OPIS
A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Tuning the Tide

Making Polyester more sustainable

APIC 2025

APIC 2025
Asia Petrochemical Industry Conference
Bangkok, Thailand

Ashish Pujari

Vice President, Aromatics & Fibers
ashish.pujari@chemicalmarketanalytics.com

Polyester is set to become the largest consumed polymer

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

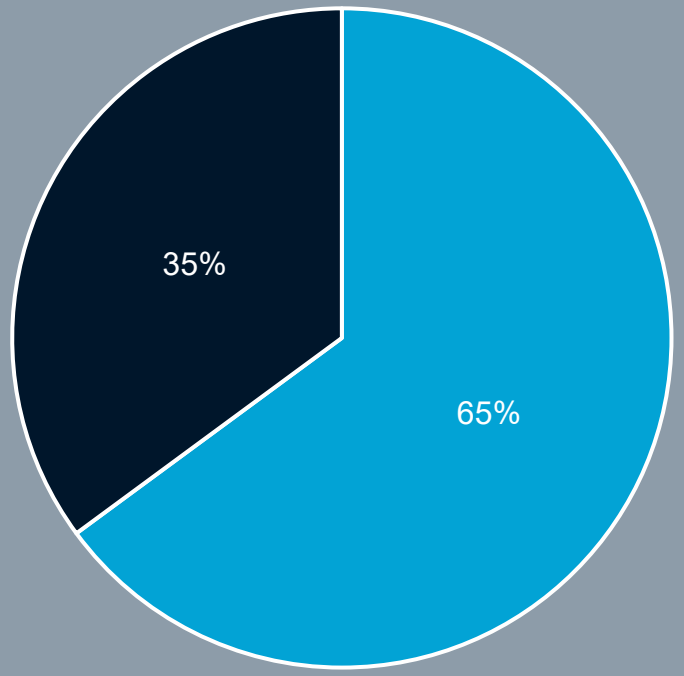
World Demand by Polymer

Source: Chemical Market Analytics by OPIS

Fibers dominate global polyester mix, but packaging growth steady

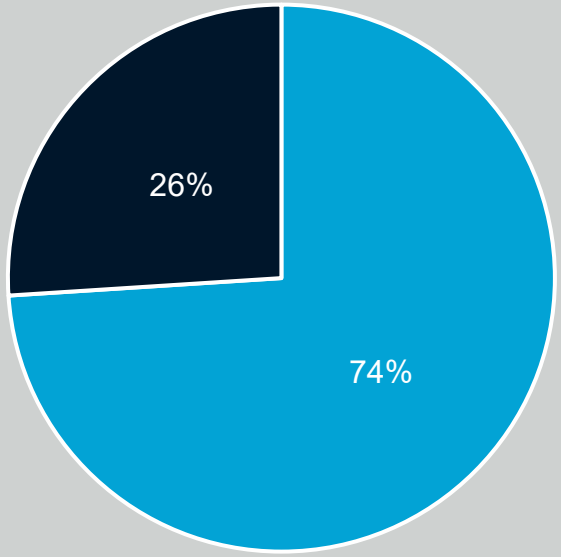
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

World



106MMT

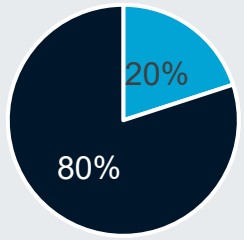
Mainland China



74MMT

Fibers Packaging

Rest of world except Asia

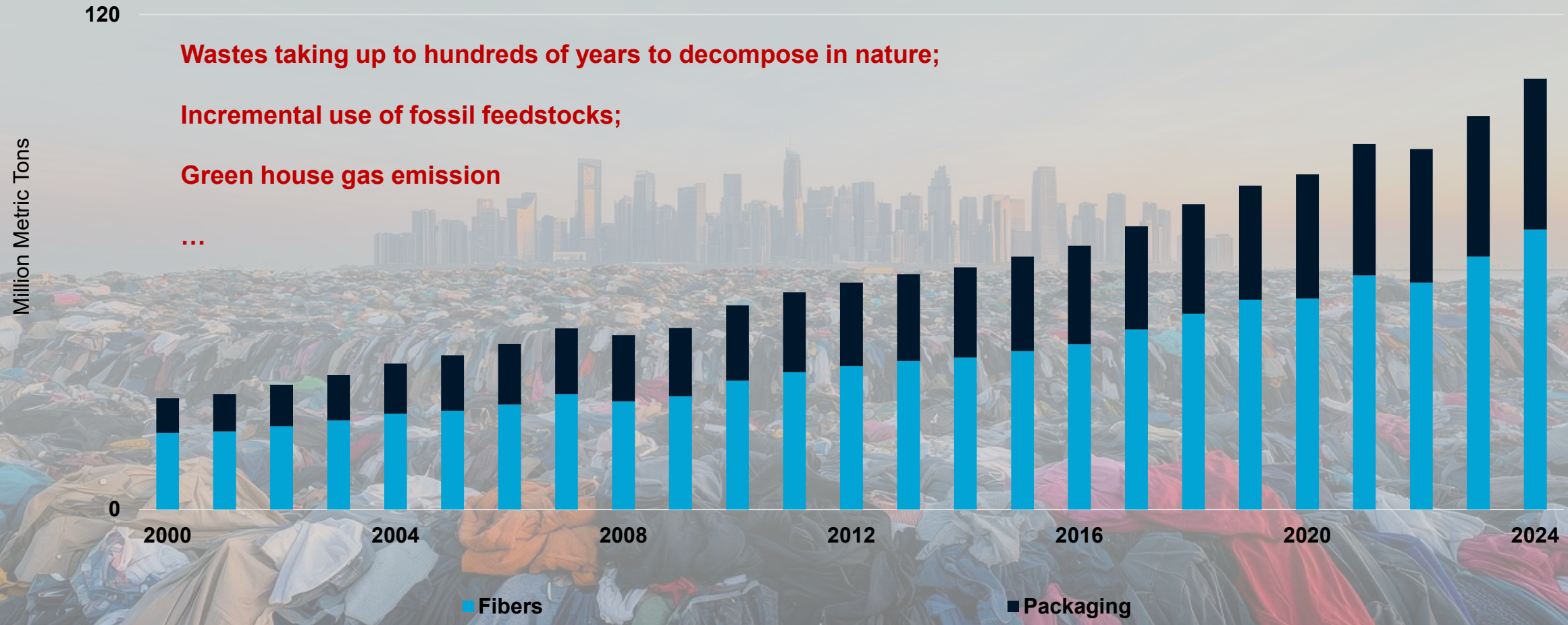


13MMT

Environmental issues along with fast-growing virgin polyester production

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

World Virgin Polyester Production

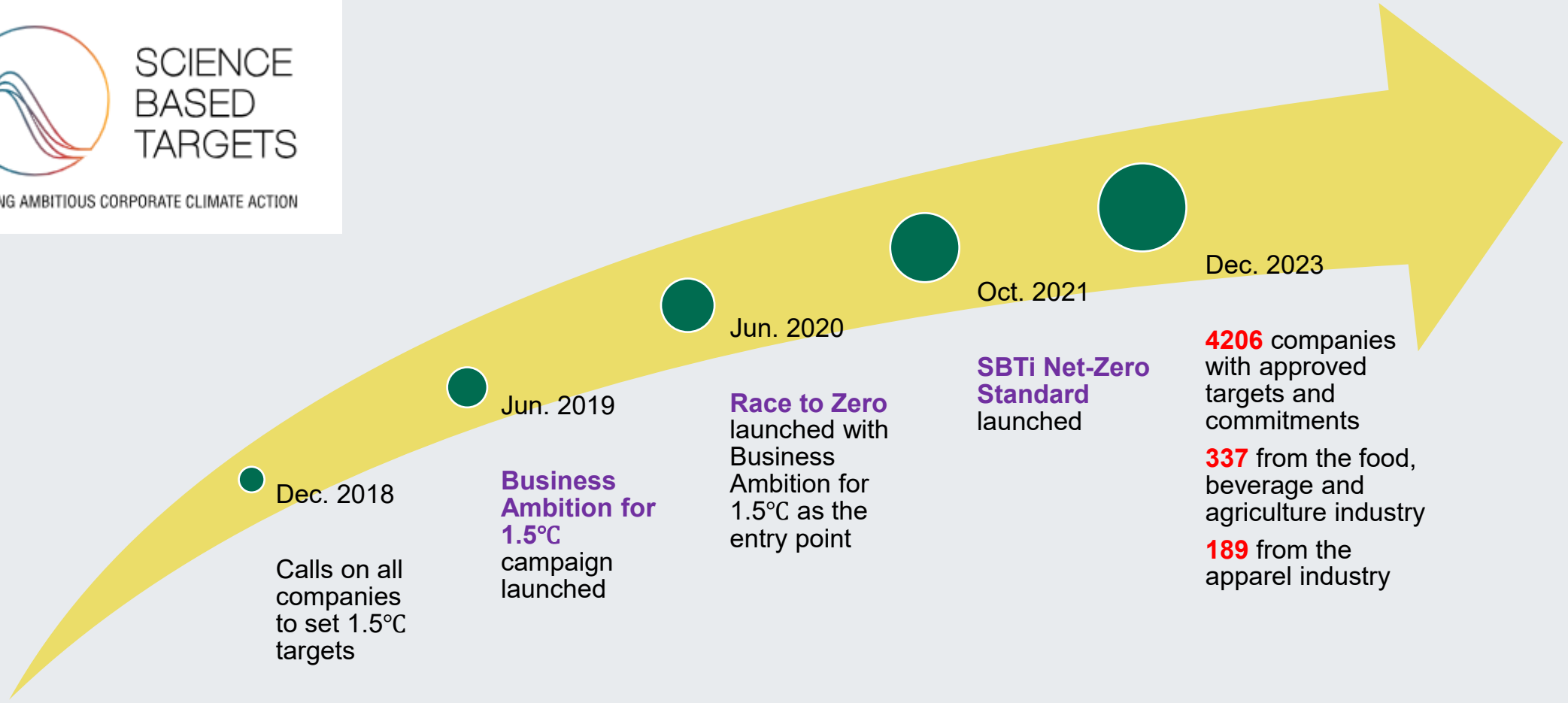


Source: Chemical Market Analytics by OPIS

Companies actively respond to UN initiatives fighting climate change

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION



"Reduce, Reuse, Recycle" has become a well-recognized and broadly followed strategy.

Beverage brands have set challenging goals

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Company P

2025

- **100%** of packaging recyclable, compostable or biodegradable
- Increase recycled content in plastics packaging to **25%**
- Reduce virgin plastic use in beverage portfolio by **35%**
- **Invest** to increase recycling rates in key markets

Company C

2025

- All packaging **100%** recyclable globally

2030

- Use at least **50%** recycled material in packaging
- Collect & recycle equivalent of **100%** of packaging sold

Company D

2025

- All packaging **100%** recyclable, reusable or compostable
- Use at least **25%** recycled material in plastic packaging
- **50%** for water and beverage
- **100%** for premium bottles
- Aim for **100%** bioplastic

Company S

2025

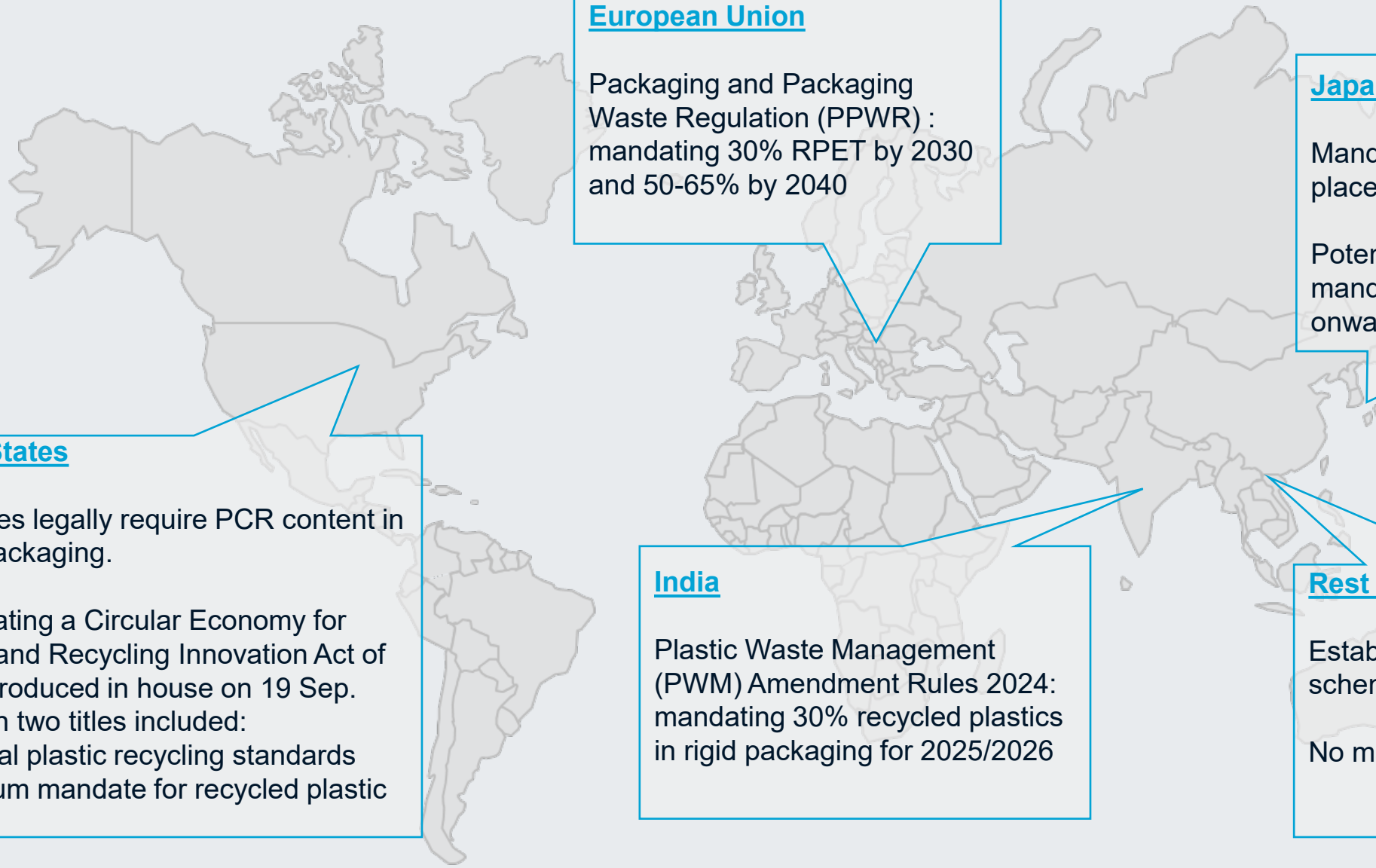
- Increase recycled content in PET bottles in Japan to **50%**

2030

- All PET bottles used globally made from recycled or plant-based material

Strong push and support from legislations

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



European Union

Packaging and Packaging Waste Regulation (PPWR) : mandating 30% RPET by 2030 and 50-65% by 2040

Japan & South Korea

Mandatory recycling fees in place

Potential PCR content mandates from 2026/2027 onwards

United States

Five states legally require PCR content in plastic packaging.

“Accelerating a Circular Economy for Plastics and Recycling Innovation Act of 2024” introduced in house on 19 Sep. 2024 with two titles included:
--National plastic recycling standards
--Minimum mandate for recycled plastic

India

Plastic Waste Management (PWM) Amendment Rules 2024: mandating 30% recycled plastics in rigid packaging for 2025/2026

Rest of Asia

Establishing or reinforcing EPR schemes

No mandatory PCR use yet

Complete solutions are available from many vendors

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

EREMA

POLYMETRIX
a Sanlian Bühler Company

coperion

NGR
PLASTIC RECYCLING TECHNOLOGIES

Starlinger

KRONES

BoReTech
Plastic Recycling Solution

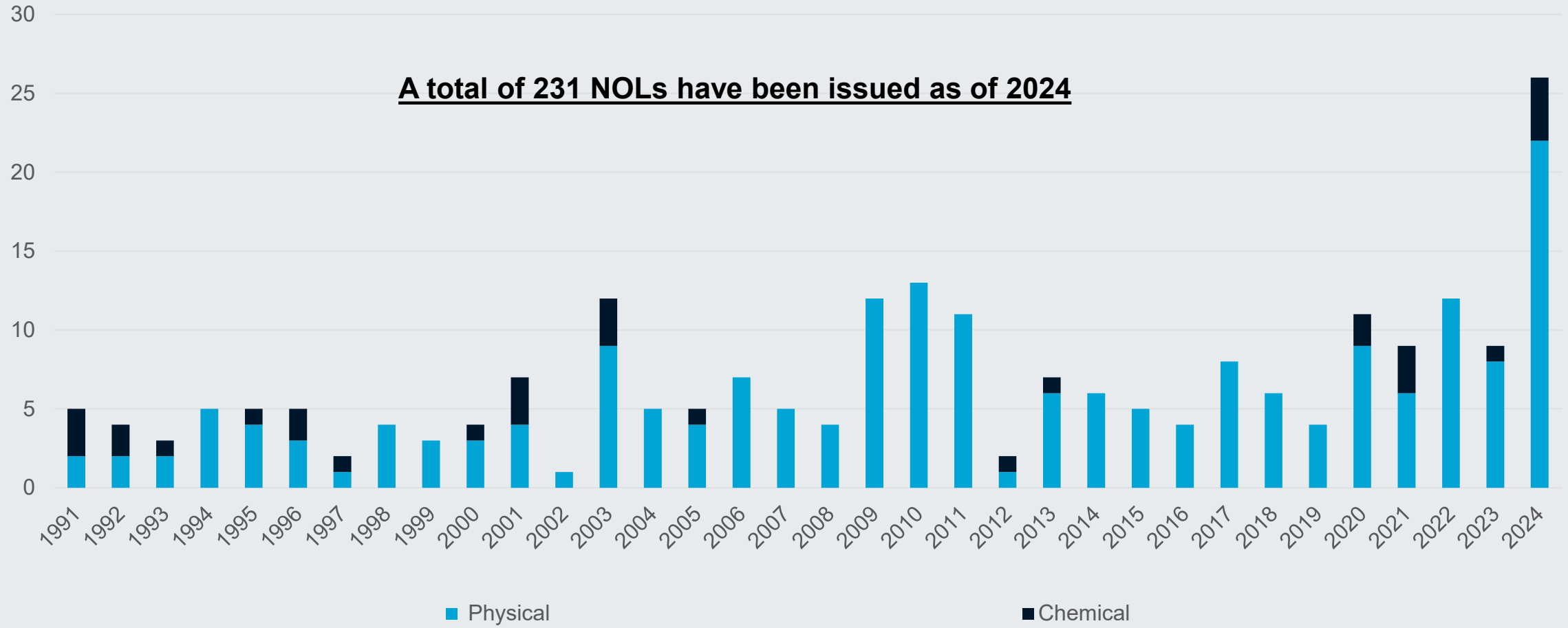
BANDERA
EXTRUSION INTELLIGENCE

gneuß

Processing capacity is not a constraint, more continue to receive requisite approvals for Food grade applications

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

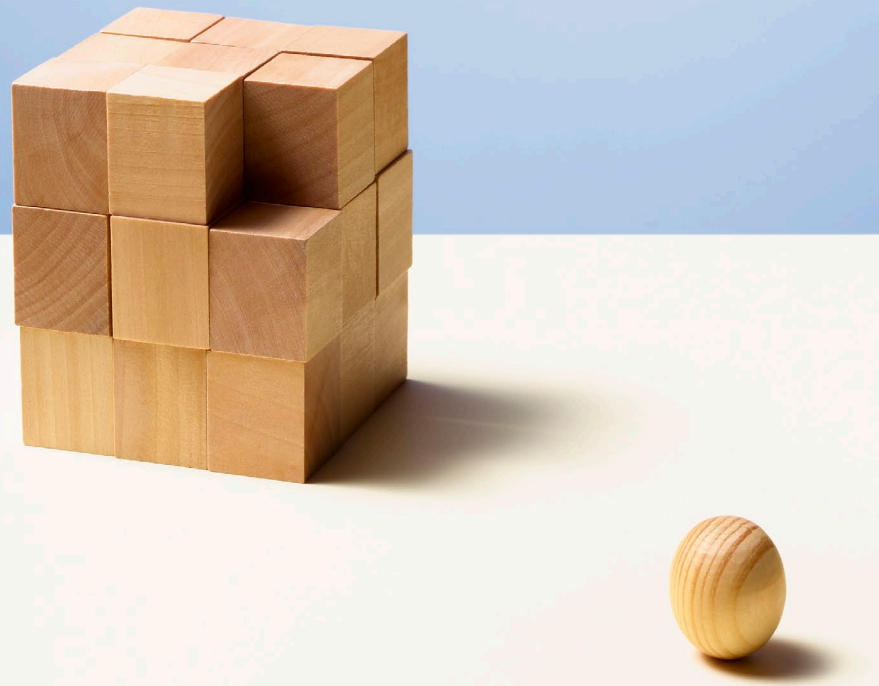
Numbers of FDA-issued NOL on PCR PET for food-contact



Source: U.S. Food & Drug Administration

Any mismatch could result in failure

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Demand

- Local demand
- Access to overseas markets
- Impact from imports

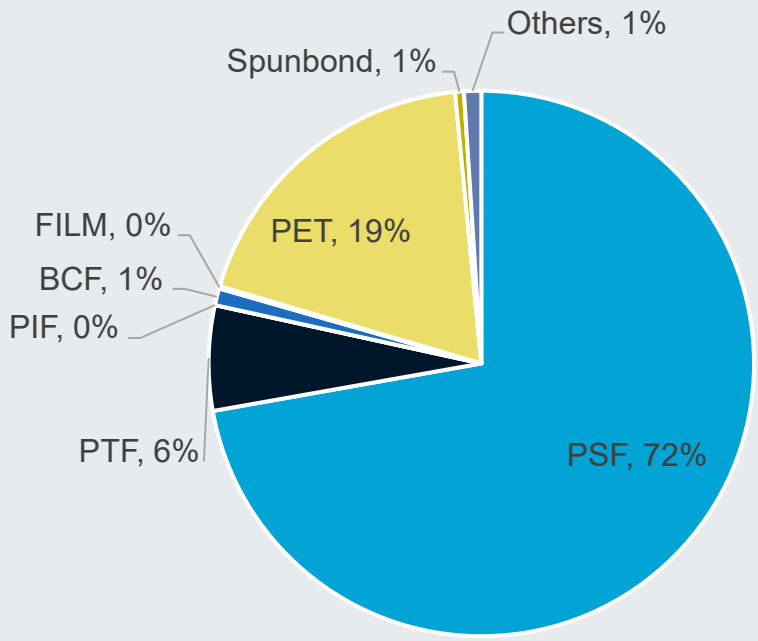
Feedstock availability

- Collection rates
- Sorting and segregation
- Pricing: Premium & Volatility

Most RPET finds its way into textiles

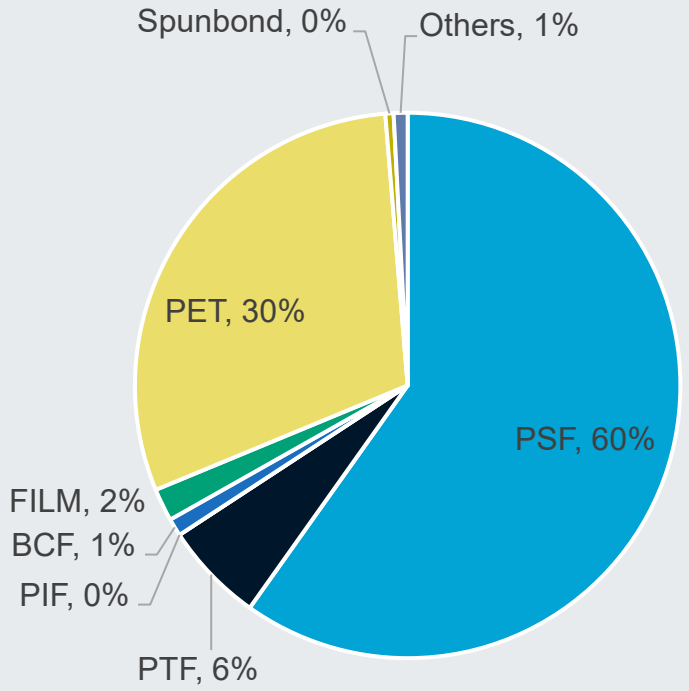
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

World: 2014 recycled polyester production



Source: Chemical Market Analytics by OPIS

World: 2024 recycled polyester production

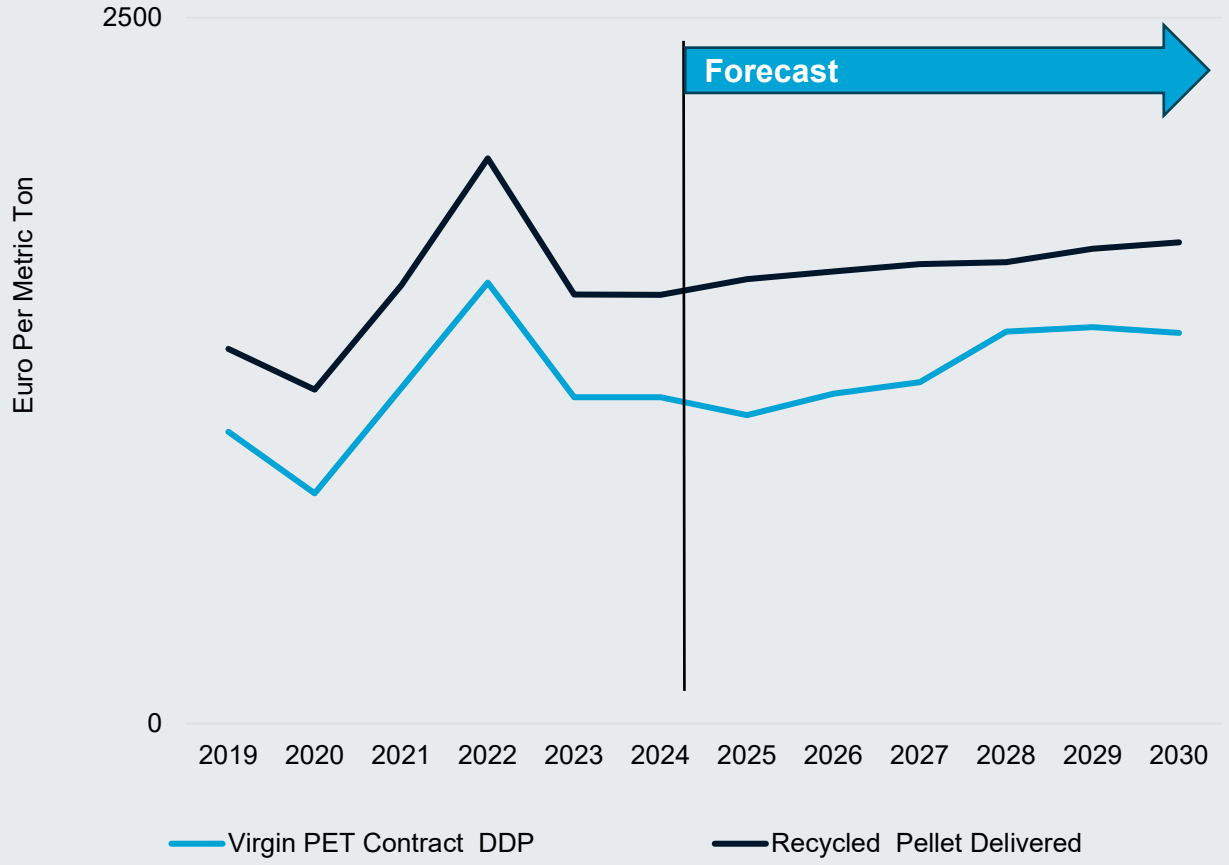


Source: Chemical Market Analytics by OPIS

Pricing is a double-edged sword

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

West Europe: virgin and recycled PET prices



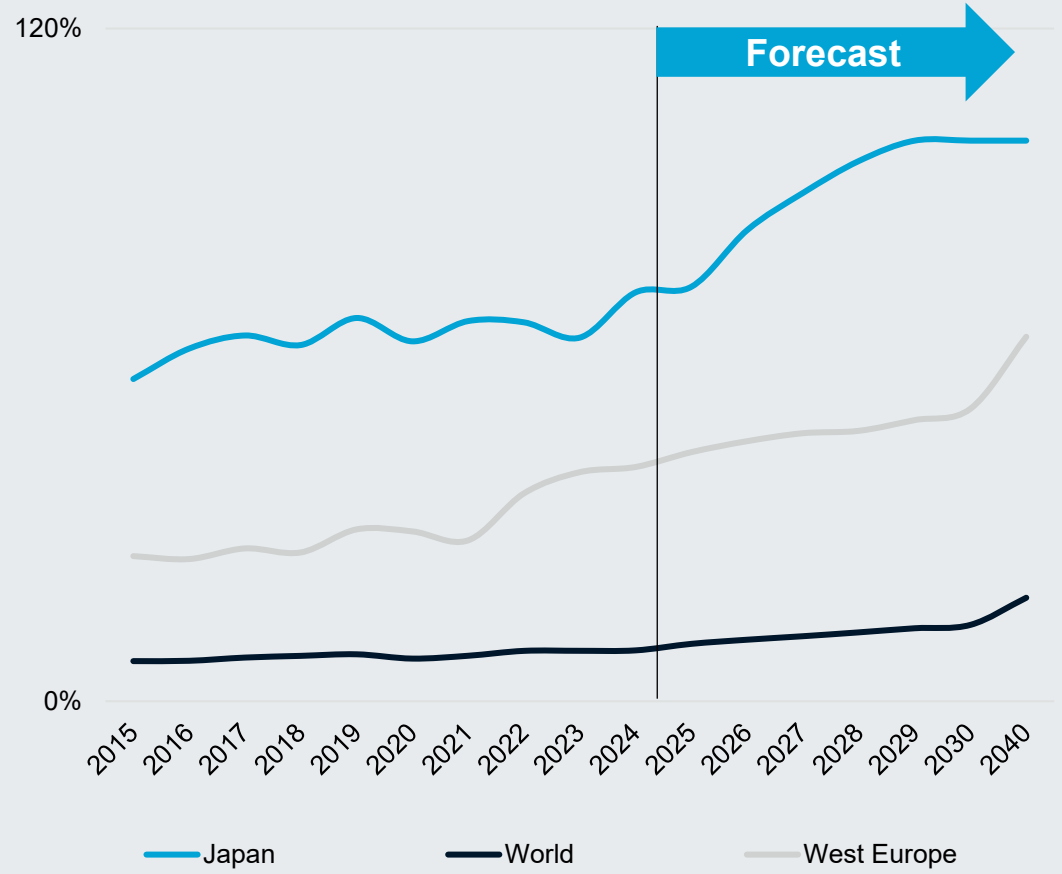
Source: Chemical Market Analytics by OPIS

- In Asia, RPET pellets with FDA/EFSA certificates are sold at premiums of $400-600 per mt over virgin PET.
- High premiums incentivize recycling but challenge voluntary usage. Even in regions with mandates, paying non-compliance penalties could be relatively cost-saving.
- RPET economics are challenging in a low-crude price scenario despite premiums over virgin PET. Oversupplied polyester feedstock markets have made things worse.

Developed economies lead in B2B recycling rates; developing regions will contribute more to absolute supply additions

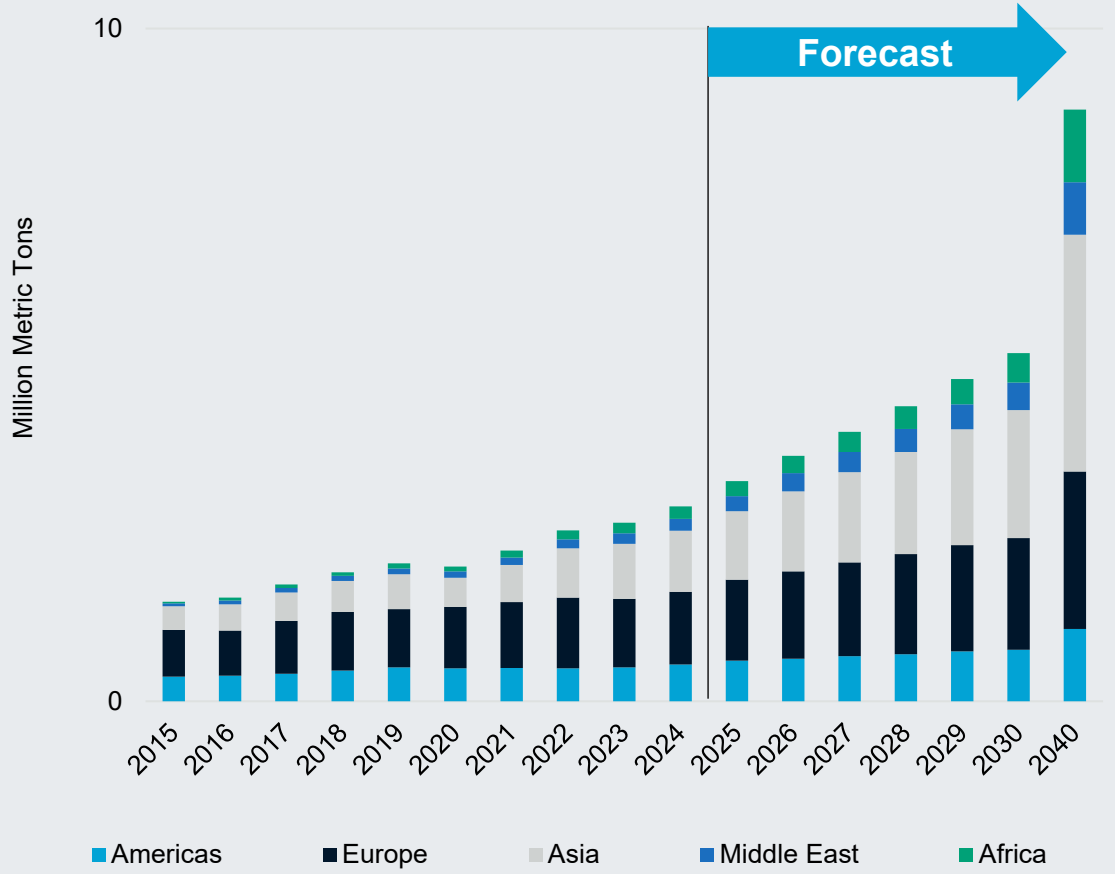
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

RPET ratio in PET production



Source: Chemical Market Analytics by OPIS

Global RPET production



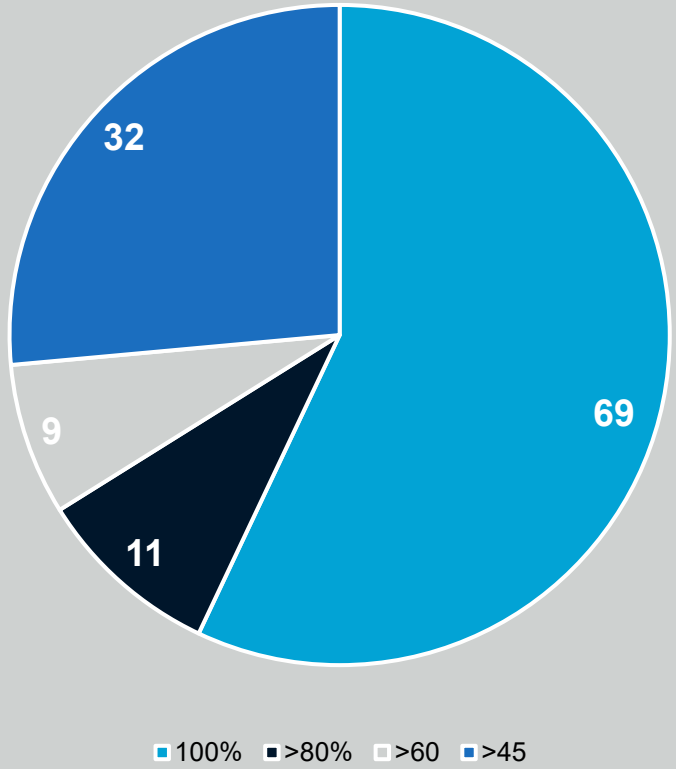
Source: Chemical Market Analytics by OPIS

Fashion brands have set more ambitious goals

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

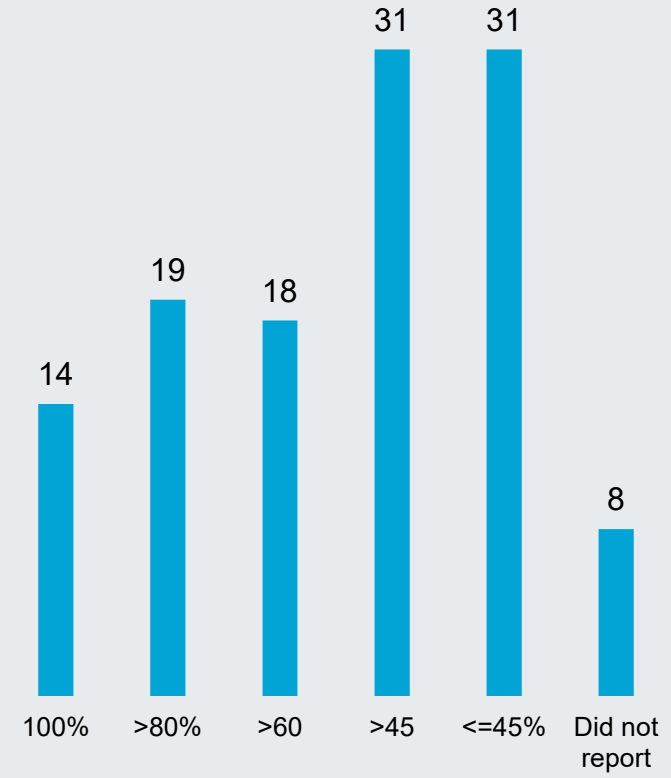
The 2025 Recycled Polyester Challenge, launched by Textile Exchange jointly with United Nations Framework Convention on Climate Change in April 2021, calls on companies to commit to sourcing from *45% to 100%* of their polyester from recycled sources by 2025.

Signatories in 2024 by committed targets



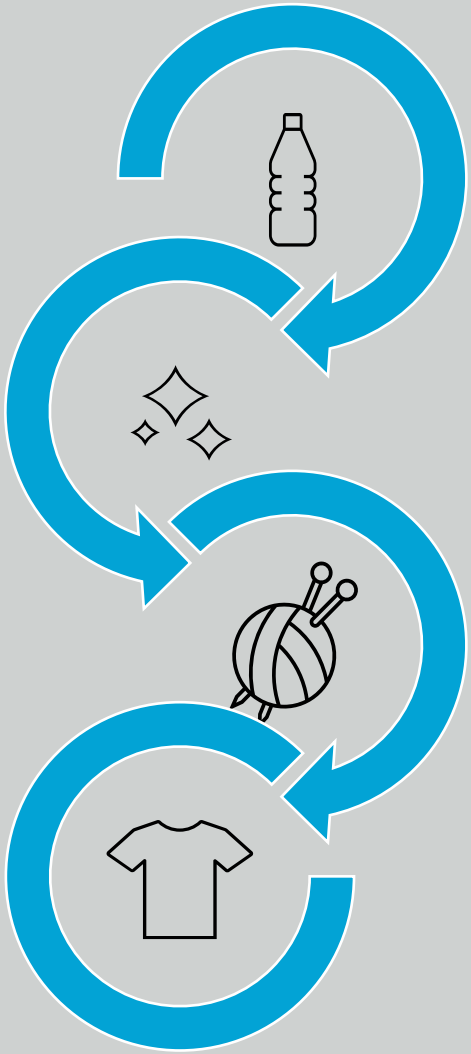
Source: Textile Exchange

Reported use of recycled polyester in 2023



Source: Textile Exchange

While bottles have been the dominant feedstocks, textile-to-textile recycling in a primary form emerged a long time ago

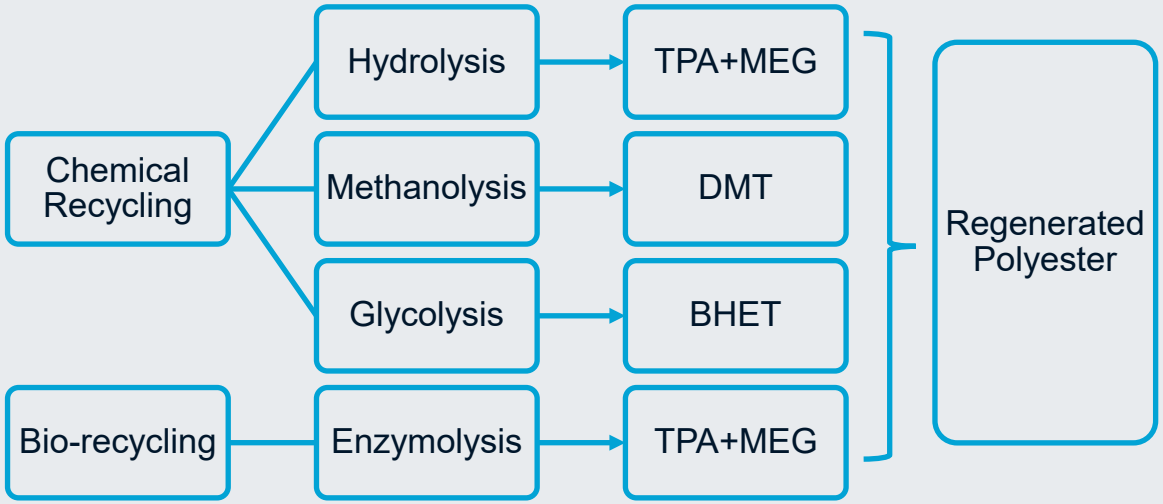


Wastes, preferentially post-industrial wastes, are heated, shredded, and rubbed into “polyester popcorn” in a machine called agglomerator.

“Popcorn” used to be treated as supplementary materials to bottle flakes for the sake of saving costs.

The latest generation of process with SSP or LSP facilities installed enables melt-to-staple or melt-to-pellet from 100% “polyester popcorn”.

Technology helps with a step toward desired textile circularity



Access to quality feedstock;

Complex material blends and associated cost uncertainties;

Technical and operational challenges when scaling up;

Vulnerable to funding issues;

Offtake subject to brands;

Lack of legislative support

A closed loop;

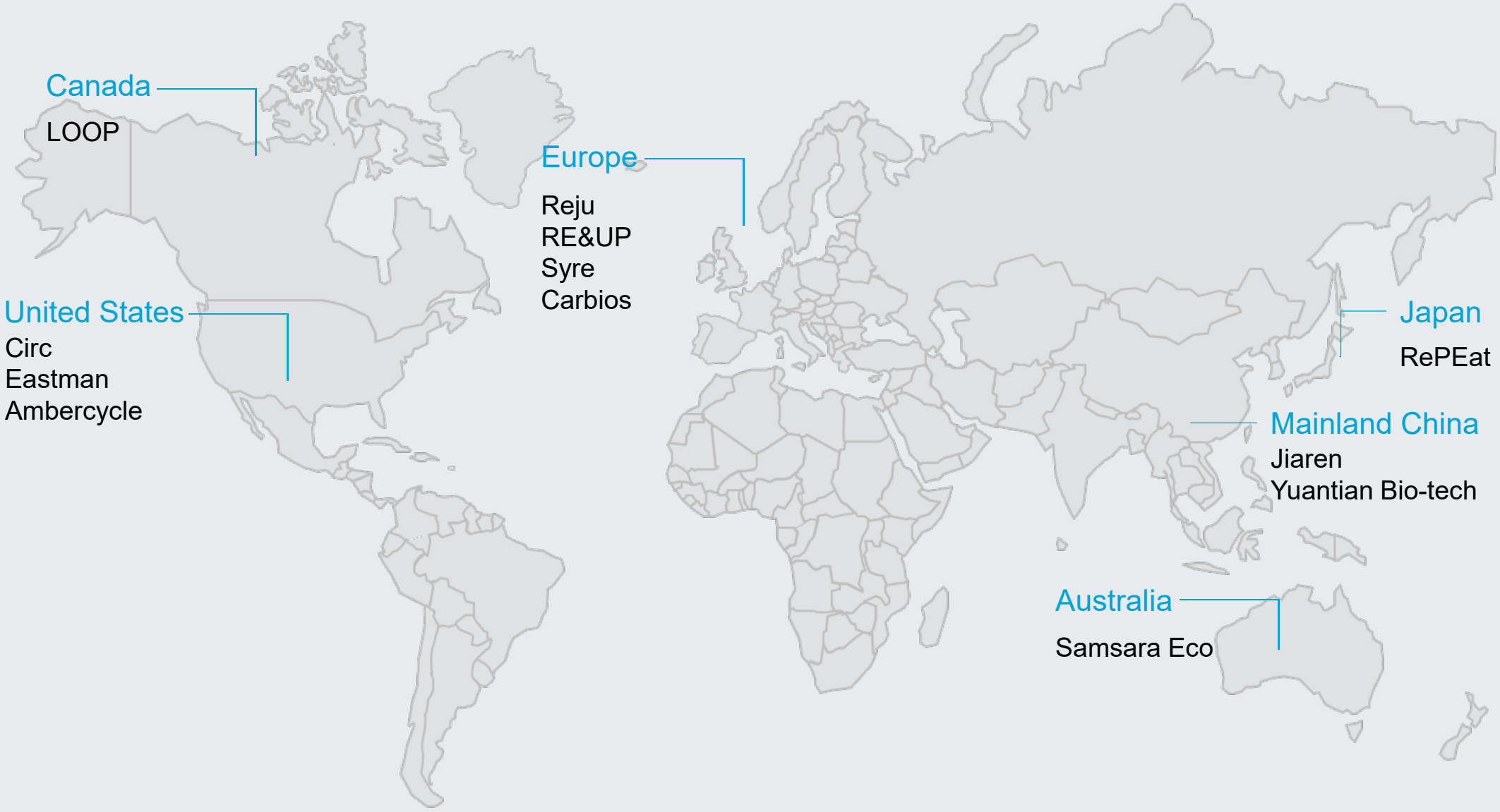
High product quality;

Potential polyester-to-polyester recycling regardless of application;

Recognized and backed by brands/leading companies

Pioneers have emerged across the globe.

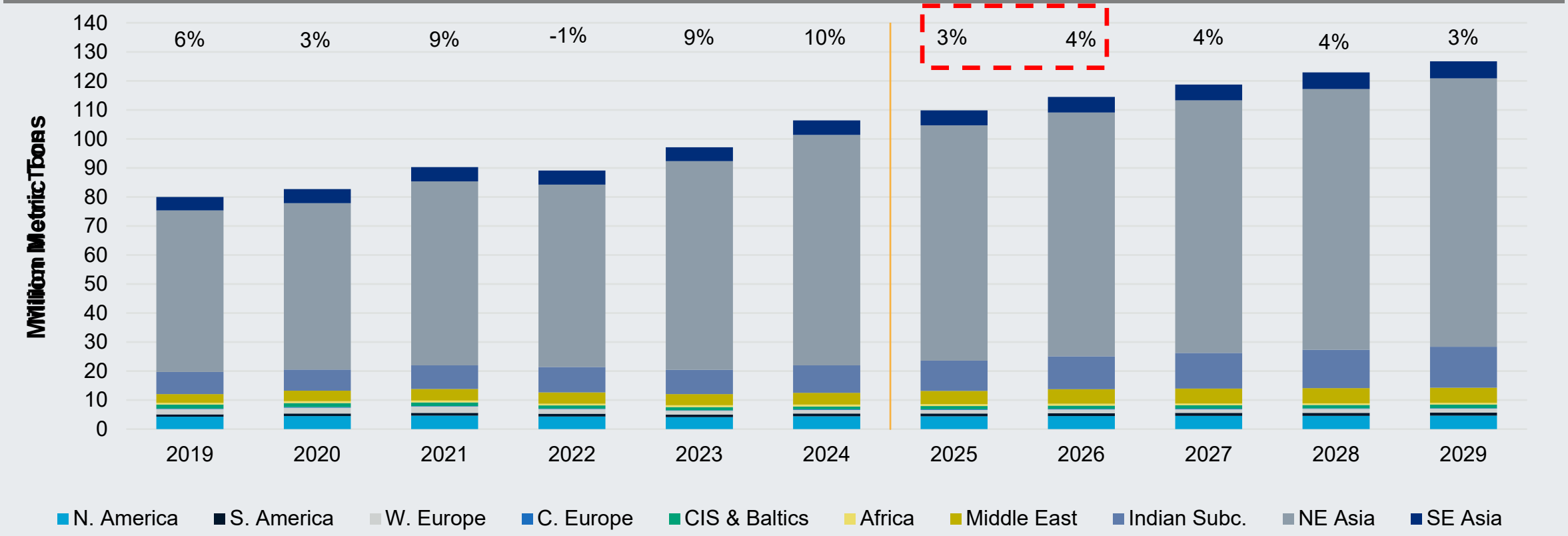
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Overall polyester demand growth remains healthy – uncertainty builds up with declining trade!

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

World: Melt Demand by Region



Source: Chemical Market Analytics by OPIS

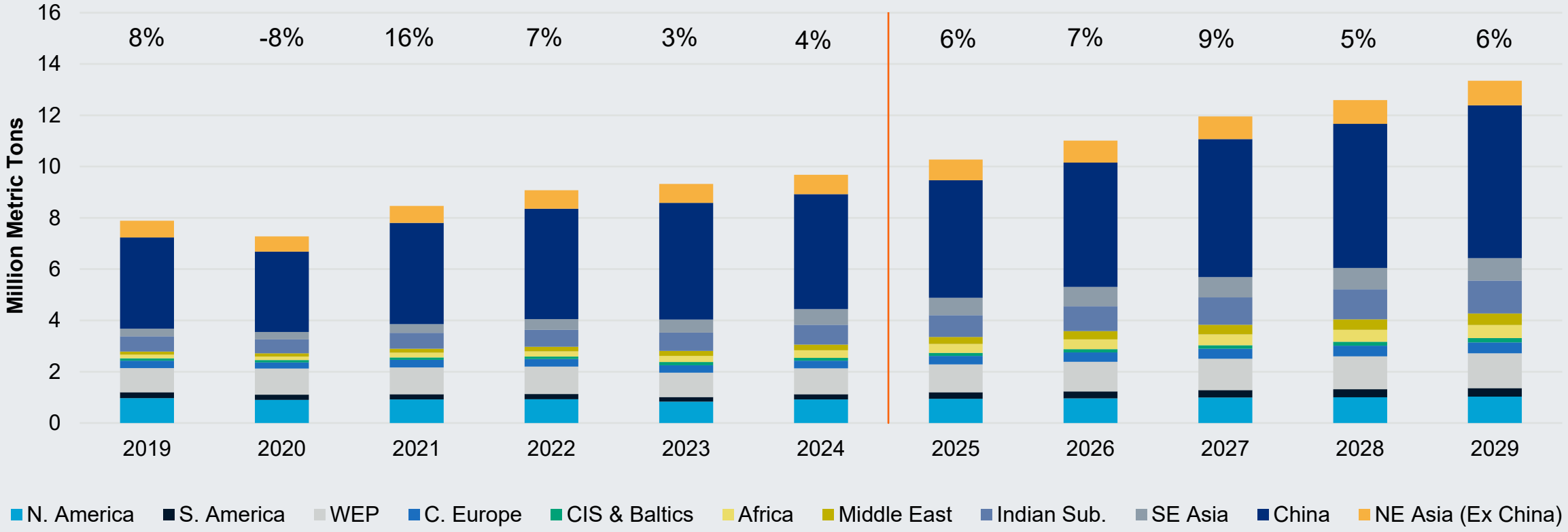
Mainland China has been the main growth engine – growing at 17% in 2023 and 12% in 2024. Growth is expected to slow down in 2025 as higher tariff pushes industry to destock

Recycled Polyester: Global attention on sustainability will help drive faster growth in the segment

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

These are final reprocessed volumes in major applications.

World: Recycled Polyester Demand by Region



Source: Chemical Market Analytics by OPIS

Key Takeaways

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

- Global action will continue to drive usage of recycled content.
- Bottle-to-textile recycling will remain the largest segment given easier supply chain management and proofed commercial viability.
- Bottle-to-bottle recycling is set to grow worldwide, but challenges should not be underestimated.
- Textile-to-textile recycling is now a reality instead of vision. Policy change and higher sustainability goals set by brands may accelerate industry transformation.

OPIS
A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Customer Service
support@chemicalmarketanalytics.com
North America: +1 888.301.2645 (toll-free within the U.S.)
https://www.opisnet.com/contact/contact-us/