

Previewing the Upcoming Global Market Analysis for the Paint and Coatings Industry

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Agenda

- **Introduction to ChemQuest**
- **About the Upcoming *Global Market Analysis for the Paint & Coatings Industry (2024-2029)***
- **Coatings Industry Performance (2024e)**
- **Macrotrends and Drivers**
- **Coatings Growth Trends (2019-2029f)**
 - Decorative Architectural Coatings
 - OEM Coatings
 - Special Purpose Coatings
- **Closing Comments and Key Regional Takeaways**

The ChemQuest Advantage: Insight to navigate the intersection of strategy, markets, operations, and technology

Strategic Thought Partners

Delivering distinctive, thorough, actionable, confidential, and professional work to support our clients in every aspect of sustained, profitable growth, including:



**Business Strategy
& Transformation**



**Technology
Development**



**Operational
Excellence**



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Stakeholders across the value chain trust our thought leaders:

- **Team is more than 130 minds strong**, including ~ 48 Ph.D. scientists.
- **Senior personnel** each have a minimum of 25 years of experience in specialty chemicals and materials.
- **Extensive roster** includes former senior managers from major manufacturers, business owners, and senior technical managers.

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- **Build enterprises** that challenge established thinking and drive transformation.
- **Gain competitive advantage** through distinctive, targeted, and substantial improvements that sustain profitable growth.
- **Unlock new and hidden insights**, empowering an organization's smart risk-taking, catalyzing innovation excellence and value creation.
- **Be successful** — because our success emanates from yours.

100% of our work is proprietary, offering a full portfolio of services under NDA

***About the Upcoming *Global Market Analysis*
for the *Paint & Coatings Industry (2024-2029)****

Report Introduction

- The ChemQuest Group, World Coatings Council, and American Coatings Association (ACA) are pleased to present the *Global Market Analysis for the Paint & Coatings Industry (2024–2029)*.
- Report contents reflect our subject matter experts' decades of experience complemented by key industrial sources, including:
 - ChemQuest's proprietary TraQr® dashboard and market intelligence databases for paint and coatings
 - **Statistics and feedback** provided by global industry organizations, including but not limited to: Asociación Española de Fabricantes de Pinturas y Tintas de Imprimi (ASEFAPI); Associação Brasileira dos Fabricantes de Tintas (ABRAFATI); British Coatings Federation (BCF); China National Coatings Industry Association (CNCIA); Fédération des Industries des Peintures, Encres, Couleurs (FIPEC) and New Zealand Paint Manufacturers Association (NZPMA)
 - **Numerous and extensive interviews** with industry experts in the value chain – original equipment manufacturers (OEMs), coating formulators, raw material and equipment suppliers, and end users



ACA members are eligible for discounted pricing!

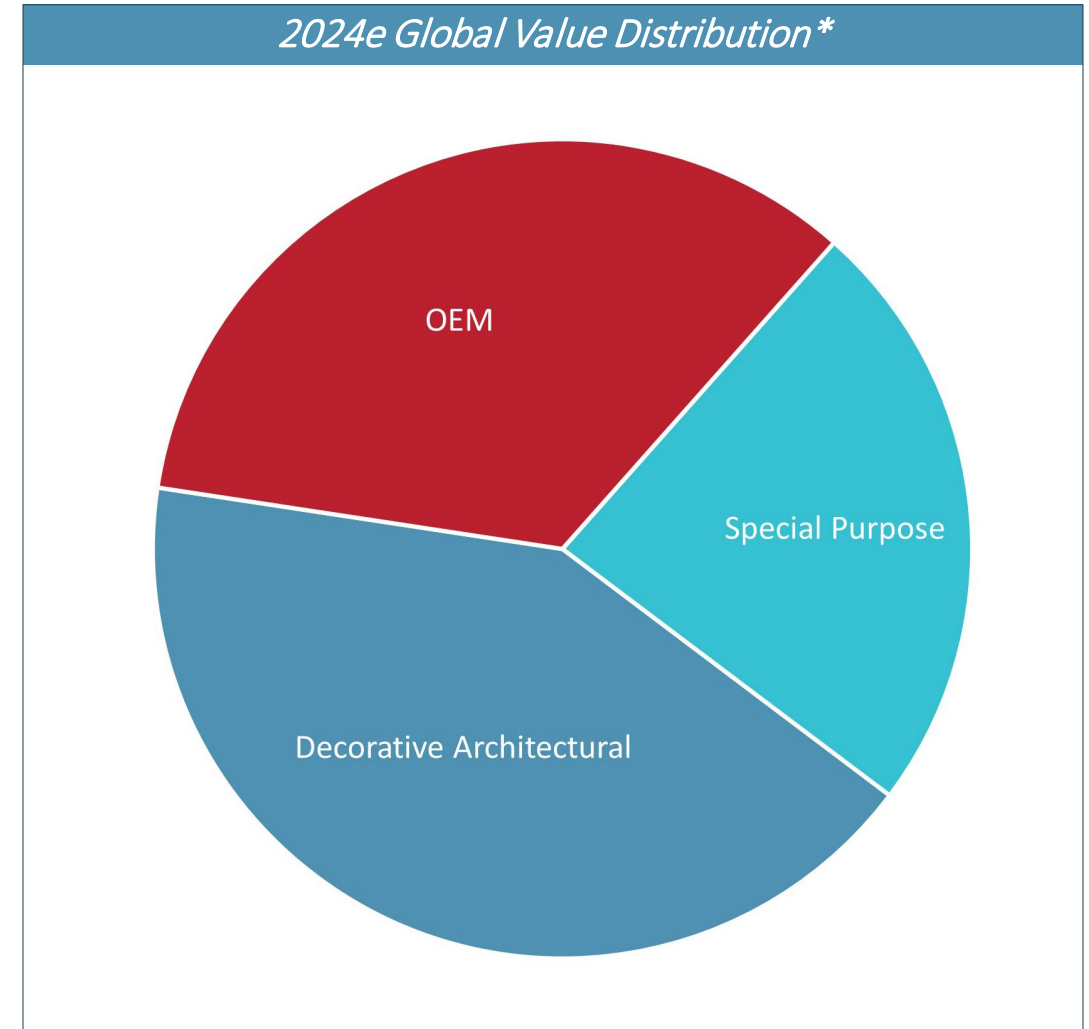
Report Details Market Sectors in Three Main Industry Segments – PLUS Five Regional Chapters

➤ Market Chapters

- Decorative Architectural Coatings
- OEM Coatings
 - Automotive OEM Coatings
 - General Industrial Finishes
 - Other Transportation Coatings
 - Packaging Finishes
 - Wood Finishes
- Special Purpose Coatings
 - Automotive Refinish Paint
 - Marine Coatings
 - Protective Coatings

➤ Regional Chapters

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa



*Detail provided in report Source: The ChemQuest Group, Inc.

Consistent Content Across All **Market** Chapters

➤ Chapter Scope

➤ Market Overview

- Sector Overview
- Sector Analysis
- Regional Distribution
- Market by End Use
- Competitive Landscape
- Quantitative Data, 2019-2024e
volume, value, CAGR, price trends
- Economic Influences
- Trade Influences

➤ Technology Overview

- Coating Characteristics
- Technology Trends and Drivers

➤ Five-Year Forecast

- Regulatory/Environmental Influences
- Key Buying Factors
- Quantitative Data, 2024e-2029f
volume, value, CAGR, price trends

➤ Important Takeaways

Consistent Content Across All **Regional** Chapters

➤ Chapter Scope

➤ Market Overview

- Regional Distribution
- Key Markets by End Use
- Key Sector Analysis
- 2019-2024 Market Trends
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➤ Important Takeaways

New Technology Spotlight Chapters Focus on Coil Coatings and Extrusion Coatings

Coil Coatings Including Coatings for Aluminum Extrusions

- **Coatings that protect steel and aluminum building products**
 - Coil-coated metal: primed and top coated; often called pre-painted metal because forming occurs after painting
 - Spray extrusion: liquid applied to extruded aluminum
- **Applications**
 - Primarily construction material (sidewalls and roofing), rainscreen, architectural window units, heating, ventilating and air conditioning (HVAC), and other equipment/building components
 - Business/consumer products (appliances, furniture, shelving), transportation, and miscellaneous metal items
- **Exclusions**
 - Metal container manufacturing (Chapter 14)
 - Powder Coatings (Chapter 3)

Powder Coatings

- **Dry particulate, industrial coating technology that protects and provides aesthetic value to durable goods, building products, and infrastructure**
- **Applications**
 - Most powder coatings are factory applied to metal parts (cold and hot rolled steel, galvanized steel, aluminum, alloy castings) by OEMs or job coaters (coating service contractors).
 - A small but growing sector involves application to engineered boards (MDF), composites, and plastic substrates.
 - The electrostatic application technique is most common, although a small percentage of powder coatings are applied by fluidized bed or fusion-bonding techniques.
 - Coated parts are heated via convection heat or infrared (or a combination) to melt, fuse, and cure the coating.
- **Exclusions**
 - Liquid paints/coatings

Supporting Chapters Provide Background and Additional Context



- Raw Material Feedstock Dynamics and Trends
- Global M&A Activity (2022–2024)

Additional Options

- ➔ All purchasers of the Global Market Analysis will receive the bonus of a full day of virtual consulting from ChemQuest to fully address study questions (submitted in advance), if interested.
- ➔ Additionally, purchasers of the U.S. Market Analysis (2023-2028) are eligible for a discounted price.

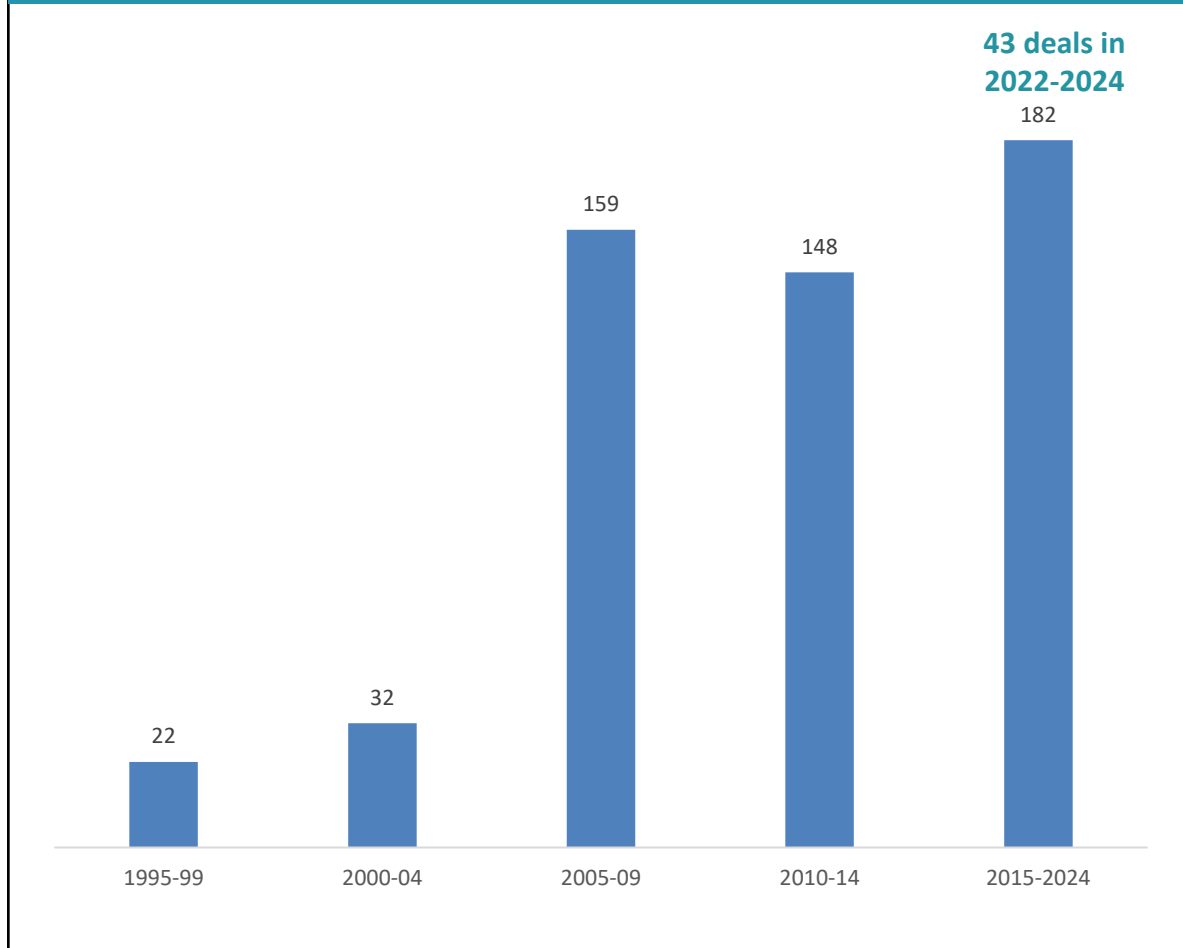
Coatings Industry Performance (2024e)

2024e Coatings Industry Performance Overview

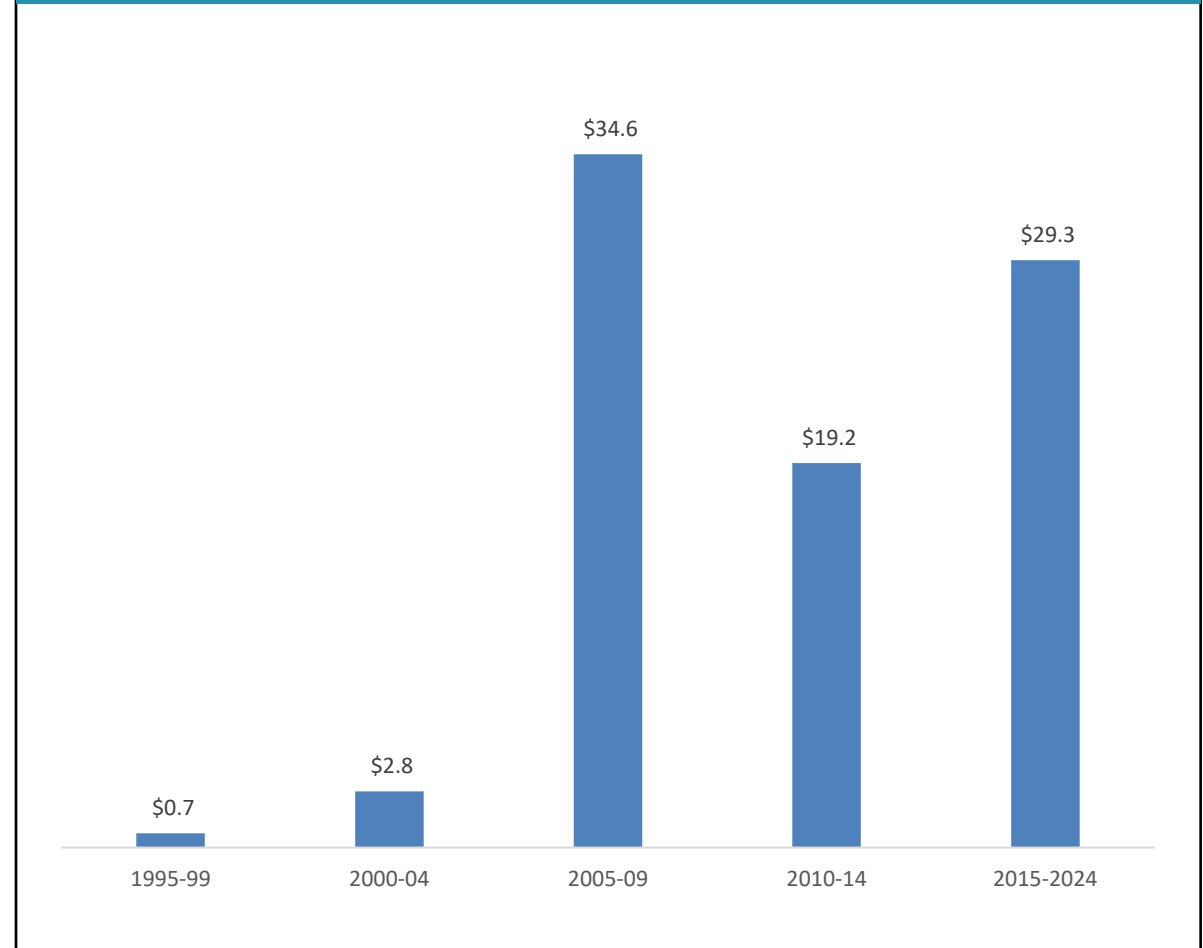
- The 2024 Global Paints and Coatings Market is estimated at **\$202 BN by value and 48.9 BN Liters by volume**, representing a 2.5% value and 0.4% volume increase vs. 2023.
 - **Decorative Architectural Coatings** is the largest sector, constituting **~57% of total global coatings volume** and **42% of global coatings market value**.
 - At **30% volume share and 34% of the value**, **OEM Coatings** represent the next largest global coatings sector, with General Industrial Finishes, Powder Coatings, and Wood Finishes constituting the largest value and volume OEM Coatings segments.
 - The high-value **Special Purpose Coatings** sector constitutes **<15% of global coatings volume but 24% of coatings value**.
 - **APAC, driven by China, leads all coatings sectors** and almost all segments, in both value and volume.
- Large multinationals have aggressively consolidated their position over the last two decades. Currently, **the top 10 global coating manufacturers collectively represent 44%**, and the **top 100 coating manufacturers 80%**, of the global coatings market.
 - A total of **43 coating M&A deals were transacted across the globe through 2022-2024 alone**, with **~80%** of the consolidation occurring in **Western Europe and North America**.
 - The **APAC** coatings market remains highly fragmented, with **>80% served** by a host of **regional** manufacturers.
 - **LA is dominated by large multinationals** that collectively constitute **>90% of the market**, while **MEA is moderately** fragmented, with **global coating producers making up 50%** of the region's market.

Historical Consolidation Among Coatings Suppliers (Volume/Value)

Number of Deals (1995-2024)



Value of Deals in BN USD (1995-2024)



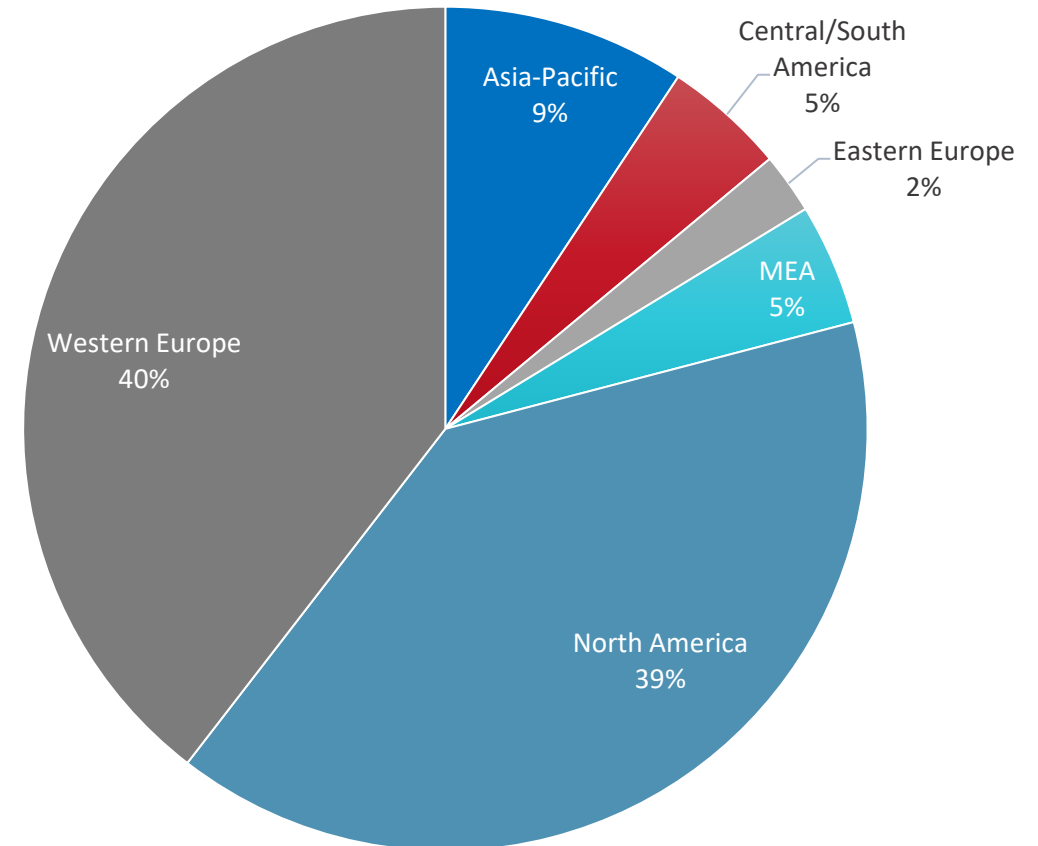
Source: Zephyr, S&P Cap IQ

Interest Rates and Uncertainty Dent Merger and Acquisition Activity

Overview

- Multiples fell from a record 13.5X EBITDA for large cap companies in 2021 to ~11.5X in 2023 but have recently increased. The market for small-to-medium-sized companies (SMEs) has also declined since 2021, with multiples 5-9X EBITDA.
- Availability of levered capital has declined with unfavorable lending rates and covenants, as well as declining cache of quality targets. However, there remains a lot of “dry powder” on the sidelines looking for deals.
- Large strategic buyers continue to make targeted acquisitions. However, SMEs (often with family or private equity ownership) have seen the number of deals decline dramatically.
- Many privately held firms originally planning to sell in 2022/2023 delayed their decision and have pushed back exit timeframes. In the meantime, they are looking to improve the business while hoping for an improved M&A environment.
- Large-acquisition opportunities may arise as conglomerates operating in the coatings space strategically reevaluate their portfolio of core businesses for divestiture.

43 Acquisitions Since 2021



Milder Appetite for Mega Deals but Favor Restructuring Portfolios

Consolidation Drivers

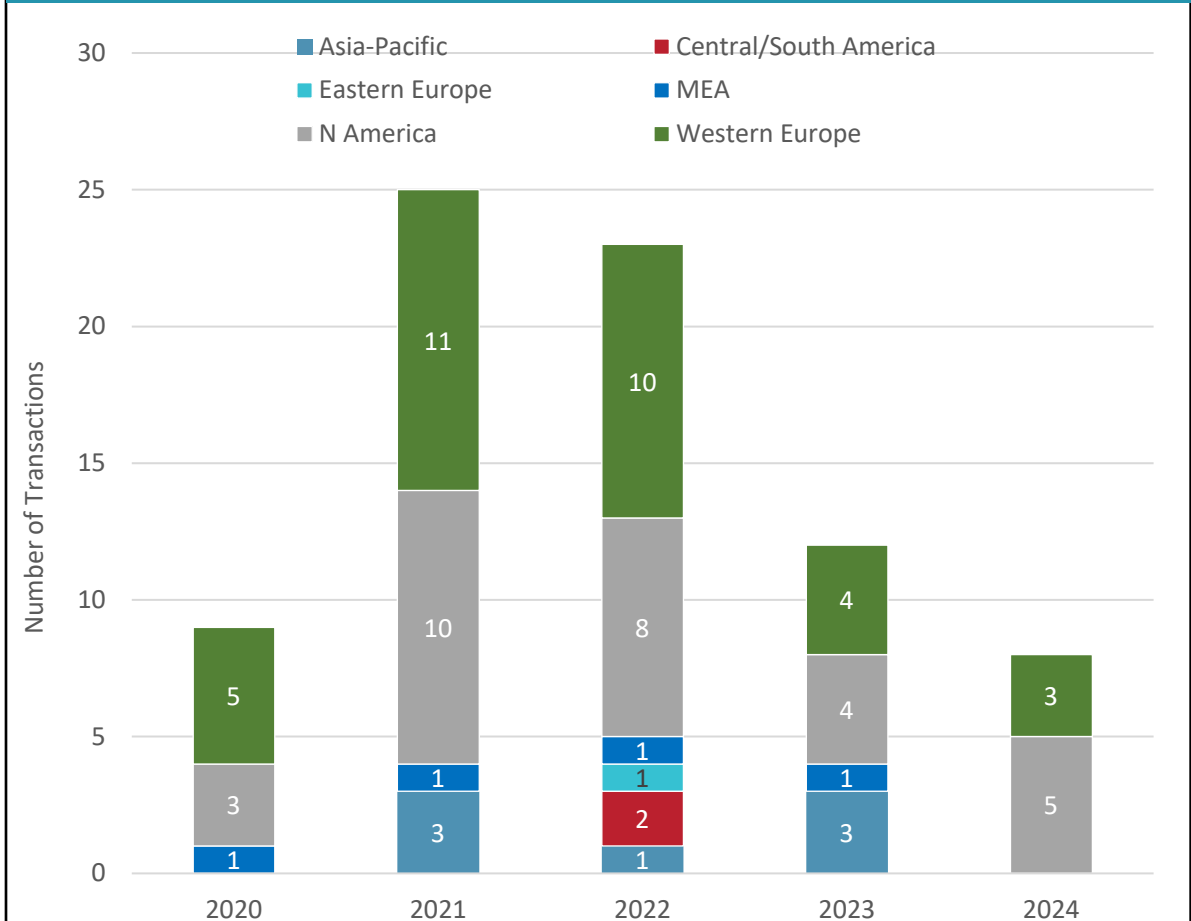
- The global coatings industry has become increasingly consolidated over the past two decades, with the top 10 suppliers now representing roughly 44% of the total market.
- The top 100 global coatings companies represent 80% of all coatings.
- Multinationals continue their global expansion through both organic growth and acquisitions.
- Financial buyers are also quite active in the space, often competing on equal footing with strategic buyers.
- The primary challenge for coating companies is the maturity of growth and technology, leading to challenges in growing the business organically, thus growth via acquisition.

Large Coatings-Related Acquisitions, 2020-2024

ACQUIRER	TARGET	ANNOUNCED DATE	TRANSACTION VALUE
AIP	PPG's NA Arch Business	2024	\$0.55 BN
Nippon Paint	Cromology	2022	\$1.2 BN
Prince Intl.	Ferro	2022	\$2.16 BN
DIC	BASF's colors & effects business	2021	\$1.28 BN

Source: Zephyr, S&P Cap IQ

Acquisitions by Region Since 2019

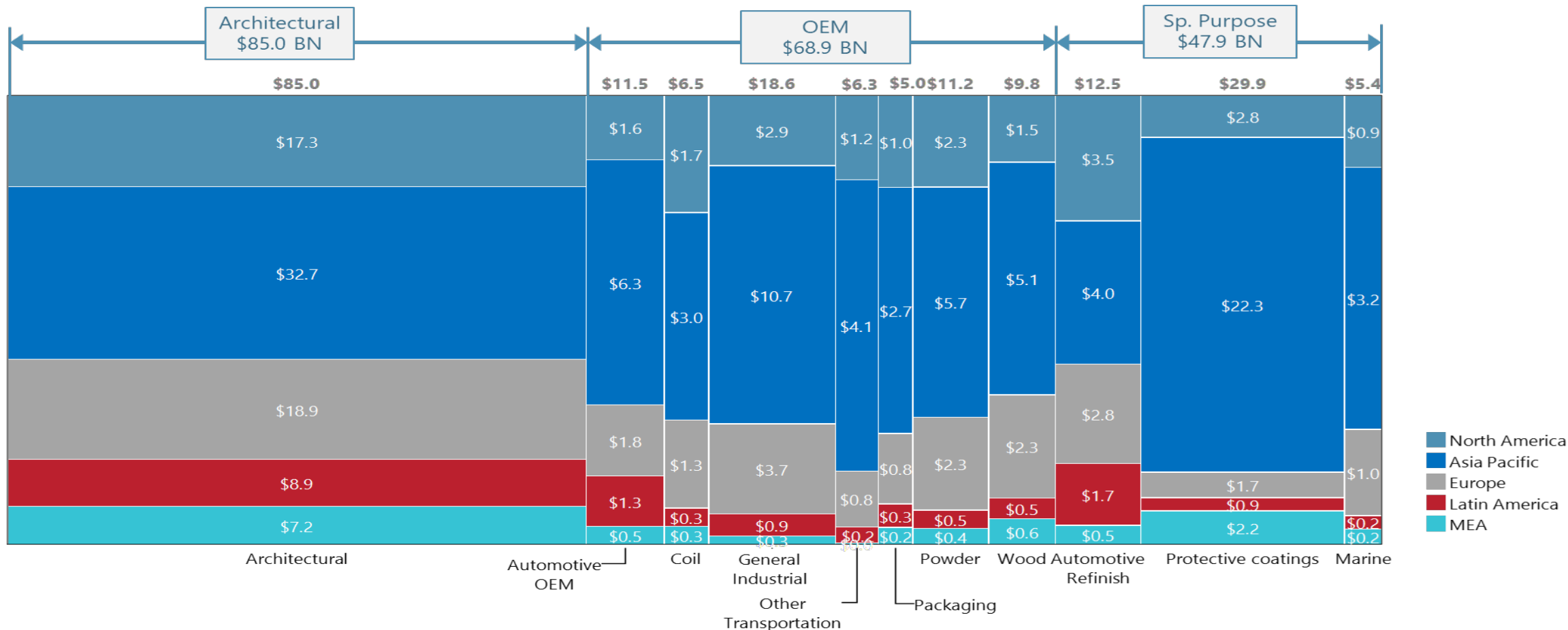


Important Takeaways – Global M&A

- Although activity has slowed dramatically with rising interest rates, the overall outlook for M&A activity continues to be positive in the coming years.
- Drivers include
 - **Mature growth:** Coatings volume growth corresponds with GDP.
 - **Consolidation:** The coatings industry is consolidating, as larger companies acquire smaller companies to gain access to new markets, technologies, and customers.
 - **Innovation:** Companies are using M&A to acquire companies with innovative technologies, such as new coating formulations or application methods.
 - **Geographic expansion:** Companies are using M&A to expand into new geographic markets.
 - **Active private equity firms** looking to exit investments as valuation becomes more favorable to do so.

Key End-Use Markets by Sub-Region

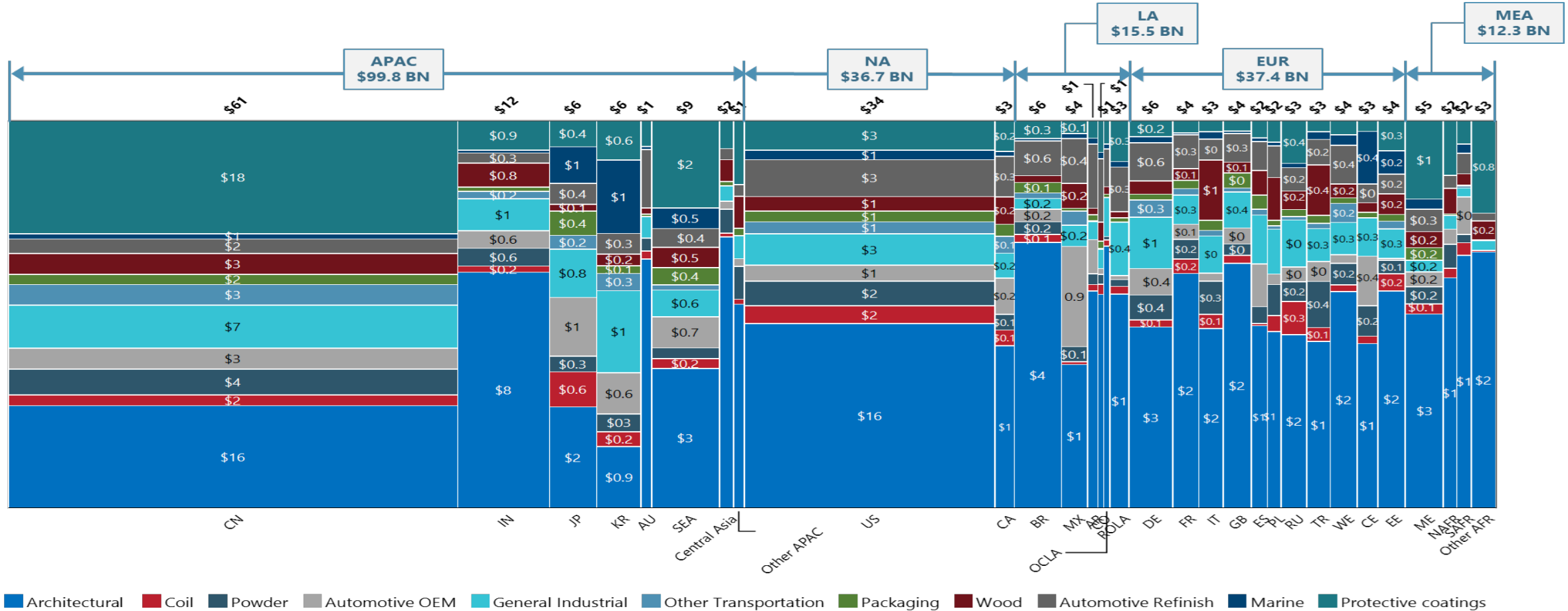
2024e Global Value Distribution by End Use and Sub-Region – \$202 BN



Source: The ChemQuest Group, Inc.

Key End-Use Markets by Country

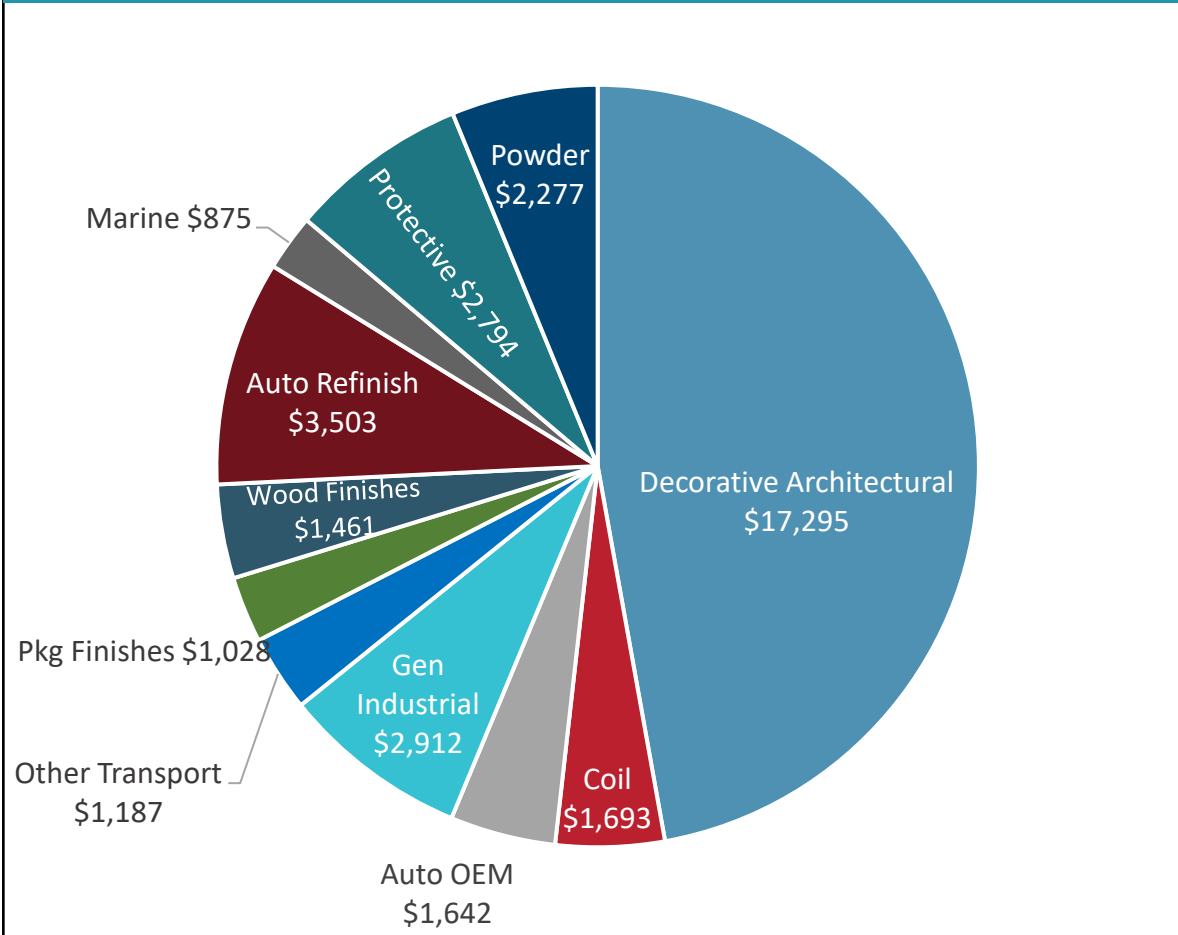
2024e Global Value Distribution by End Use and Country – \$202 BN



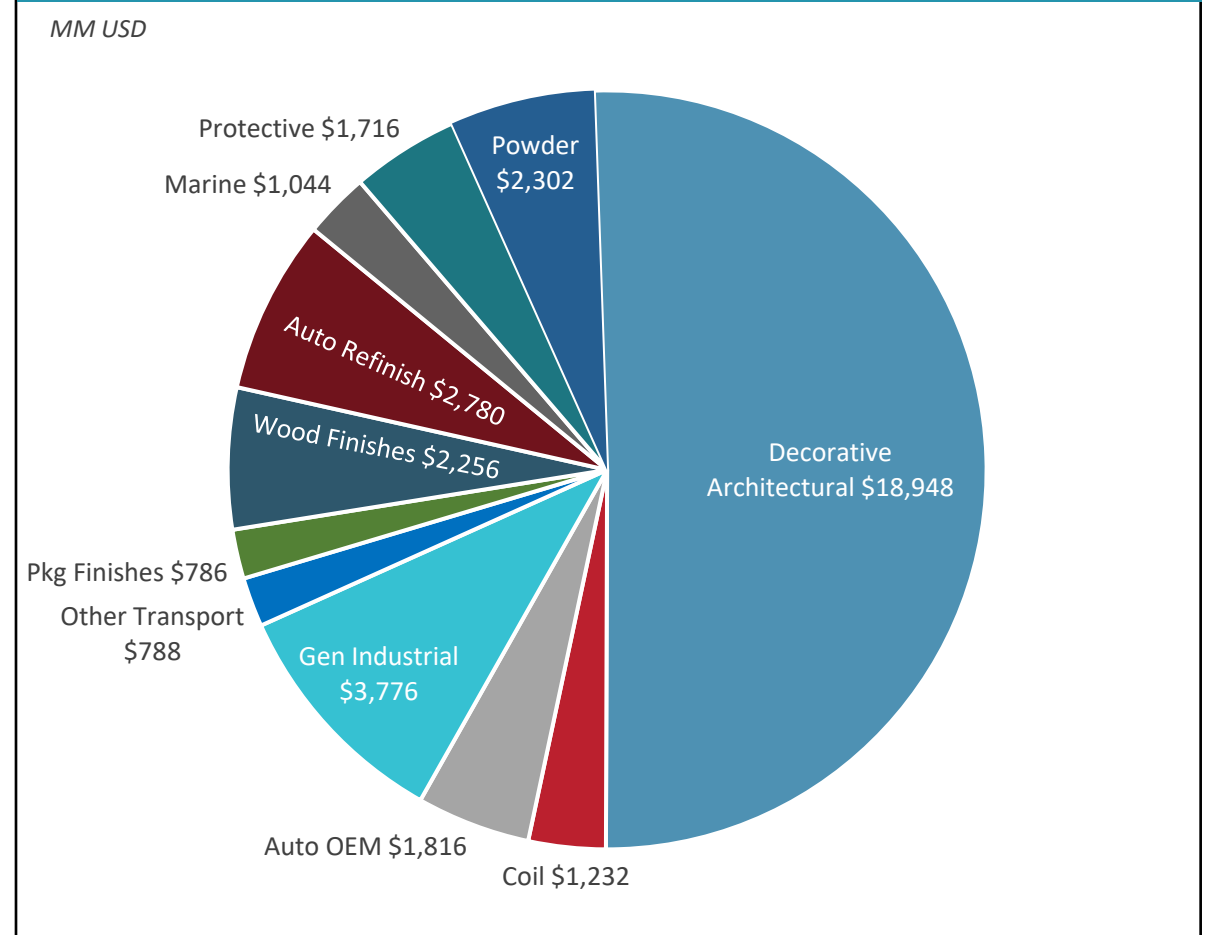
Source: The ChemQuest Group, Inc.

Key Markets by End Use – Established Regions

2024e NA Value Distribution by End Use — \$36.7 BN — \$6.7/Liter



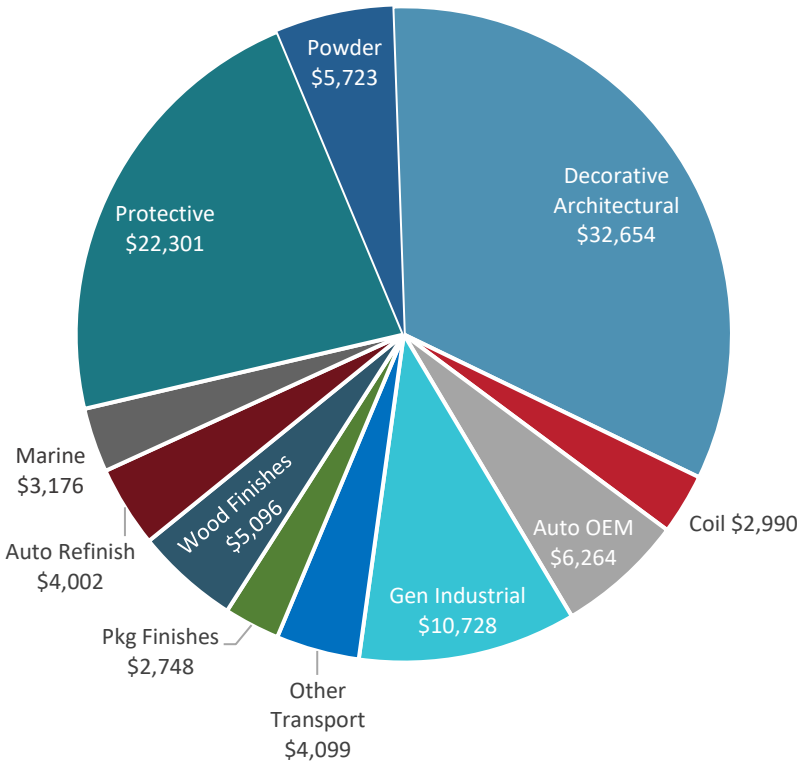
2024e EUR Value Distribution by End Use — \$37.4 BN — \$5.1/Liter



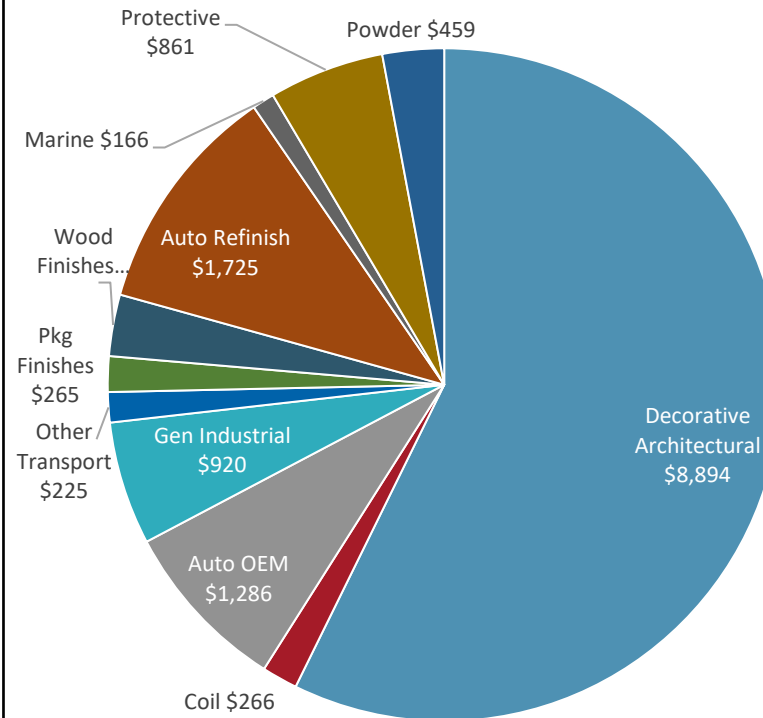
Source: The ChemQuest Group, Inc.

Key Markets by End Use – Developing Regions

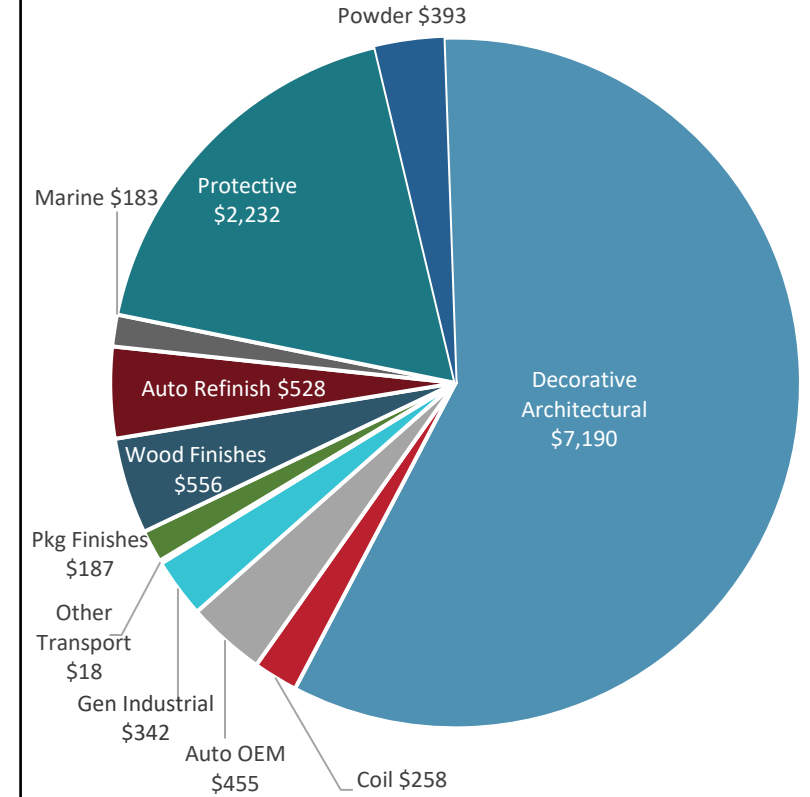
2024e APAC Value Distribution by End Use — \$99.8 BN — \$3.5/Liter



2024e LA Value Distribution by End Use – \$15.5 BN — \$3.6/Liter



2024e MEA Value Distribution by End Use – \$12.3 BN — \$3.4/Liter



Source: The ChemQuest Group, Inc.

Macrotrends & Drivers

Macrotrends Impacting Paints & Coatings

Major Trends Expected to Impact Paints & Coatings Market

MAJOR DRIVERS	IMPACT ON PAINT & COATINGS SECTOR	
CONSTRUCTION GROWTH	<ul style="list-style-type: none"> Global construction provides baseline level of growth for architectural and protective coatings market 	<ul style="list-style-type: none"> 2023-2030 construction value growth Forecast: 2.8% with highest growth in developing economies: Residential: ~2.5%; Non-Residential: ~3.2% - But 40% of global emissions
DISPOSABLE INCOME IN DEVELOPING COUNTRIES	<ul style="list-style-type: none"> Increasing consumer expenditure drives demand and willingness to pay in fast-growing markets for more premium paints and coatings and end-products where premium finishing is required. 	<ul style="list-style-type: none"> While volume demand for architectural and protective paints is being driven by population growth & increasing disposable income per capita in APAC, LA and AFR, inflationary pressures are driving shift to more affordable non-premium paints and paint concentrates.
STRICTER EH&S REGULATIONS	<ul style="list-style-type: none"> Sustainability driving more stringent chemical regulations for planet-friendly low-VOC, low-toxicity, renewable, and energy-efficient systems. Developed markets already stringent on chemical safety regulations perhaps becoming heavy handed, e.g. EU defining all polymers as microplastics 	
CONSUMER AWARENESS OF PRODUCT SAFETY	<ul style="list-style-type: none"> Increasing consumer interest in wellness and environmental impact of products 	<ul style="list-style-type: none"> End-consumer demand for low/no odor and VOC content expected to increase Similarly, demand for environmentally safe paints, beyond minimums required from legislators, among architects and construction firms expected to increase (e.g., LEED certification in commercial and residential buildings)
SUPPLY CHAIN CHANGES	<ul style="list-style-type: none"> Just-in-case inventory, reshoring/nearshoring for critical products, and reduction of shipping costs 	<ul style="list-style-type: none"> Growing focus on nearshoring and domestic production in aftermath of COVID-19 crisis, Russia-Ukraine conflict, Suez Canal disruptions, and geopolitical trade issues
MATERIALS SUBSTITUTION	<ul style="list-style-type: none"> Replacement of materials requiring paints and coatings to non-paint-reliant materials 	<ul style="list-style-type: none"> Decorative Architectural: Fewer paintable surfaces Industrial & Specialty: Clear and color wrap films, larger windows in vehicles
MARKET CONSOLIDATION	<ul style="list-style-type: none"> Consolidation of paints and coatings formulators and raw material providers 	<ul style="list-style-type: none"> Paints and coatings formulators continuing to consolidate globally, with major players such as Sherwin-Williams, PPG, AkzoNobel, and Nippon driving M&A activity
LABOR SHORTAGES	<ul style="list-style-type: none"> Labor shortage leading to higher automation and use of robotics and faster turnaround, faster return to service coating application technologies 	

Source: The ChemQuest Group, Inc.

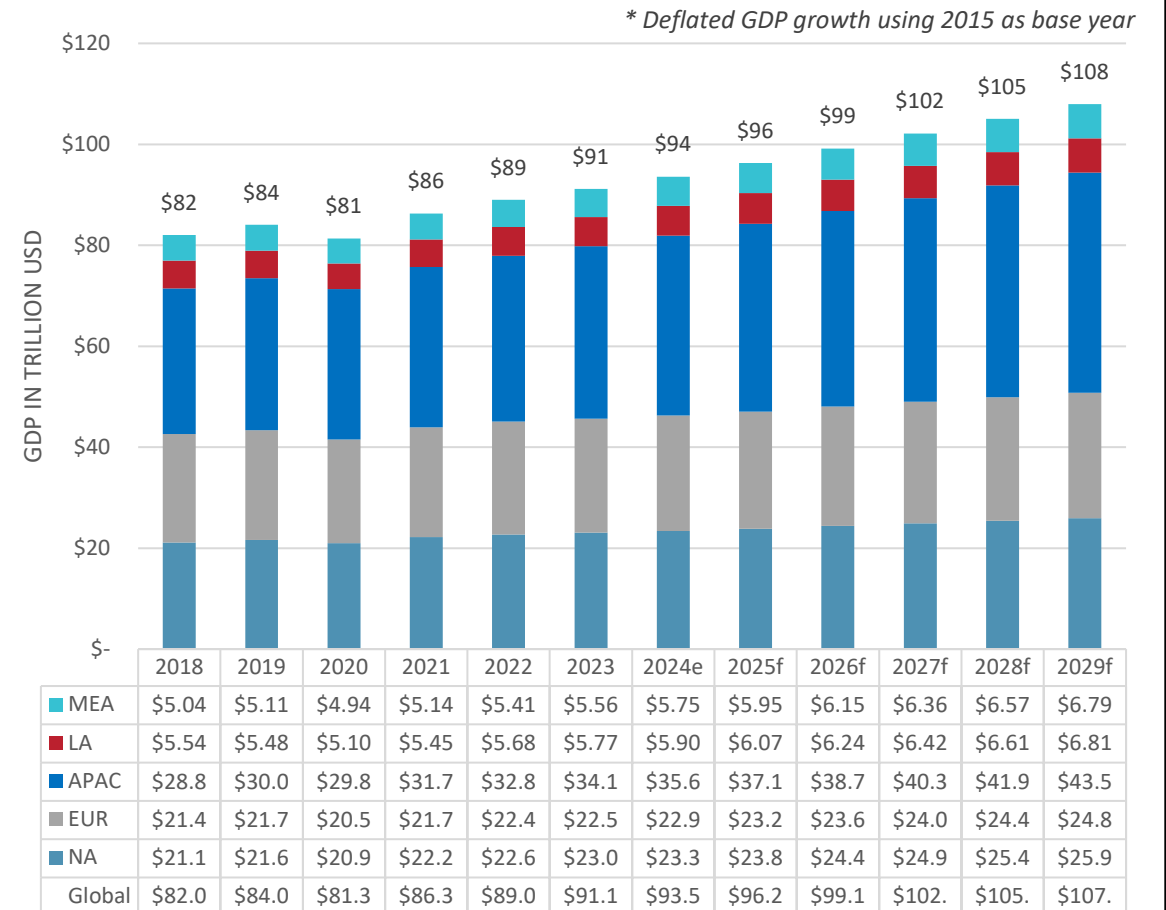
Economic Influences

2018-2029f Regional GDP Growth – Coatings 99% R² Correlation with GDP

Overview

- **2018-2023**
 - The **2020 COVID-19 pandemic** caused worldwide shutdowns in trade, manufacturing, and services, which were followed in **2021-2022** by supply chain disruptions due to weather-related disasters, geopolitical conflicts, more violent storms and the Suez Canal obstruction.
 - The economies of **Western Europe and North America** were most severely impacted, with soaring inflation amid fears of extended recession, but they recovered by 2023 end.
 - **APAC, LA, and MEA** recovered more swiftly, aided by government subsidies and investments, as well as an increase in nearshoring production in LA.
- **2024-2029: YoY GDP growth of 2.9% is expected globally with**
 - **APAC** at a **4.1% CAGR** driven by population growth, increasing disposable incomes and government investments in manufacturing and infrastructure in China, India, and SEA
 - **MEA** expected to grow at **3.4% CAGR** with increasing crude oil demand from recovering and growing economies, UAE seaport construction, and infrastructure expansion across MEA
 - **EUR** expected to show the least growth at **1.7% CAGR**, followed by **NA** at **2.1%**, as these economies continue to rebound from inflation and material shortages

2018-2029f Regional Real GDP* Growth



Source: The ChemQuest Group, Inc.

Building & Construction Trends

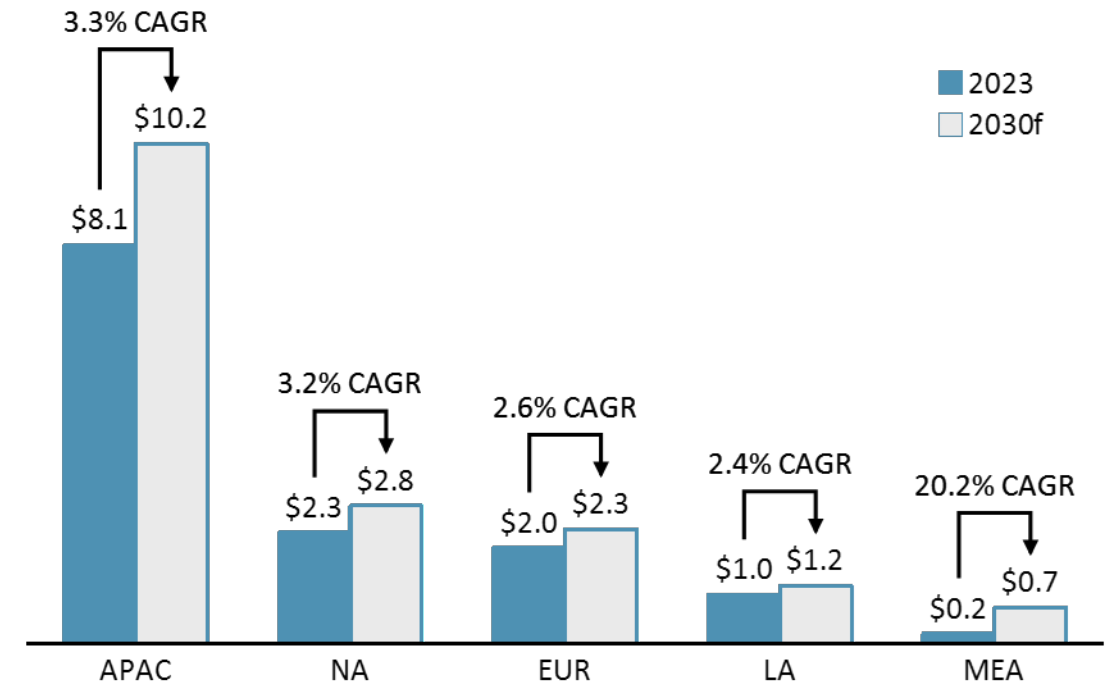
Overview

The **Decorative Architectural and Protective Coatings** markets are directly influenced by building and construction, which in turn is impacted by population, urbanization, and business trends.

- **North America:** Driven by GDP, comparatively high per capita income and high rate of residential construction and home improvement projects
- **Latin America:** Government and private sector spending to support growth of services sector, and urbanization has led to a significant increase in residential and commercial construction
- **Europe:** Focus on home renovation and remodeling, with a growing expectation of eco-friendly and sustainable paint products
- **MEA:** Saudia Arabia, UAE, and Egypt lead the Middle East with a variety of residential megaprojects that are government-funded or funded by wealthy private concerns; Africa needs more private funding and government organization. Nigeria leads in construction spending.
- **APAC**
 - As APAC's largest producer and consumer of coatings, China's economy has a significant impact on the region. Overbuilding, property developer defaults, and low demand for housing from China's aging and declining population have severely hampered architectural coatings demand.
 - On the plus side, India's economy is booming. With higher job creation and infrastructure improvements, demand for both rural and urban housing is increasing. However, this has also led to inflation. As a result, customers are opting for mid- to low-tier architectural paints vs. premium products. SEA is following a similar trend.

2023-2030f Construction Growth by Region

(in Trillion USD)



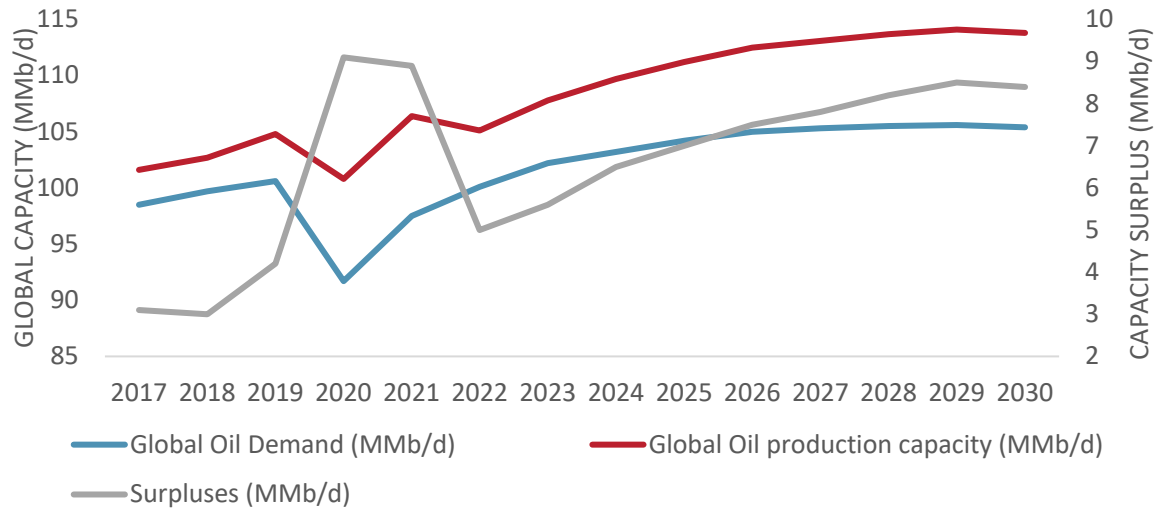
Global construction is projected to grow at 2.8% CAGR from \$13.6 TN in 2023 to \$16.5 TN by 2030 driven by APAC and NA. Fastest growth expected in Africa due to rapid urbanization aided by significant UAE investment.

Source: The ChemQuest Group, Inc., Research and Markets, Statista, Lets build, Next Move Strategy Consulting, PaintCentral, Engineering News Record, <https://www.databasedanalysis.com/global-construction-perspectives/>

O&G Trends

Global Oil Supply Demand Balance Forecast*

*Oil includes crude oil, natural gas, and biofuels

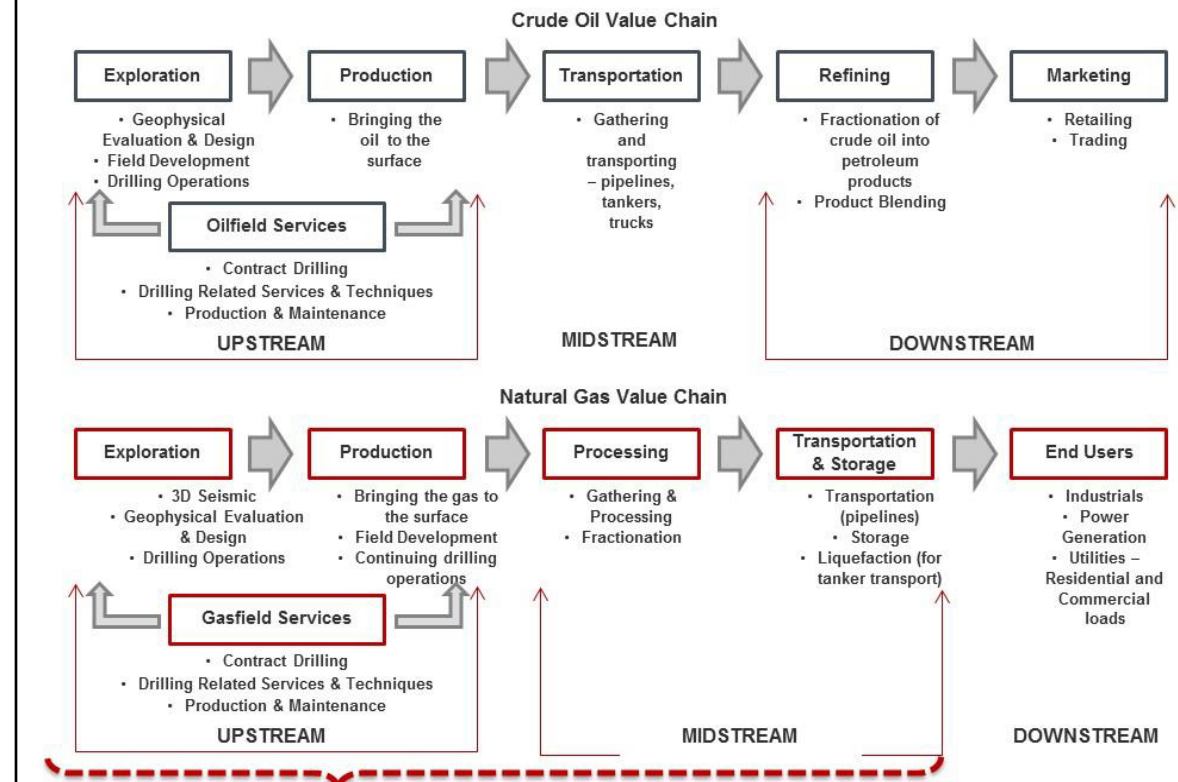


Supply capacity expected to surpass demand by 8 MMb/d in 2030

- Oil demand **tempered by transition to clean energy technologies** – renewables, shifts from gas power plants and transition to e-mobility
- Capacity increases mostly in the Americas (LNG)**
- Global **refining capacity is predicted to grow by 3%** from 104 to 107 MM b/d, sustaining the demand for global protective coatings.
- Capacity **curtailment by 2030** to support oil prices - **negative impact on protective coating growth**, but mitigated by renewables growth

Source: IEA 2024 Oil Report

O&G Value Chain Dynamics

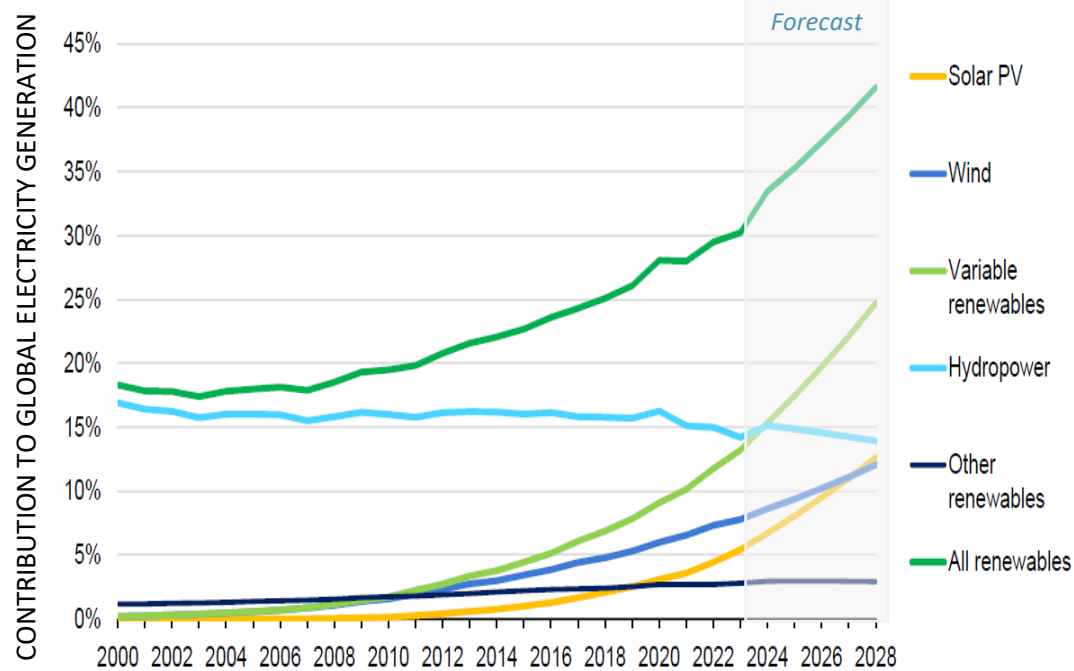


Upstream/midstream are the volume leaders for Protective Coatings

Renewable Energy Trends: China Leading in Renewable Electricity Generation

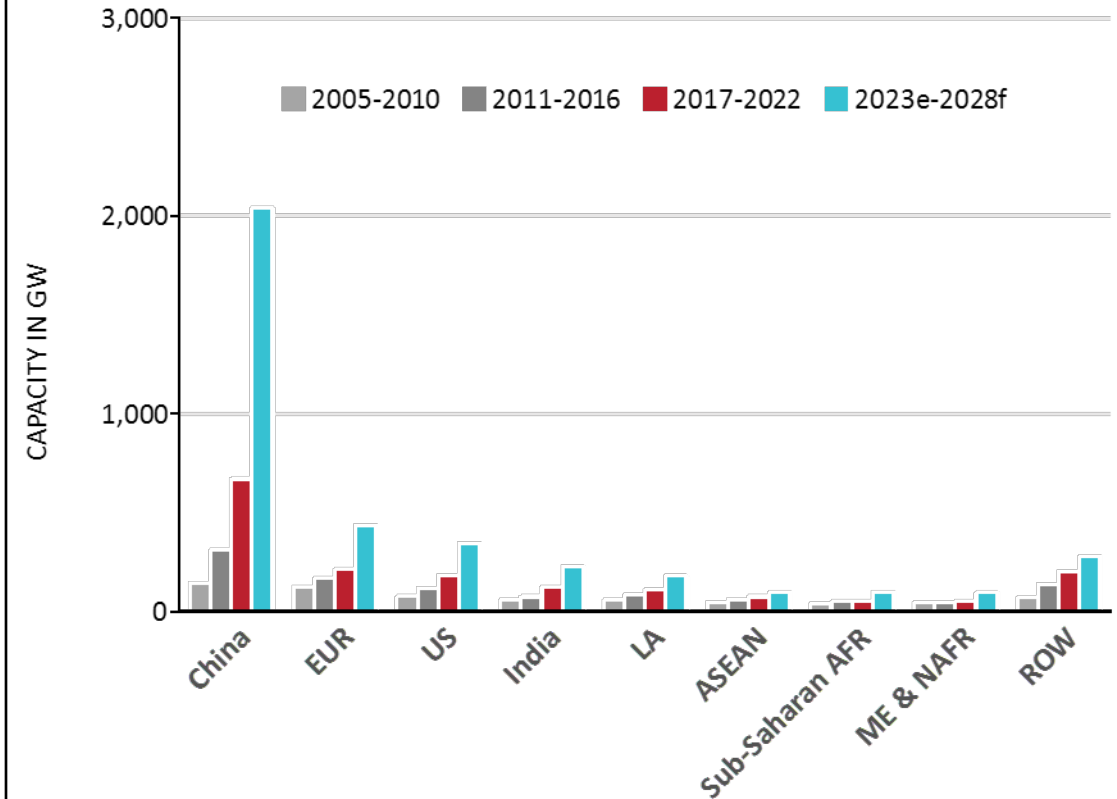
Global Renewable Electricity Generation by Technology

By 2028, global renewable electricity generation expected to reach ~14,400 TWh



- **2024f:** Variable renewable generation surpasses hydropower.
 - **2025f:** Renewables surpass coal-fired electricity generation; wind surpasses nuclear electricity generation.
 - **2026f:** Solar PV surpasses nuclear electricity generation.
 - **2028f:** Solar PV surpasses wind electricity generation.
- IEA. CC BY 4.0

Renewable Electricity Capacity Growth by Region



IEA. CC BY 4.0

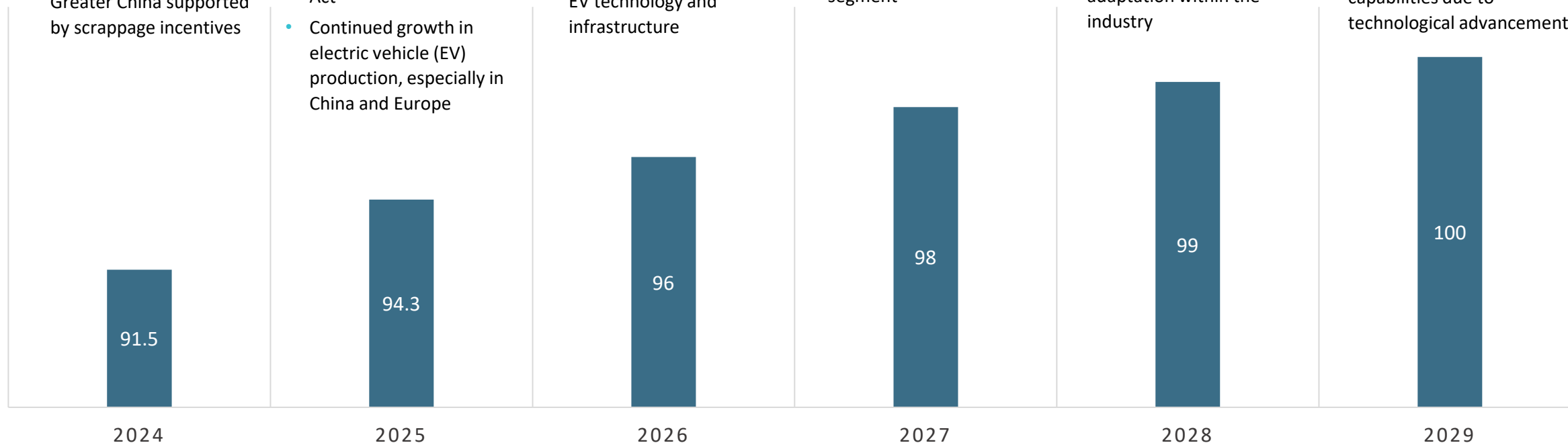
Source: International Energy Agency Renewables 2023 Forecast to 2028



Global Vehicle Production Trends: 2% CAGR - Strong recovery in APAC and NA

Global Vehicle Production in MM Units (2024e–2029f)*

- Economic weakness in major markets
- Inventory management issues, particularly in North America
- Increased production in Greater China supported by scrappage incentives
- Recovery in consumer demand post-inventory corrections
- Advanced semiconductor chip fabrication in US under CHIPS & Science Act
- Continued growth in electric vehicle (EV) production, especially in China and Europe
- Stabilization of supply chains and improved inventory levels
- Expansion of chip fabrication in US
- Continued investment in EV technology and infrastructure
- Ongoing shifts toward electrification and sustainable practices
- Increased competition among manufacturers, particularly in the EV segment
- Further advancements in autonomous driving technologies and connected vehicles
- Regulatory pressures driving innovation and adaptation within the industry
- Strong recovery in global markets, particularly in Asia Pacific and North America
- EUR doubles advanced chip fabrication capacity
- Enhanced production capabilities due to technological advancements

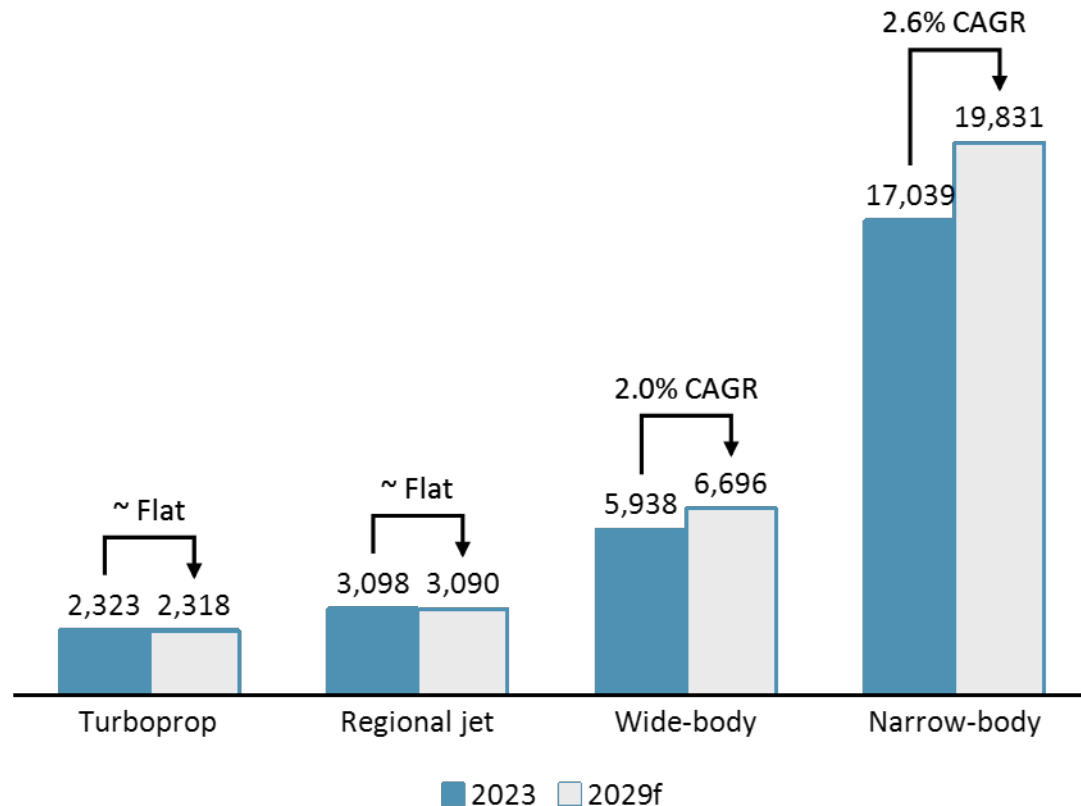


Source: The ChemQuest Group Inc.

Other Transportation Trends: Highest demand and growth in APAC

Global Manned Aircraft Growth Trends (Units)

- Increased commercial travel driving growth
- APAC: >40% of demand; NA + EUR together making up 40-45%

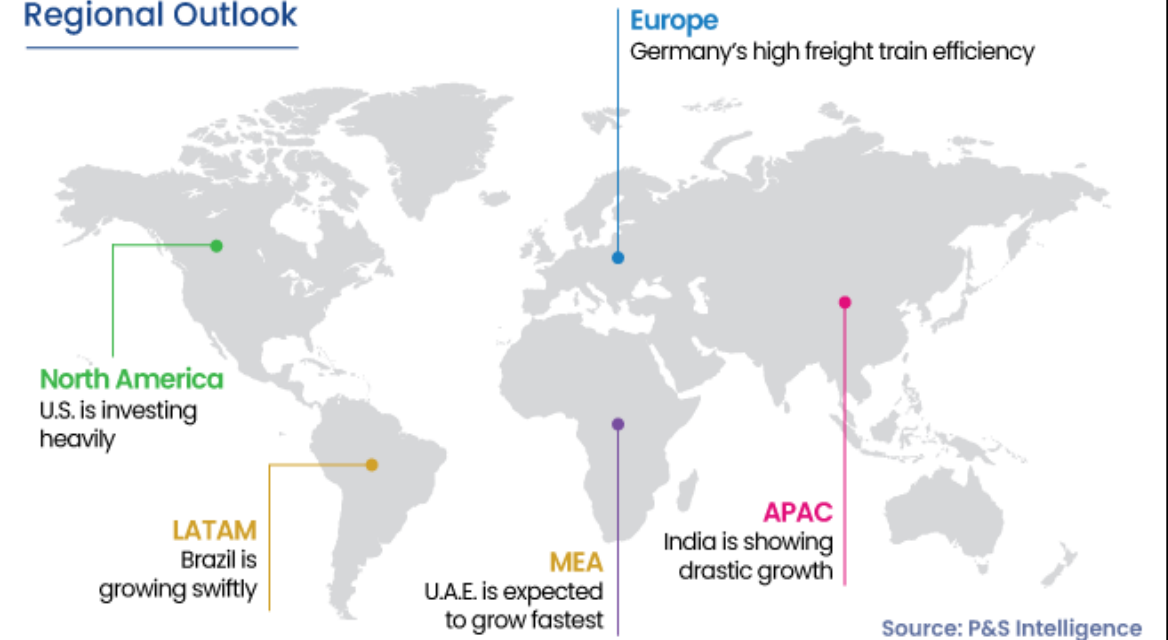


Source: The ChemQuest Group, Inc.

Railcar Leasing Market Trends

- Growth across all major regions with APAC highest due rising passenger & freight transport demand
- Americas driven by freight and EUR by passenger transport

Railcar Leasing Market Regional Outlook



<https://www.psmarketresearch.com/market-analysis/railcar-leasing-market#>

Regulatory/Environmental Influences

Regulatory/Environmental Influences Summary

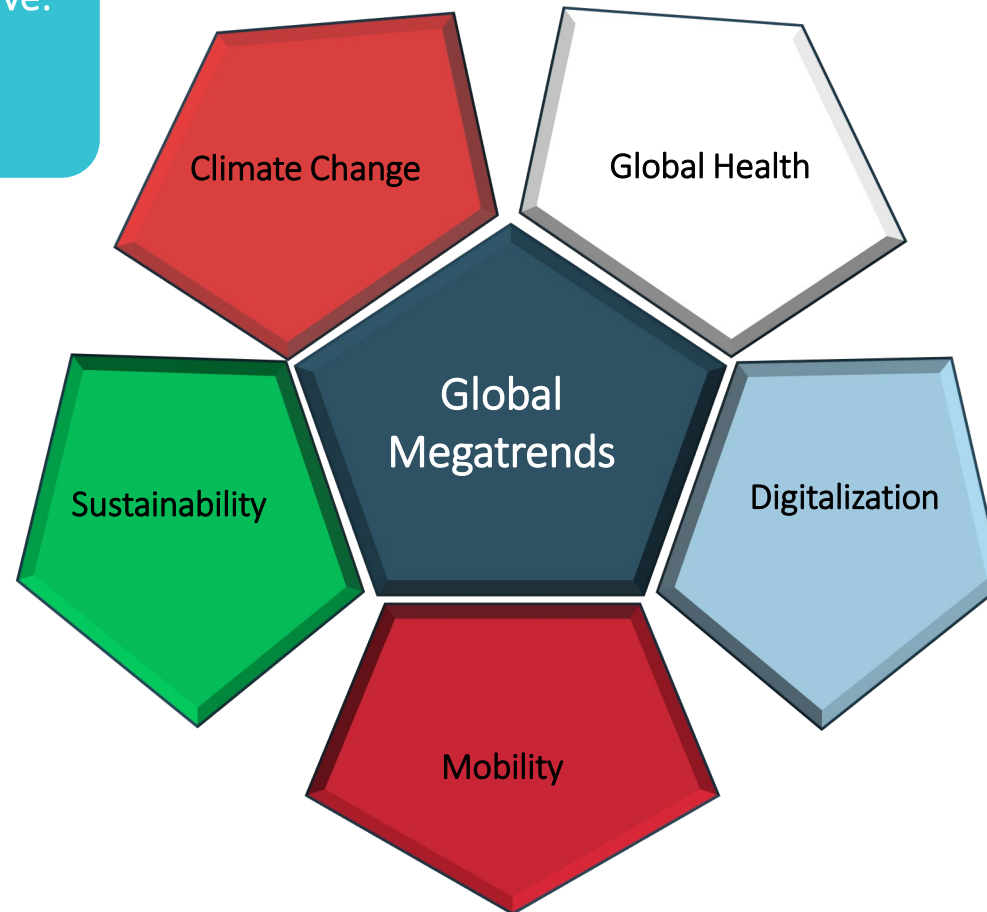
- Sustainability and carbon neutrality goals are driving regulatory initiatives across the globe.
- For the paints and coatings industry, these translate to
 - More **stringent VOC limits** and restriction of VOC solvents
 - Restriction and **elimination of PFAS** compounds
 - Restrictions and **limits on lead and other heavy metal** content
 - **Expanding list of Substances of very high concern (SVHC)** to phase out carcinogens, mutagens, Persistent Bio-accumulative Toxic (PBT) compounds, and reproductive and endocrine toxins
 - Restriction of **biocides and microplastics** (EU preliminarily defining all polymers as microplastics)
- **Regional focus**
 - China, the world's largest GHG generator, has taken **aggressive steps to cut GHG emissions** and is **leading the world in renewable energy production**.
 - **EUR has the most stringent VOC regulations** for paints and coatings, followed by China and North America.
 - North America and Europe are **leading the regulation of PFAS and biocides**.
 - **Major economies** (including North America; most EU-27 countries; and several Asian, Latin American, and Middle Eastern countries) **have legislated the UNEP-recommended 90 ppm upper limit on lead** in paints; **however, >70%** of UN member countries have no or **inadequate lead regulations**.
 - **Microplastics** continue to be a regulatory focus for Europe, with Canada, Japan, and the International Maritime Organization increasing scrutiny as well.

Technology & Innovation

Global Megatrends Driving New Technology Development

Megatrends drive:

- Direction
- Momentum
- Pivotal effects



- **Global Health**

The COVID epidemic drove researchers to create new technologies that address coatings-related issues like the spread of disease through high-touch surfaces.

- **Digitalization (Industry 4.0)**

The integration of software with machines has created new ways to formulate, apply, and evaluate coatings, as well as the ability to make 3D parts and structures.

- **Mobility**

The need for lighter, more reliable components has created the need for new coating technologies for transportation and electric vehicles.

- **Sustainability**

The increase in global warming potential (GWP) has caused an increase in the efforts to decarbonize the environment.

- **Climate Change**

The increase in ambient temperature, wildfires, floods, and wind damage has created the need for better technologies to address the associated changes in the climate. Increased investment in the built environment includes the use of new technologies to create tighter building envelopes.

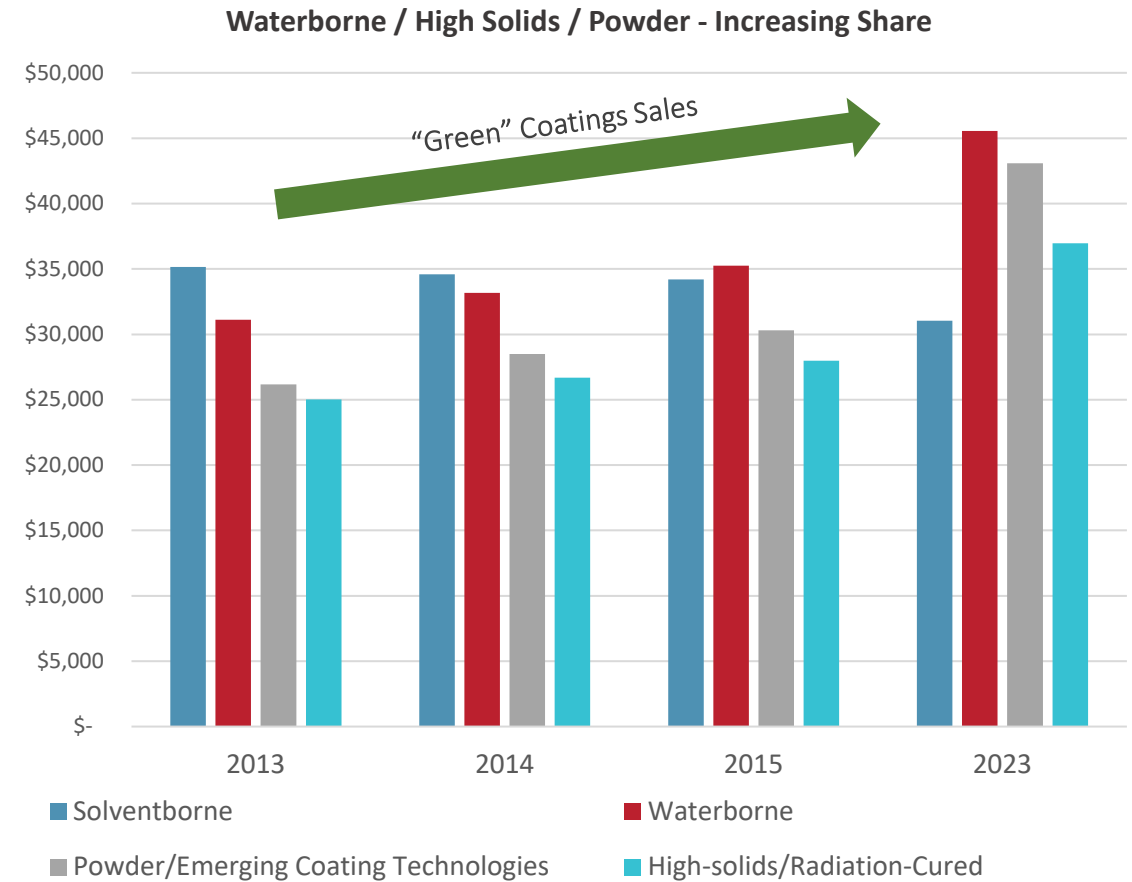
Source: The ChemQuest Group, Inc.

Sustainability Drivers and Regulatory Pressures

Executive Summary

- Sustainability is increasingly synonymous with circular economy – “an industrial system that is restorative or regenerative by intention and design.”
 - Renewable energy
 - Eliminating use of toxic chemicals
 - Waste reduction and recycling
- There is a market shift toward industries and organizations to create sustainability initiatives and to track and publish metrics such as greenhouse gas emissions, waste management, water usage, social factors, and financial investments. A trickle-down effect on supply chain is increasing demand for sustainability frameworks and ESG programs, with direct impact to paints and coatings manufacturers:
 - Mounting ESG mandates on climate disclosures
 - Increasing standards for VOC reduction for ozone emission, as well as hazardous air pollutant control (Clean Air Act)
 - More comprehensive and lengthier TSCA assessment process for new and existing chemicals
- Continuing and strengthening shift toward waterborne, high/ 100% solids, and powder coatings across multiple coatings sectors

Global Coatings Market by Technology (2013-2023)



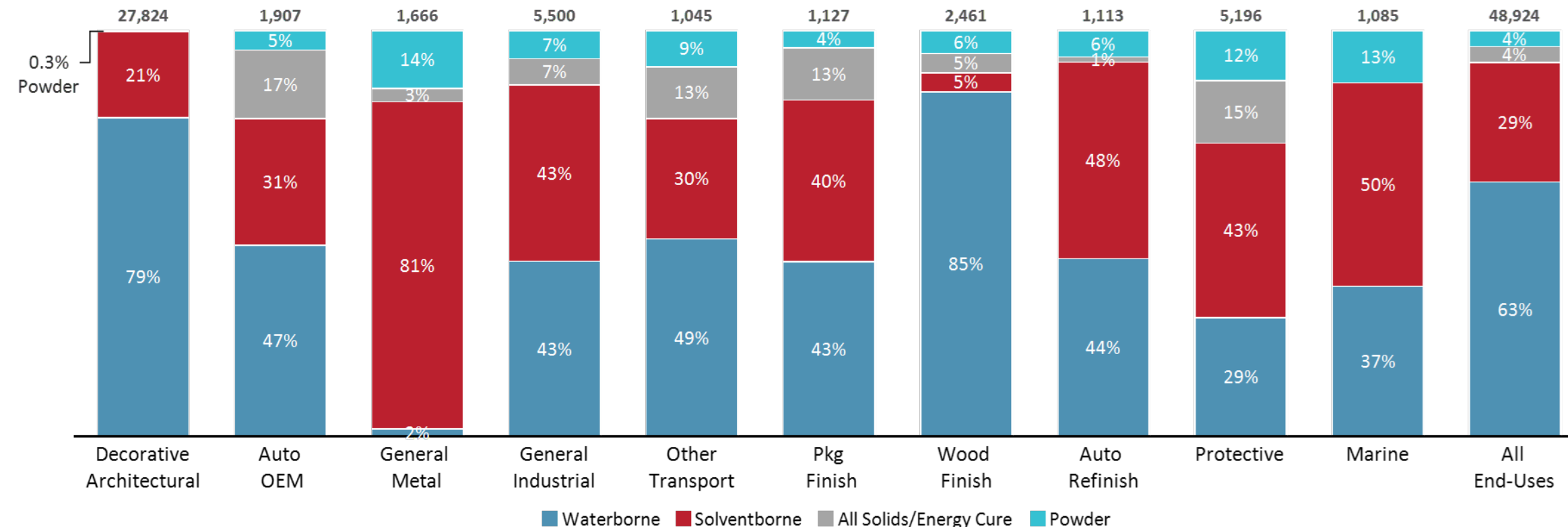
Source: The ChemQuest Group, Inc., BCC Research, Global Markets and Advanced Technologies for Paints and Coatings), ACA, Ellen MacArthur Foundation

Coating Technology Distribution by End Use – WB Made Great Inroads over the Past Two Decades but SB Still has Large Market Share

2024e Global Coating Technology Distribution by End-Use Application – 48.9 BN Liters*

* Liquid coating volumes in MML and powder coating volumes in KT; Powder coating distributed across end-use applications

** General Metal coating includes Coil and general-purpose metal Powder coating



Source: The ChemQuest Group, Inc.

Key Technology Trends and Drivers Summary

- **Low-VOC and low-toxicity coatings**
 - **Low/no-VOC** formulations (consumer and regulation driven) – waterborne, all-solids, powder
 - **Odor-absorbing and formaldehyde-free** architectural interior paints
 - **Low ecotoxicity and biocide-free** corrosion-resistant antifouling marine coatings
- **Energy, labor, and cost-efficient application and cure**
 - Convenience paints for architectural applications: 2-1 in one paint and primer, faster drying, 1K systems, etc.
 - OEM: Wet-on-wet application coatings, radiation cure, and powder coatings for faster throughput, zero-VOC, and lower energy consumption
- **Clean energy, especially in APAC, EUR, and MEA**
 - In **Europe, the focus on renewable energy** has invigorated demand for wind turbine coatings (primarily epoxy), with major international and regional coating producers developing dedicated product portfolios.
 - Active development of **solar and wind infrastructure in APAC, ME, and NAFR** is driving demand for rugged Architectural and Protective Coatings with heat resistance, weatherability, and corrosion protection.
- **Renewable/plant-based coating ingredients:** BASF-pioneered mass balance approach of mathematically allocating bio-based/recyclable share from chemical production to final coating product/article and standardization via ISCC+ certification is being increasingly adopted by coating ingredient, formulation, and part manufacturers across the globe, which is growing demand for bio-based and renewable solutions, especially in the packaging, automotive, and construction sectors.
- **Artificial intelligence (AI):** **Machine learning**, Innovative approaches utilizing **AI to drive efficiencies in Powder Coatings application** (AkzoNobel), coating **ingredient selection** for high-performance Protective Coatings (ACHIEF consortium), and **color palette creation** (HMG Paints)

Source: The ChemQuest Group, Inc.

Key Technology Innovations – Sensors, Energy Savings, Bio/Renewable, Faster Return to Service and Automation Driving Demand



- Deco
 - **Conductivity** through paint technology for lighting and dynamic effects.
 - **Multi-functionality**: odor absorbing/Radon blocking, antimicrobial, antiviral, de-polluting, de-Nox, self-healing, self-cleaning.
- OEM
 - Auto – **matte finishes**, glamour clear coats.
 - **Solar heat management** – enable darker colors, increase passenger comfort, reduce external substrate temperatures, reduce cost.
 - **Powder resins** with **40% post consumer recycled PET** from end-of-life packaging
 - Coating technology for energy savings (**low-temperature cure**) and storage
- Special Purpose
 - **Faster return-to-service** of assets
 - Intelligent surfaces through **sensors** – repair assets only when needed utilizing **structural health monitoring** to extend asset life, lower maintenance costs, improved safety; **provide real-time asset assessment utilizing “Internet of Things”**
 - **Corrosion protection in extreme environments** – increase infrastructure longevity
 - Higher emphasis on **safety and fire protection** – insurance industry key driver
 - **Longer pot-life, shorter curing** (snap cure)
- Automation - labor & talent shortages driving **automation in all aspects from R&D to manufacturing to applications**

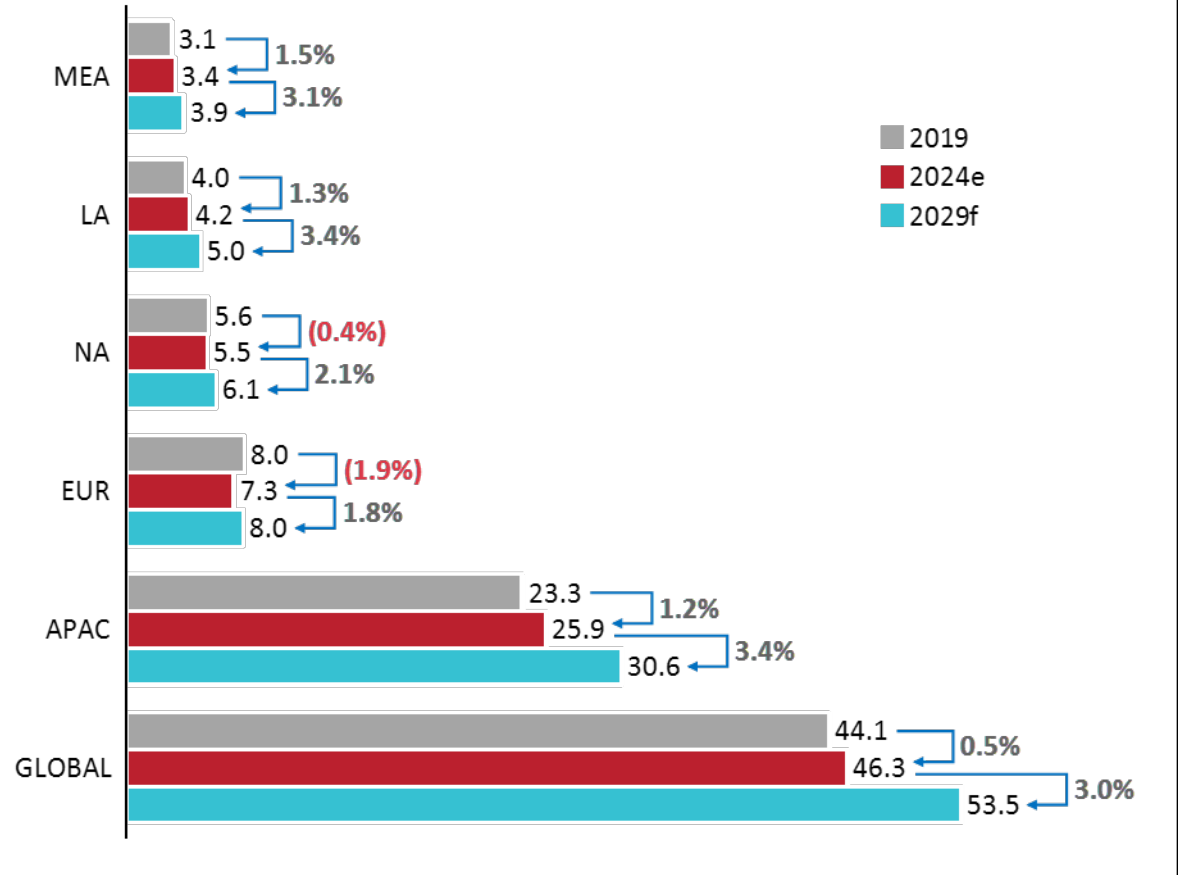
Source: The ChemQuest Group, Inc.

Coatings Growth Trends (2019-2029f)

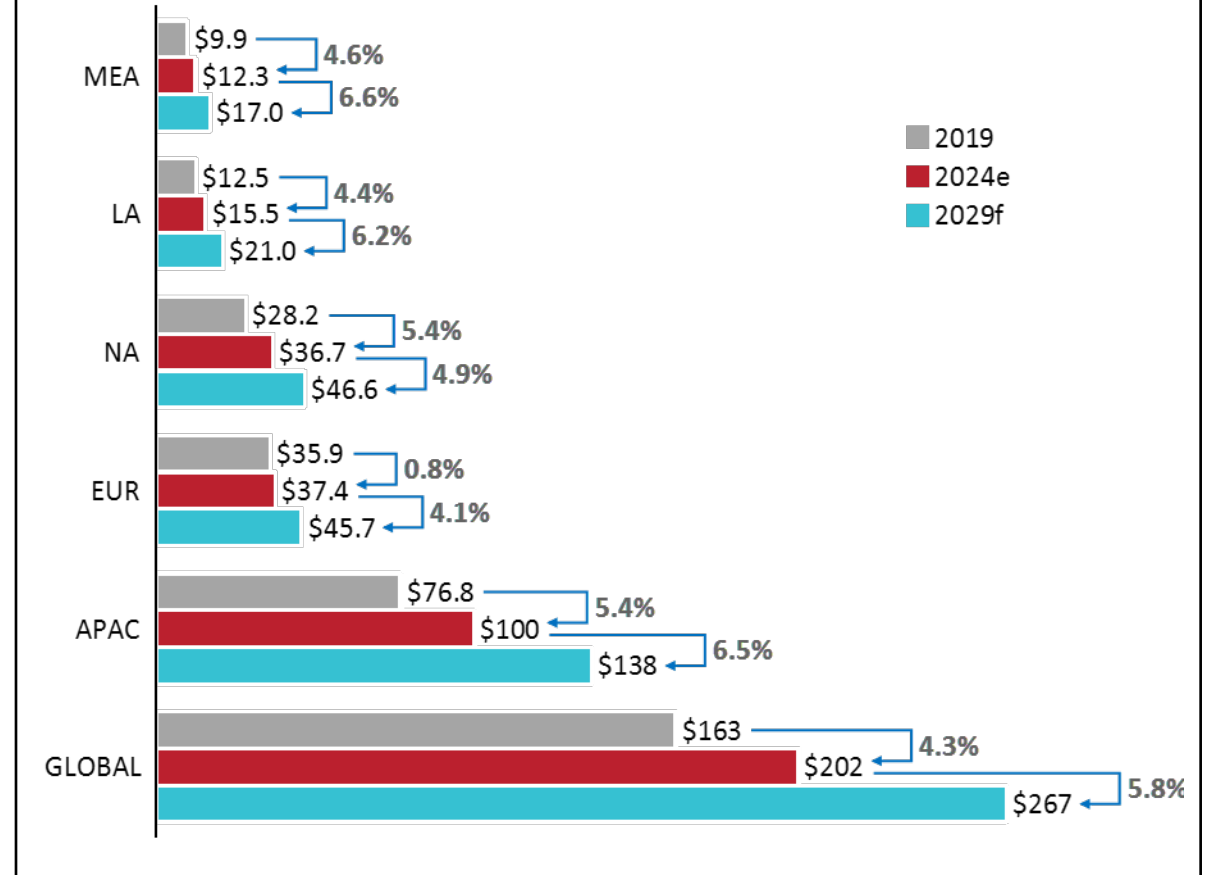
Global Coatings Growth by Region (2019-2029f)

Coatings Volume Growth by Region in BN Liters* and CAGRs

* Includes liquid coating volumes in BN Liters and powder coating volumes in MMT



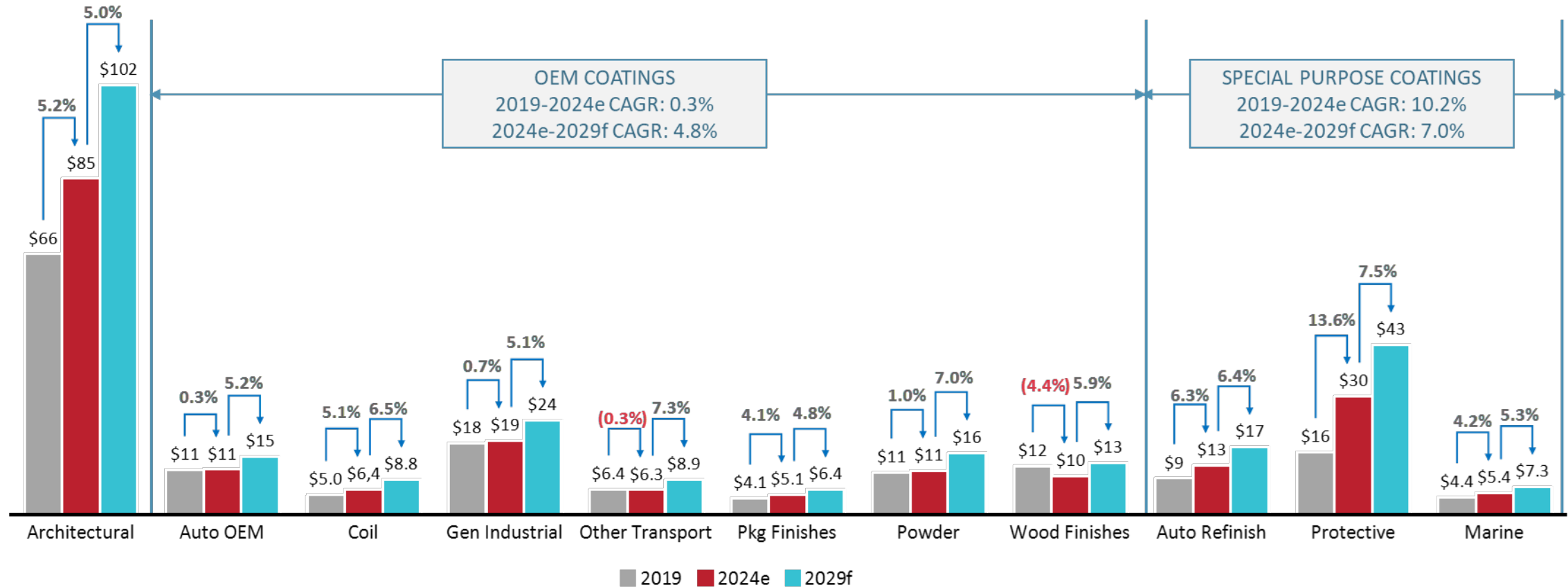
Coatings Value Growth by Region in BN USD and CAGRs



Source: The ChemQuest Group, Inc.

Global Coatings Value Growth by Sector (2019-2029f)

Global Coatings Value Growth in BN USD by Sector and Corresponding CAGRs



Source: The ChemQuest Group, Inc.

Global Paints and Coatings Growth Overview

2019-2024e Trends and Drivers

- 5-year CAGR: 0.5% for volume; 4.3% for value
- 2024 Estimate: \$202 BN sales on 48.9 BN Liters
- Period of recovery
 - The **trifecta of the 2020 COVID-19 pandemic** and ensuing **catastrophic weather events** and the **Russia-Ukraine conflict** caused major supply chain disruptions globally through 2021-2022.
 - **Europe and North America** were the hardest hit
 - Europe's **dependence on Russian fossil fuels resulted in a major energy crisis that skyrocketed inflation** and affected all industrial and construction sectors.
 - In North America, **material and component shortages and rising mortgage rates depressed** the construction and automotive sectors.
 - **APAC** recovered swiftly due to **China government subsidies** for production and low-cost export, especially in EV and consumer sectors, and **India's booming economy** driven by a growing workforce, and public and private investments.
 - **MEA** also recovered quickly, aided by **public sector investments in building and construction, ongoing need for O&G asset maintenance, and wind and solar infrastructure** development, especially in ME and NAFR.
 - **LA** recovered almost fully by 2023, **bolstered by the uptick in post-pandemic nearshoring activity by NA and EUR companies to reduce dependence on APAC** production, as well as **national spending on building and construction** to support a booming services industry.

2024e-2029f Trends and Drivers

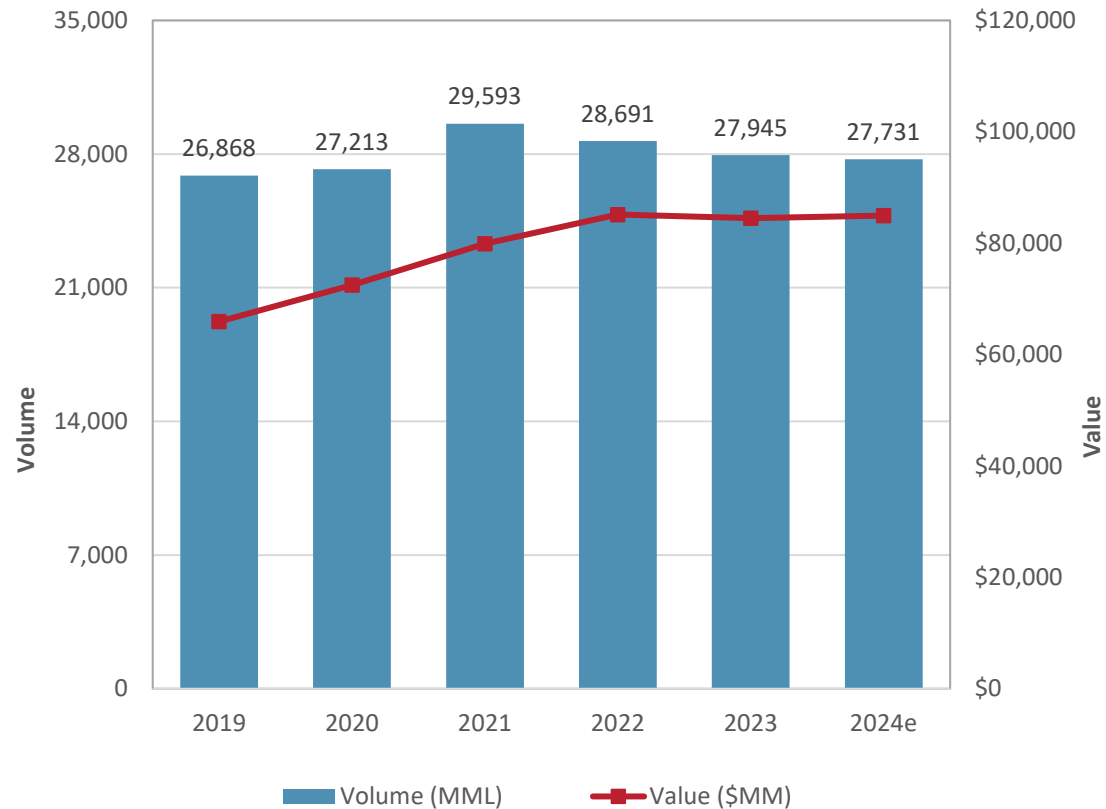
- 5-year CAGR: 3.0% for volume; 5.8% for value
- 2029 Estimate: \$267 BN sales on 56.7 BN Liters
- Key trends
 - **Continued consolidation** by large multinationals to expand territory, access new markets and technologies, and strengthen supply base amid growing political tensions and strained trade relations worldwide.
 - Increasing **consumer preference for eco-friendly, sustainable products** will continue to **shape corporate and government policies** for coating ingredients, technologies, production and application.
 - **Exciting opportunities** with Increased use of **automation and AI** in coating manufacture, application & testing
 - **Coating sectors growing at a value CAGR of 5%**, with **strongest growth in Non-Automotive Transportation, Powder Coatings, Protective, and Coil Coatings**, driven by **population & services growth in developing economies**.
 - Non-Automotive Transportation, Protective Coatings, Wood Finishes, and Coil Coatings are expected to show the greatest volume growth (**>3.5% volume CAGR**), while automotive and packaging coatings growth will be the most modest (**<2.5% volume CAGR**).
 - **APAC will continue to dominate** the global coating landscape with respect to both market share and growth, driven by domestic demand in China and India, as well as China's aggressive production for export.
 - **LA and MEA are expected to grow strongly as well**, with **construction** and continued **nearshoring** of production **driving coatings demand in LA**, and increasing **urbanization, port expansion, and continuing focus on renewable energy infrastructure driving coatings growth in MEA**.

Source: The ChemQuest Group, Inc., Better Business Bureau, Behr Pro, Company websites

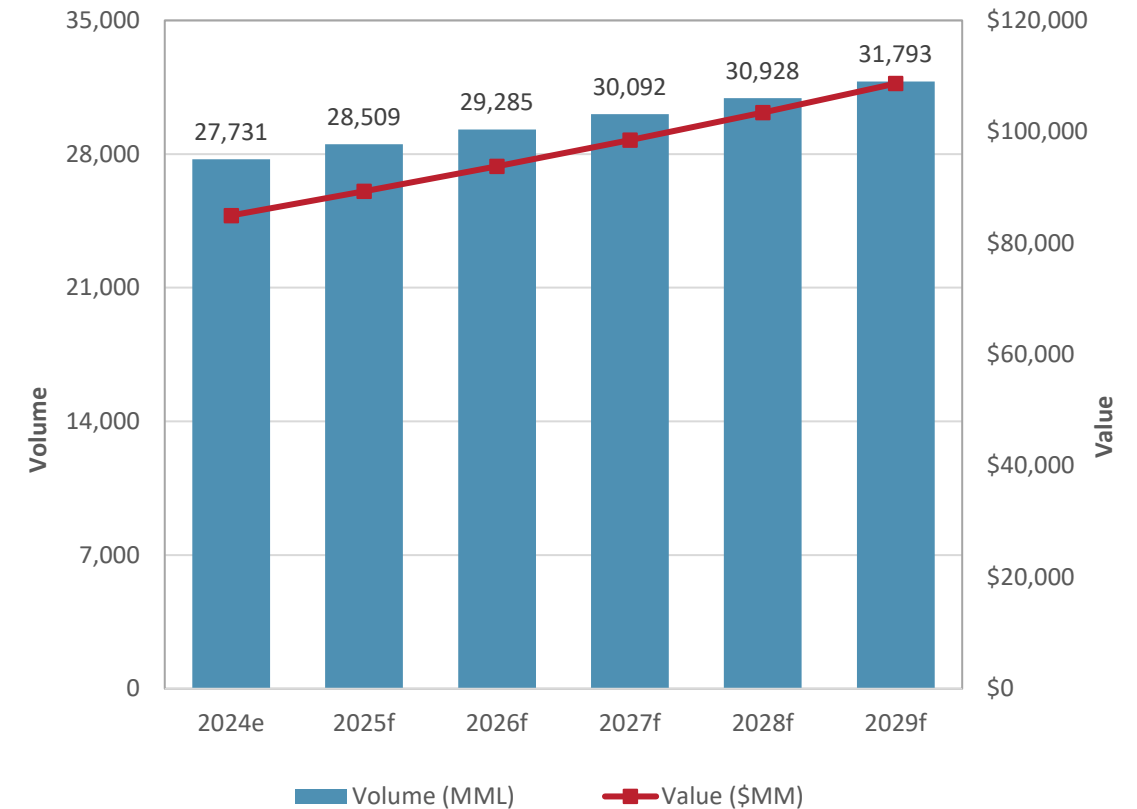
Decorative Architectural Coatings

Decorative Architectural Coatings: Global Performance (2019–2029f)

Global Architectural Coatings Demand (2019–2024e)



Global Architectural Coatings Demand (2024e–2029f)



Source: The ChemQuest Group, Inc.

Decorative Architectural Coatings: Global Trends and Drivers

2019-2024e Trends and Drivers

- 5-year CAGR: 0.6% for volume; 5.2% for value
- 2024 Estimate: \$85.0 BN sales on 27.7 BN Liters
- Recovery from COVID pandemic and supply chain disruptions
 - **Remote work** became common and DIY coatings sales increased initially as people updated, renovated, and painted living spaces and decorated new home offices.
 - **PRO coating sales dropped** dramatically as office spaces were vacated and commercial projects stalled.
 - **Mortgage** and **price increases diminished consumer appetite** for new housing and premium products.
 - Demonstrated the **need for reshoring and less complex international supply chains** across the value chain to mitigate material shortages, trade conflicts, and logistical delays
- **Regional trends**
 - APAC **dominated the market with 35% market value share and 1.7% volume CAGR**, fueled by the domestic China market and India's booming economy, even as China grappled with overbuilding, property owner defaults, and high housing prices.
 - **EUR and NA sales declined heavily**, registering volume CAGRs of **(2.3%)** and **(1.1%)**, respectively, **while LA and MEA showed a modest volume growth CAGR of ~1.6%**.

2024e-2029f Trends and Drivers

- 5-year CAGR: 2.8% for volume; 5.0% for value
- 2029 Estimate: \$109 BN sales on 31.8 BN Liters
- **Growing regulatory and consumer demand for sustainable and eco-friendly coatings across the globe, with an increasing shift to waterborne, low-VOC, and lead-free paints**
- **Regional Trends**
 - APAC will continue to have the **largest global market share**, driven primarily by increasing demand from China and India. However, **high inflation and lower per capita income in India and SEA** will continue to **drive demand for mid-to-low-tier** architectural paints vs premium products.
 - MEA is expected to see a **strong volume CAGR of 3.5%, bolstered by high demand for expat housing and amenities in Saudi Arabia**, and continued inter-country **migration** from rural areas to cities across MEA.
 - LA will show the **fastest growth, at 3.7% volume CAGR**, as new **construction projects** are undertaken in public and private sectors to support increasing **urbanization, services, and manufacturing** (near-shoring), with **Brazil generating 45%** of the region's coating demand.
 - NA and EUR are expected to grow at a **modest rate of 2.1% and 1.7%**, respectively, as **inflationary** concerns subside, and **mortgage rates** get more buyer-friendly.

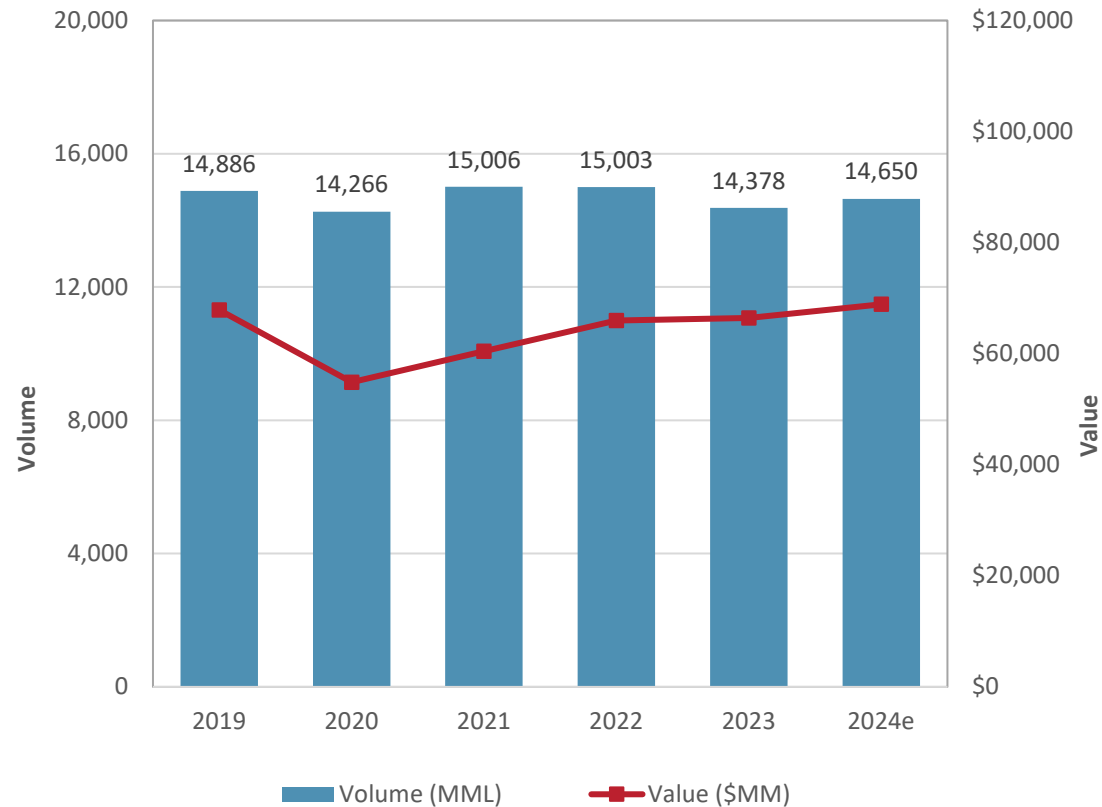
Source: The ChemQuest Group, Inc.

OEM Coatings

OEM Coatings: Global Performance (2019–2029f)

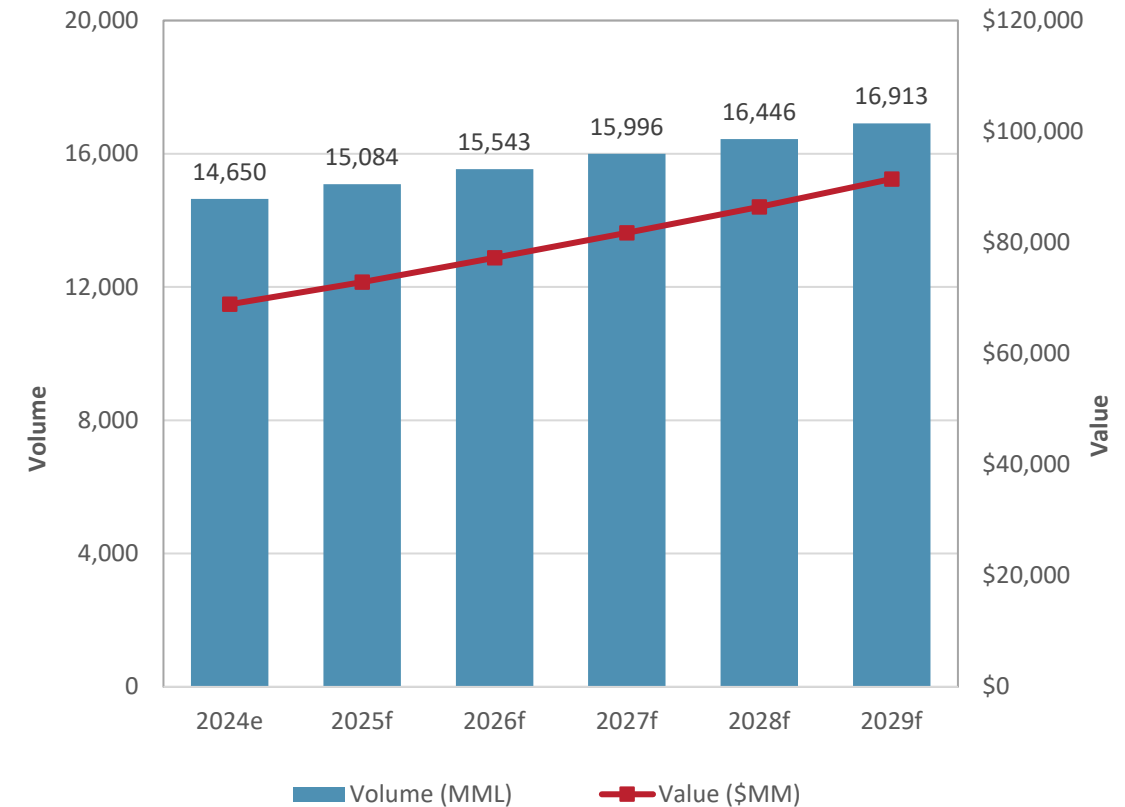
Global OEM Coatings Demand (2019–2024e)

* includes liquid coating volumes in MML and powder coating volumes in KT



Global OEM Coatings Demand (2024e–2029f)

* includes liquid coating volumes in MML and powder coating volumes in KT



Source: The ChemQuest Group, Inc.

OEM Coatings: Global Trends and Drivers

2019-2024e Trends and Drivers

- 5-year CAGR: **(0.3%)** for volume; 0.3% for value
- 2024 Estimate: **\$68.9 BN sales on 14.7 BN Liters**
- Recovery from COVID pandemic and supply chain disruptions
 - **Automotive and construction was most severely impacted** due to **electronic component shortages and rising fuel prices and mortgage rates**, which diminished consumer demand.
 - The **downturn in housing construction and wood and raw material shortages** caused **Wood Coatings sales to decline**.
 - **Packaging Finishes** was the only OEM coating segment to register a **healthy volume CAGR of 2.3%**, driven by **remote work and the consequent increase in e-commerce**.
- **Regional trends**
 - **APAC, led by CN, recovered more swiftly** aided by China government incentives and subsidies for EV and consumer goods manufacture for export.
 - **LA and MEA: LA recovered almost fully by 2023** due to nearshoring demand from NA and EUR. Most **OEM sectors recovered, but automotive continues to struggle** due to ready availability of **cheap pre-owned imports, limited production sites, and currency fluctuations**.
 - **NA and EUR: While NA has recovered** fully to pre-pandemic levels, **EUR continues to struggle**, especially in automotive.

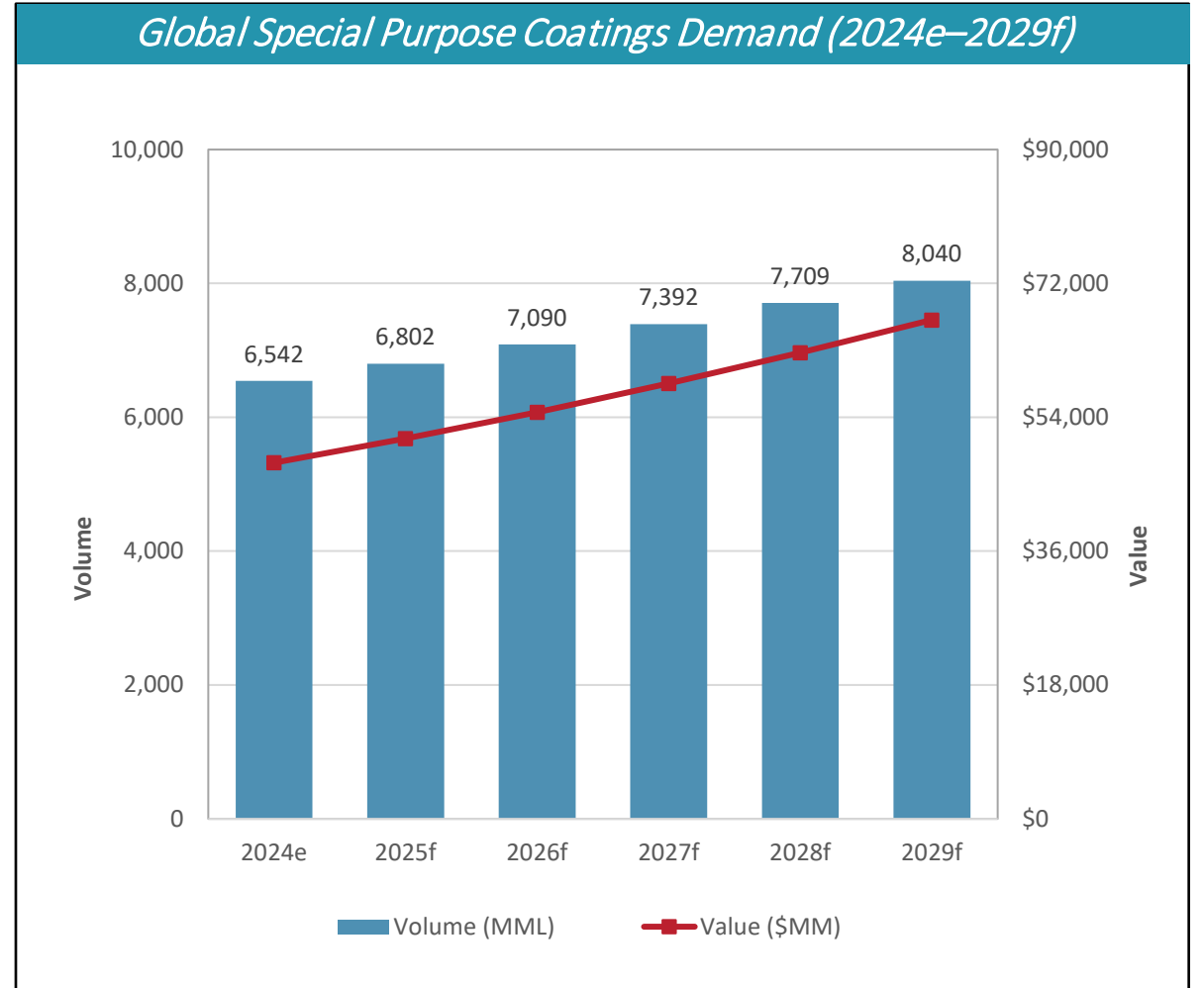
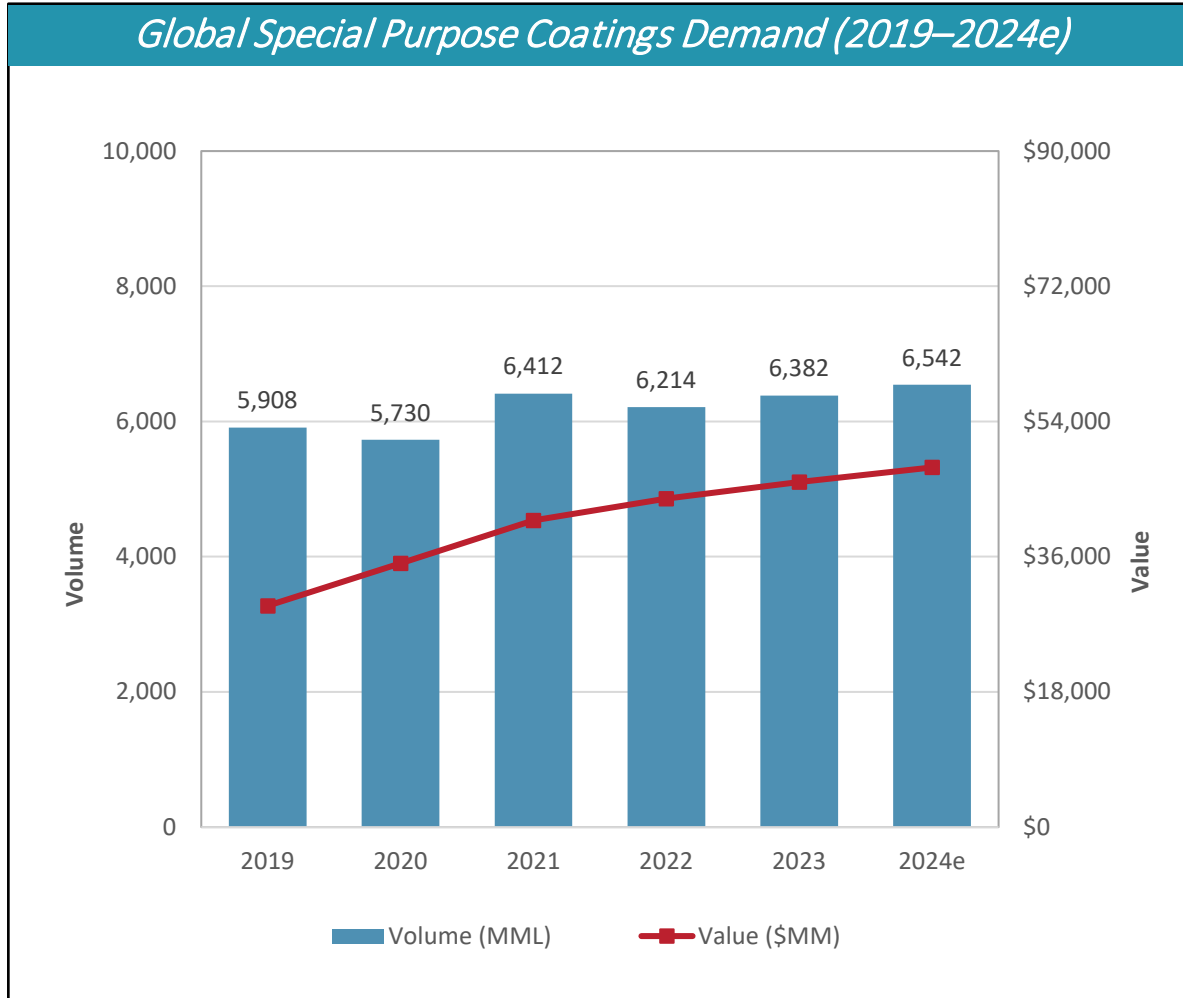
2024e-2029f Trends and Drivers

- 5-year CAGR: **2.9%** for volume; **5.8%** for value
- 2029 Estimate: **\$91.5 BN sales on 16.9 BN Liters**
- **Sustainability and climate change** will continue to drive coating formulation and application technologies in major world economies, with **waterborne and powder coatings** being strongly preferred. **Powder Coatings will see strongest growth in APAC (5% CAGR) and LA (3.8% CAGR)** as major producers invest in regional production to meet **growing demand for structural components for O&G, marine, and building and construction**.
- **Automotive and Transportation:** Automotive growth will initially be **sluggish in NA and EUR** but is expected to **pick up** as domestic advanced **chip manufacture** launches in US and EV components manufacture and **charging infrastructure** advancements in NA and EUR. **APAC and LA will see strong growth** in this sector from **domestic demand and exports in APAC and near-shoring activities in LA**. Non-auto transportation is expected to **grow well in all regions, driven by technology changes, EVs, and increasing urbanization**.
- **Wood Finishes** are projected to show **strong volume growth (3.4% CAGR)**, driven by **surging housing demand in APAC, LA, and MEA**.

Source: The ChemQuest Group, Inc.

Special Purpose Coatings

Special Purpose Coatings: Global Performance (2019–2029f)



Source: The ChemQuest Group, Inc.

Special Purpose Coatings: Global Trends and Drivers

2019-2024e Trends and Drivers

- 5-year CAGR: 2.1% for volume; 4.9% for value
- 2024 Estimate: \$47.9 BN sales on 6.5 BN Liters
- Effect of COVID pandemic and supply chain disruptions:
 - The Special Purpose Coatings sector in EUR and LA reeled from the downturn in auto refinishing, shipbuilding, and O&G/mining operations.
 - APAC continued to thrive as growing Asian economies increased car ownership and thereby collisions, and infrastructure expansion projects and government incentives for shipbuilding, respectively, increased Protective and Marine Coatings demand.
 - MEA also showed strong growth in Protective Coatings, aided by strong demand in energy (O&G, solar, wind) and mining.
 - In NA, while Auto Refinish remained flat as remote work and lower auto purchases resulted in fewer cars gracing the roadways, Marine and Protective Coatings showed steady growth due to ongoing maintenance and repair requirements, although construction and ship-building activities were subdued.

2024e-2029f Trends and Drivers

- 5-year CAGR: 4.2% for volume; 6.5% for value
- 2029 Estimate: \$67.1 BN sales on 8 BN Liters
- **Auto Refinish** is expected to strengthen in all regions as consumer demand picks up, with fastest growth in APAC. However, technology advances in autonomous driving and collision avoidance systems can be disruptive to this segment longer term, especially in mature economies.
- **Marine Coatings** are expected to grow at a volume CAGR of 2.6%, with all major shipbuilding regions showing good growth due to government incentives for shipbuilding and expansion of marine trade infrastructure.
- **Protective Coatings**
 - All regions except EUR are expected to grow > 2% volume CAGR due to public works projects, Infrastructure, O&G and mining operations maintenance and expansion, and renewable energy construction.
 - EUR is projected to grow at 1.4% volume CAGR as it continues to overhaul its energy infrastructure in the wake of the fossil fuel crisis brought on by the Russia-Ukraine conflict.
 - APAC is expected to show the highest growth of 5.2% volume CAGR, with India forecasted at 7% CAGR, driven by aggressive urbanization and modernization infrastructure projects to support population and industry growth, and China at 5.5% CAGR as it continues its expansion of wind energy, EVs, and telecommunications infrastructure.

Source: The ChemQuest Group, Inc.

Closing Comments

Overview Comments

- The 2024 Global Paints and Coatings Market is estimated at **\$202 BN by value and 48.9 BN Liters** by volume, representing a 2.5% value and 0.4% volume increase vs. 2023.
- The **top 10** global coating manufacturers collectively represent **44%**, and the **top 100** coating manufacturers **80%**, of the global coatings market. Industry consolidation continues in order to expand global footprint, access new markets and technologies, and strengthen supply base.
- Global coating demand is expected to **grow above GDP** through 2024-2029, led by the building and construction, energy, and non-automotive transportation sectors – CAGR (2024–2029 forecast): **3.0% increase in volume; 5.8% increase in value**
 - 2029 Global Coatings demand forecast: **56.7 BN Liters valued at \$267 BN**
 - **Decorative Architectural**, the largest coating segment in each region, is expected to grow at **5% 2024-2029** value CAGR globally, driven by **population and urbanization growth** in APAC, LA, and MEA.
 - The **OEM** sector is expected to **grow at 5.8%** value CAGR due to strong **demand in Non-Auto Transportation and Powder coatings**.
 - The **Special Purpose** sector is expected to show the **highest growth of 7.0% value** CAGR driven by increasing **Protective Coatings demand for infrastructure, energy and mining**.
- Sustainability will be the greatest driver for technology development and coatings growth in major economies, characterized by:
 - Increasing **demand for waterborne and Powder Coatings** across all sectors, especially in APAC and EUR, as well as growing awareness in NA, due to stricter VOC and toxicity regulations. This will also impact nearshoring production needs in LA.
 - **Demand for energy-efficient and low/ambient-temperature-curable** coating systems
 - Demand for **ecofriendly, low-toxicity** antifouling Marine Coatings
 - **Growth in Protective Coatings for renewable energy and EV charging infrastructure**, especially in APAC and MEA

Closing Comments

➤ We Have a Bright Future

While the last 5 years have been uniquely challenging, the Coatings Industry proved its strength and resilience with continued success.

➤ Outperform our value chain participants, consistently delivering EBITDA margins >15% and ROICs ranging from 13-18%

- Low capital intensity <0.5% of revenue and high FCF conversion.
- Average ROIC in mid teens

➤ Continued to deliver cutting-edge innovations across a wide spectrum of mission critical applications

Serving applications with sustainable and higher functional needs (e.g., bio/renewable, conductive materials, sensors, e-mobility)

➤ Favorable industry dynamics:



- Low cost-in-use and specification-driven
- Differentiated portfolio of products and expanding array of services
- High-touch technical and application services requirements
- Important and high consequences-to-cost solutions
- High cost of failure
- Relatively high substitution costs and longer sales cycle

➤ Loyal/sticky customers



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	Non-Member SINGLE-USER ACCESS	ACA Member SINGLE-USER ACCESS	Corporate License MULTI-USER ACCESS
 Global Market Analysis	\$7,500 <i>Coming in 2025</i>	\$3,200 <i>Coming in 2025</i>	\$10,000 <i>Coming in 2025</i>
 Combo Deal U.S. Paint & Coatings Industry Market Analysis + Global Market Analysis	\$13,500 <i>Coming in 2025</i>	\$5,750 <i>Coming in 2025</i>	\$15,000 <i>Coming in 2025</i>

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Thank you!

Questions?

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Deep Industry Knowledge – Extensive Industry Relationships – Decades of Industry Experience

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