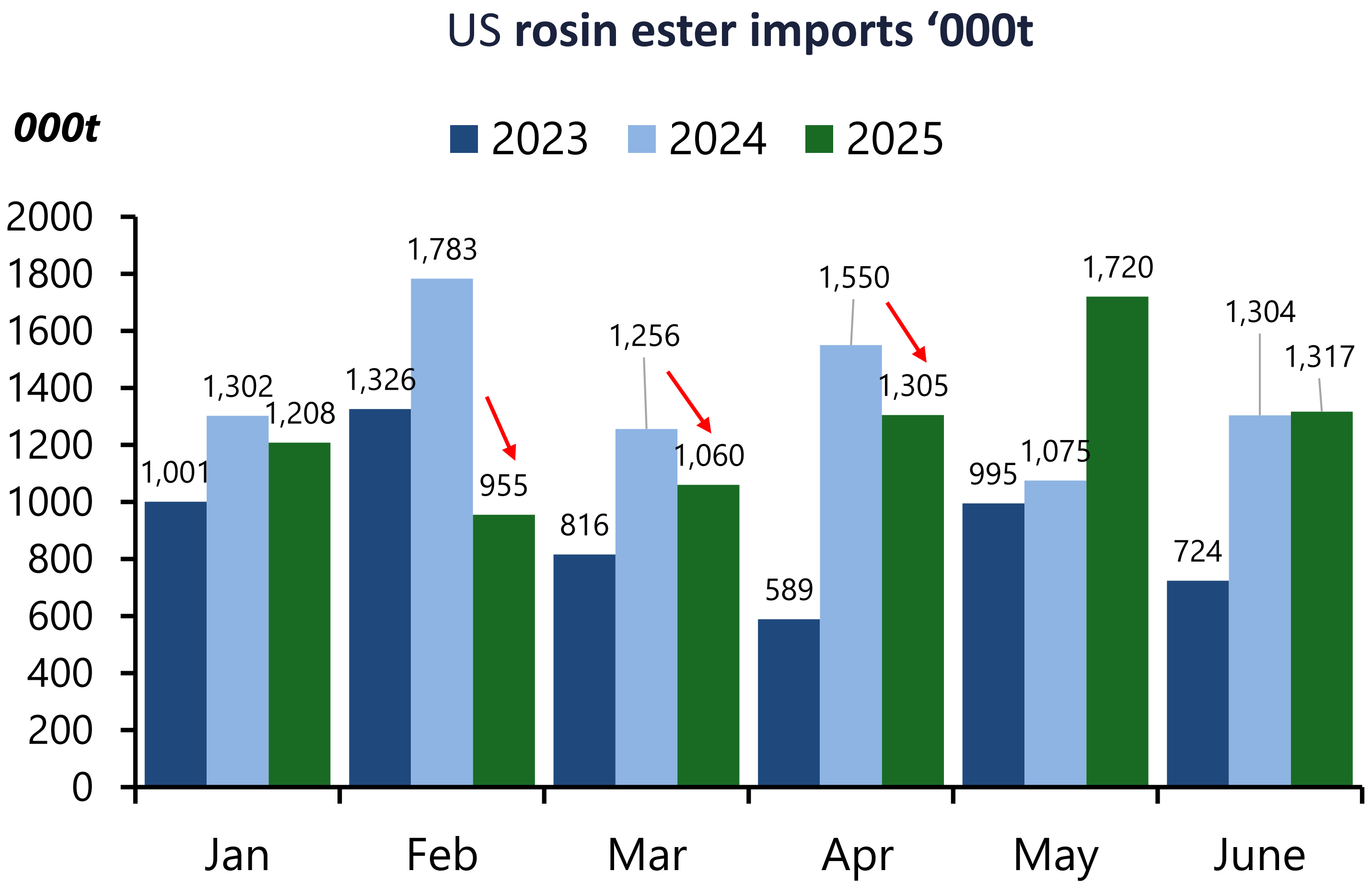
Brazil, Argentina GR exports to Portugal and Spain



Source: Argus Media, GTT

Key market developments

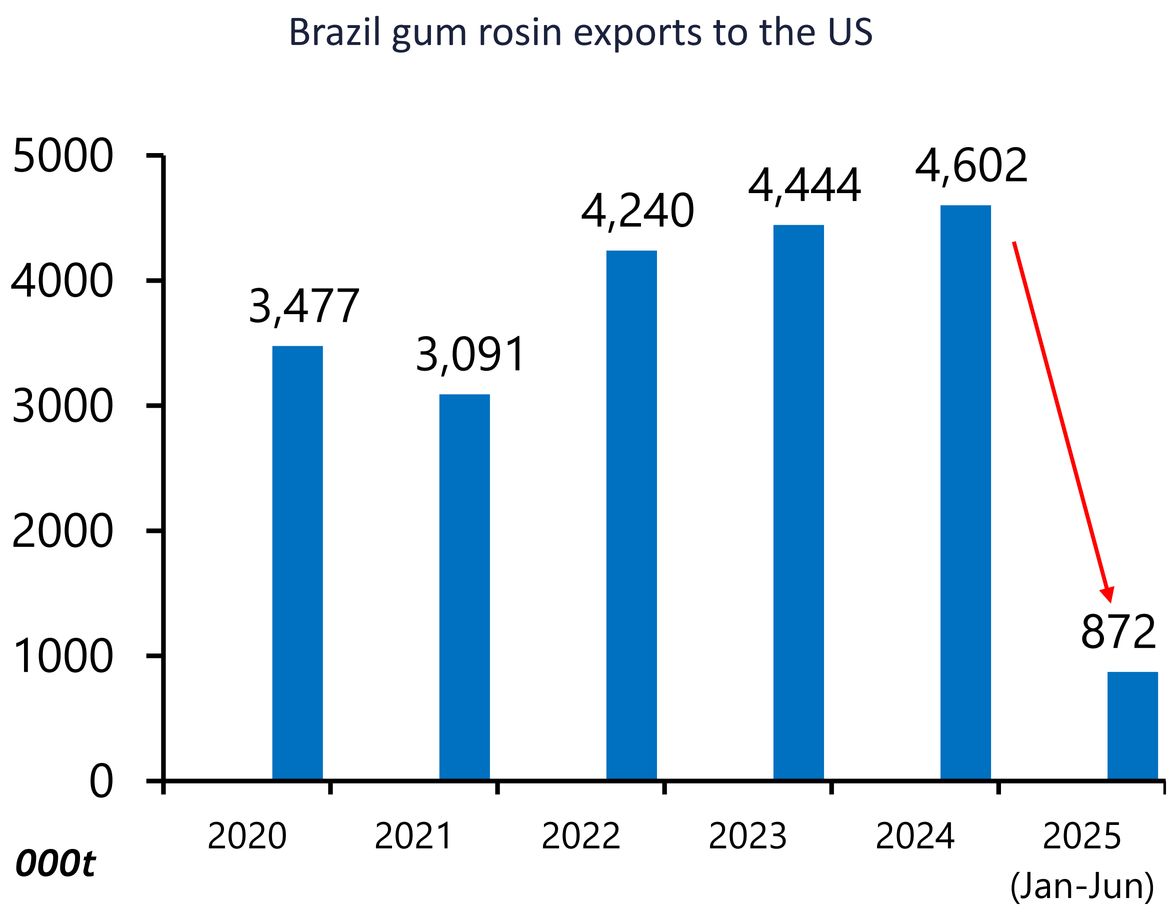
- US going from net exporter to 20,000-25,000 t/yr net importer of C5 HCR
- Some rosin esters from Europe and South America could fill in the US gap only if pricing is competitive
- European and South American rosin esters facing stiffer competition with competitively-priced US domestic TOR esters



Source: Argus Media, Argus Hydrocarbon Resin Newsletter

Key developments in tall oil and rosin ester markets

- 2023 and 2024: Reduced TOR esters supply following US CTO fractionator closures
- 2024: US becomes key destination for Brazil gum rosin
- 1H 2025: US imports of gum rosin feedstock stall amid tariff fears
- 2H 2025: Uncertainty remains amid tariff disputes
- TOR esters competitive over gum rosin esters in Europe and the US



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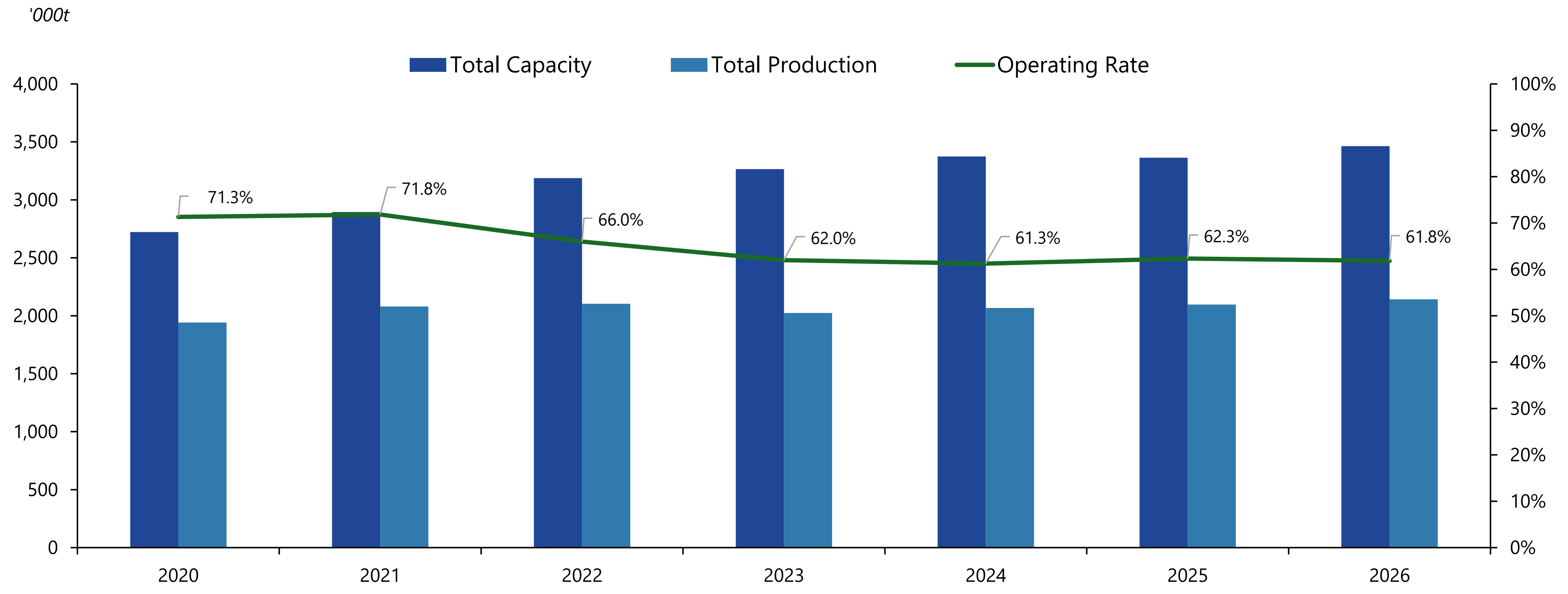
Hydrocarbon Resins (HCR) – Global Picture



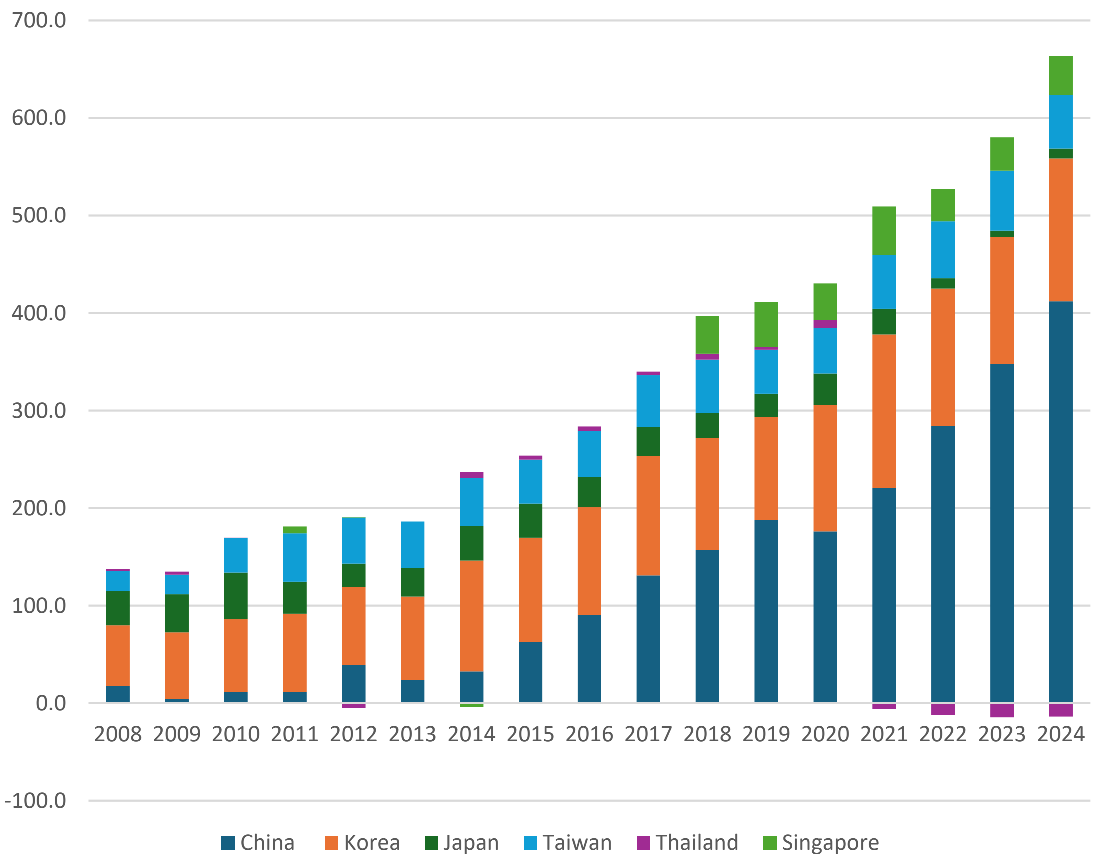
Source: Argus Media

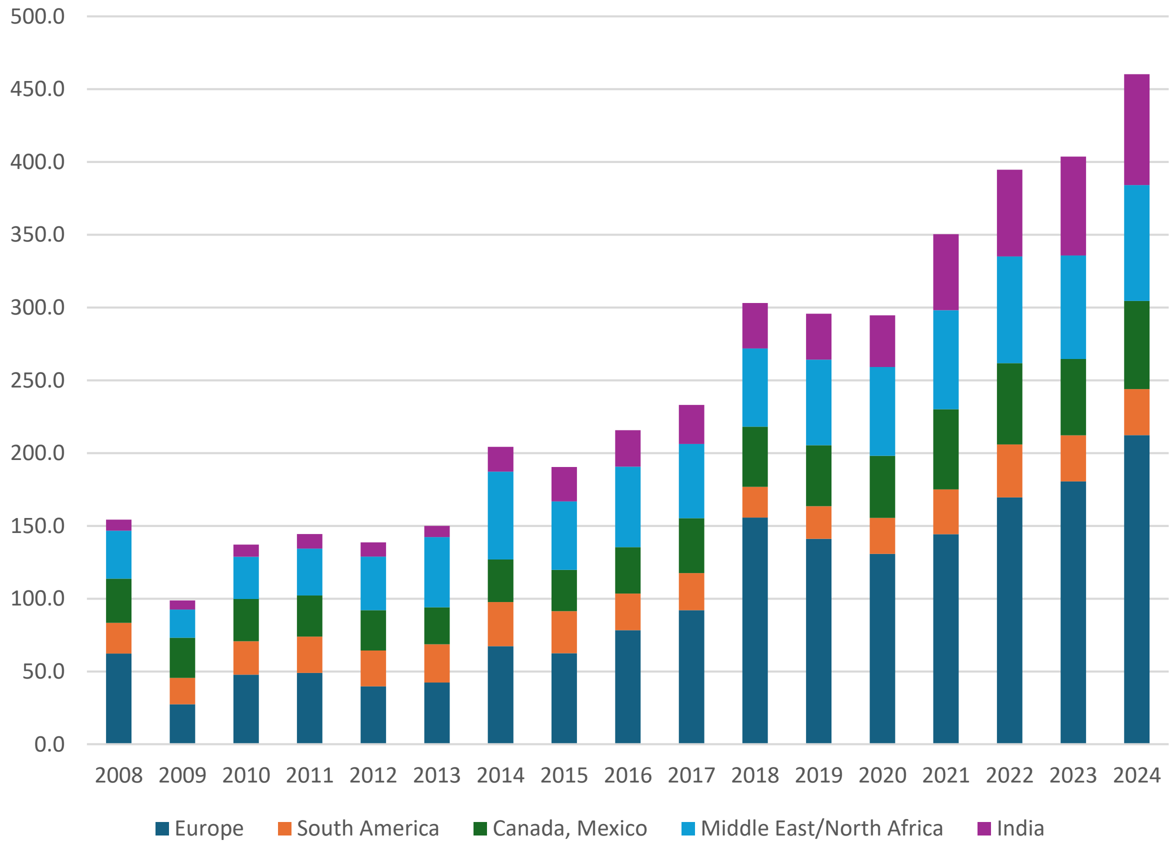
Tariff effects on HCR, pine chemicals markets

- Short-term effect: delay or complete halt in trade with volume diversion to other regions
- Brazilian rosin esters likely finding their way into already competitive European market
- More erratic imports of HCR to the US as retaliatory tariffs are increased, decreased or delayed on a frequent basis and exporters to the US try to respond
- In the longer term, the US will be short of C5 HCR, C9 HCR and HHCR and consumers will need to attract volumes, putting upward pressure on pricing
- Higher combined tariffs for exporters of HCR to the US will likely compress sales margins until demand is much stronger

Source: Argus Media

Key HCR net exporters (left), importers (right), '000t





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Concluding thoughts

- Declining pine oleoresin production in Brazil. Time to rethink long-term forest growth strategy
- Rosin remains the constraining factor for both tapping and tall oil-based markets
- Softer downstream markets, tariff uncertainty and regulatory scrutiny clouding rosin prospects
- Turpentine volatility and supply tightness tied to unbalanced oleoresin and rosin markets
- Structural shifts in supply sustaining US TOFA as European market has trended down. Improved TOFA economics into biofuels and higher interest for other applications could boost European TOFA markets
- Approval of CTO as feedstock into sustainable aviation fuel (SAF) could unlock new, larger markets

Thank you!

Further information

Let’s get in touch and discuss the markets

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