

State of the Coatings Industry 2024

Florida Paint and Coatings Association

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

Agenda

- ➔ **Introduction to ChemQuest**
- ➔ **Global Overview**
- ➔ **Coatings Industry**
 - Architectural Coatings
 - Residential – Single and Multi-family
 - OEM Coatings
 - Special Purpose Coatings
- ➔ **State of Florida**
Trends & Coatings Estimates
- ➔ **Technology Outlook**
- ➔ **Closing Thoughts**

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 &
Manufacturing
Efficiencies**



**M&A Advisory
Services**

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

Extensive Industry Relationships and Knowledge

Stakeholders across the value chain trust our thought leaders:

- **Team is more than 130 minds strong**, including ~ 48 Ph.D. chemists.
- **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.

Our Mission is **Enabling Our Clients to:**

- **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.

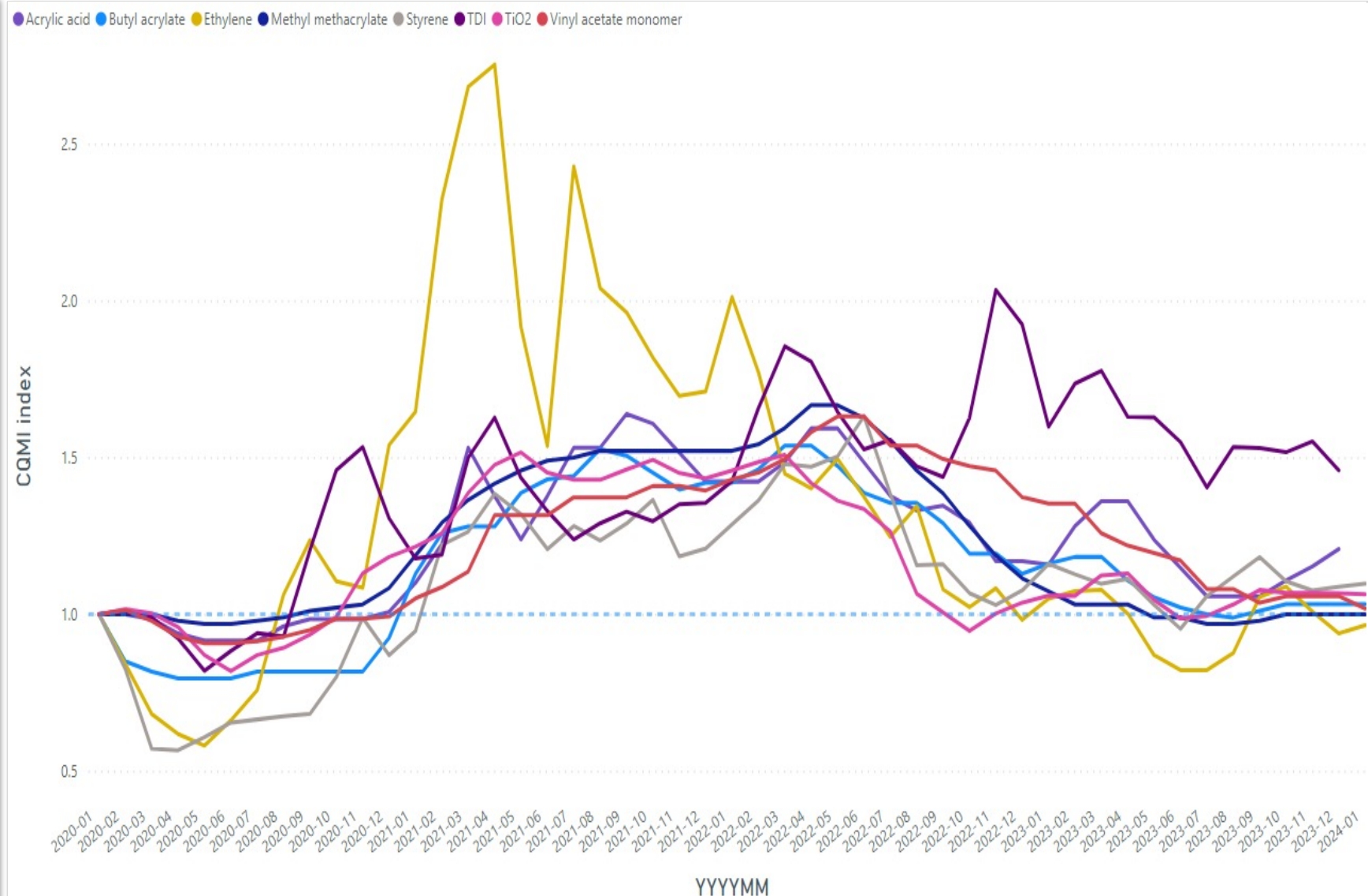
GLOBAL OVERVIEW

Global Coatings Outlook

- ➔ Interest rate pressure from Central Banks is expected to soften as inflation expectations improve.
 - After several better-than-expected inflation reports, the Fed is expected to cut rates in 2024, but how much and how quickly remains an open question.
 - U.S. Fed Chairman Powell has indicated the Fed has ended its current rate increase cycle.
 - U.S. dollar index has retreated from 20-year highs vs. other currencies, ameliorating forex headwinds for U.S.-based producers.
- ➔ Geopolitical uncertainties, as well as the macroeconomic impacts of Russia's war with Ukraine, remain but have had less impact than initially feared so far.
- ➔ GDP growth in the U.S. continues to be strong in the face of interest rate increases from the Fed.
 - The Q4 GDP growth reading was 3.3% (annualized rate), increasing hopes that the economy will avoid a recession.
- ➔ The raw material outlook is improving for coatings formulators.
 - Raw material costs and availability have improved since Q3 2022, and formulators expect their costs to continue to improve in 2024.
- ➔ 2024 Pricing and Production Outlook
 - Many coatings companies successfully pushed through double-digit price increases in 2022 and early 2023, recapturing lost margin.
 - Pricing on petroleum-based chemicals appears to have peaked along with oil prices for the current economic cycle.
- ➔ Coatings company M&A activity slowed considerably with increased interest rates but appears to be picking up in 2024.

Steep Increases in Raw Material Costs have Reversed (indexed to January 2020)

- Raw material costs were impacted from the Russia-Ukraine conflict starting in 2022. The current conflict in Israel is impacting the supply chain to Europe, as shipping is being diverted from the Red Sea and Suez Canal.
- However, the larger issue for formulators was shortages of key raw materials that limited shipments of coatings in 2021-2022.
- Shortages have reversed; raw material costs decreased in 2023 and are expected to be flat in 2024.



Industry Dynamics – 2024 vs. 2023

Supply chain recovery, normalizing margins, and demand slowdown



Threat of stagflation weakening – low demand with high inflation

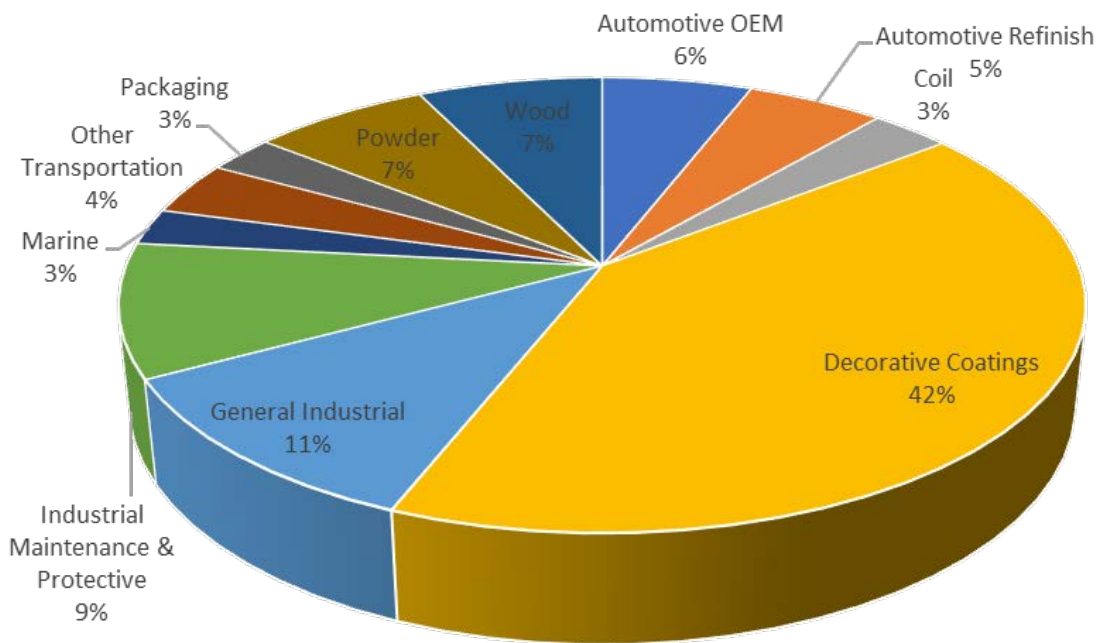
8 Major Trends are Expected to Impact Paint & Coatings Market

Major Drivers	Impact on the Paint & Coatings Market
Construction and manufacturing durable goods	Global construction market provides baseline level of growth for underlying market, but Manufacturing subdued - Forecast total construction \$ growth in real terms, 2019-2030: ~3% - Residential: ~2.5% - Non-Residential: ~3.5% - Manufacturing ambiguous - Global purchasing managers' index (PMI) for manufacturing indicated contraction for the 16th successive month (ticking down to 49.0 in December from 49.3 in November). Subdued Mfg. environment, a decline in global trade flows, renewed uncertainties about supply chains (especially concerns over shipping via both the Red Sea and the Panama Canal), and lingering inflation.
Disposable income in developing countries	Increasing consumer expenditure drives demand and willingness to pay in fast-growing markets for more premium paints & coatings and end-products where premium finishing is required. In the short-term, premium paints expected to continue growth, but at a slower pace relative to budget paints as new consumers enter the market and new demand is generated.
Regulation on environmental and safety standards	Health and safety regulations becoming increasingly stringent for chemicals. Developed markets already stringent on chemical safety regulations; expected to play out in emerging markets as they mature.
Materials substitution	Replacement of materials requiring paints and coatings to non-paint reliant materials, e.g., Arch/Deco: Fewer paintable surfaces. Industrial & Specialty: Clear & Color wrap films, larger windows in vehicles.
Market consolidation	Consolidation of paints and coatings formulators and raw material providers Paints and coatings formulators continuing to consolidate globally, with major players such as Sherwin Williams, PPG, AkzoNobel and Nippon driving M&A activity.
Consumer awareness of product safety	Increasing consumer interest in product safety (health and environmental) - End-consumer demand for low/no odor and VOC content expected to increase - Similarly, demand for environmentally safe P&Cs, beyond minimums required from legislators, amongst architects and construction firms expected to increase (e.g., LEED certification in commercial and residential buildings)
Labor shortages	Labor shortage leading to higher automation and use of robotics
Inventory management and relocation of supply chains	Just-in-Case inventory, reshoring/nearshoring for critical products and reduction of shipping cost

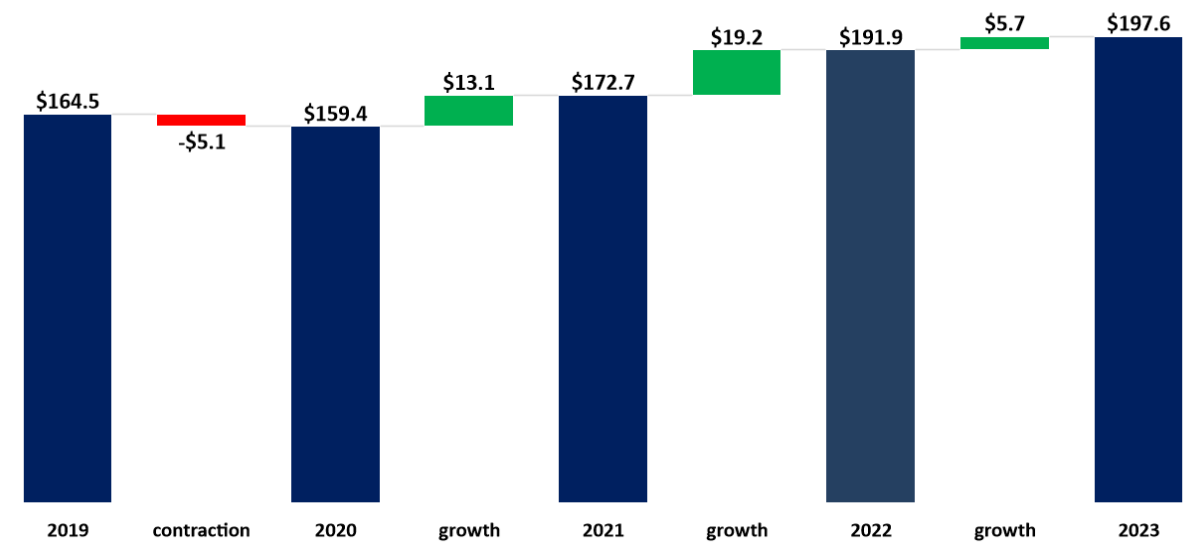
COATINGS INDUSTRY

Global Coatings Industry Revenue Up Due to Price Increases, While Volume has Stagnated

End Market Breakdown



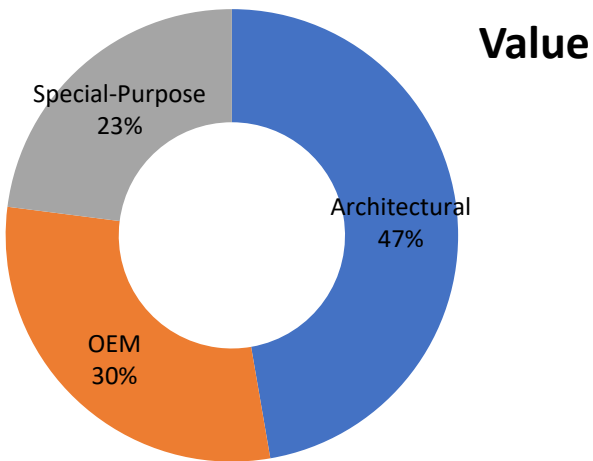
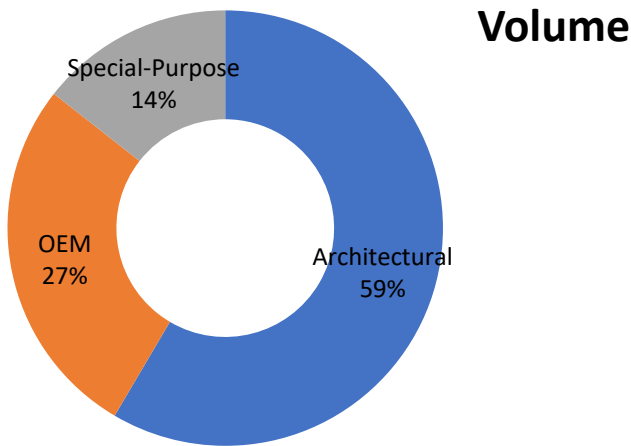
Value Recovered by the End of 2021 – 2019-2023 (\$USD billions)



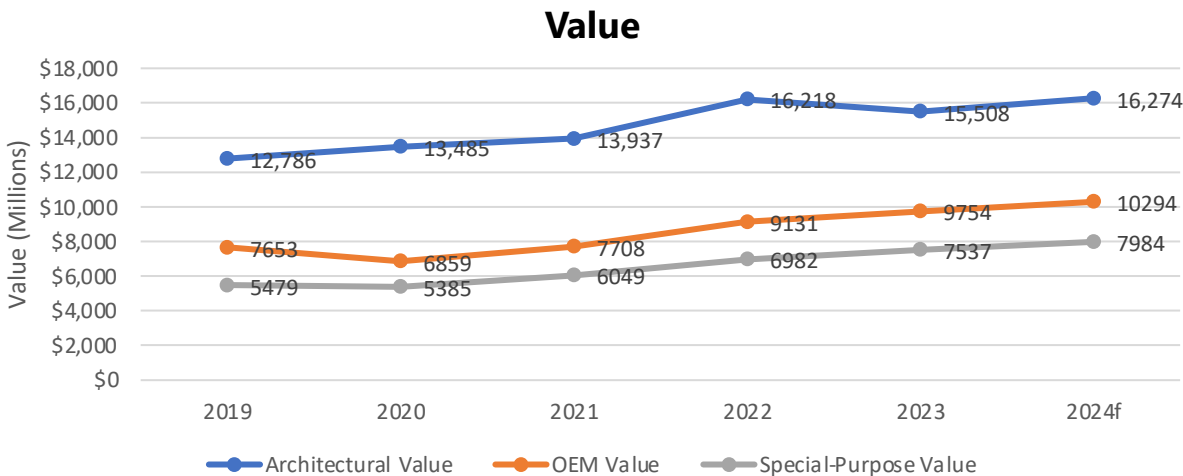
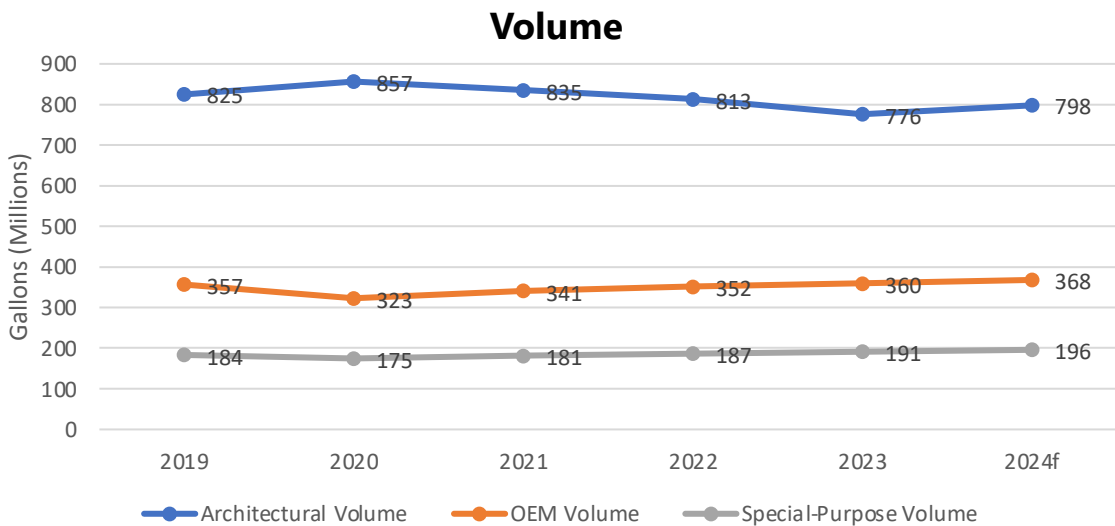
Source: ChemQuest, IPPIC

U.S. Coatings Demand in 2024 – \$34.5B and 1.36B Gallons

Market Segment Share



Market Segment Performance Trend



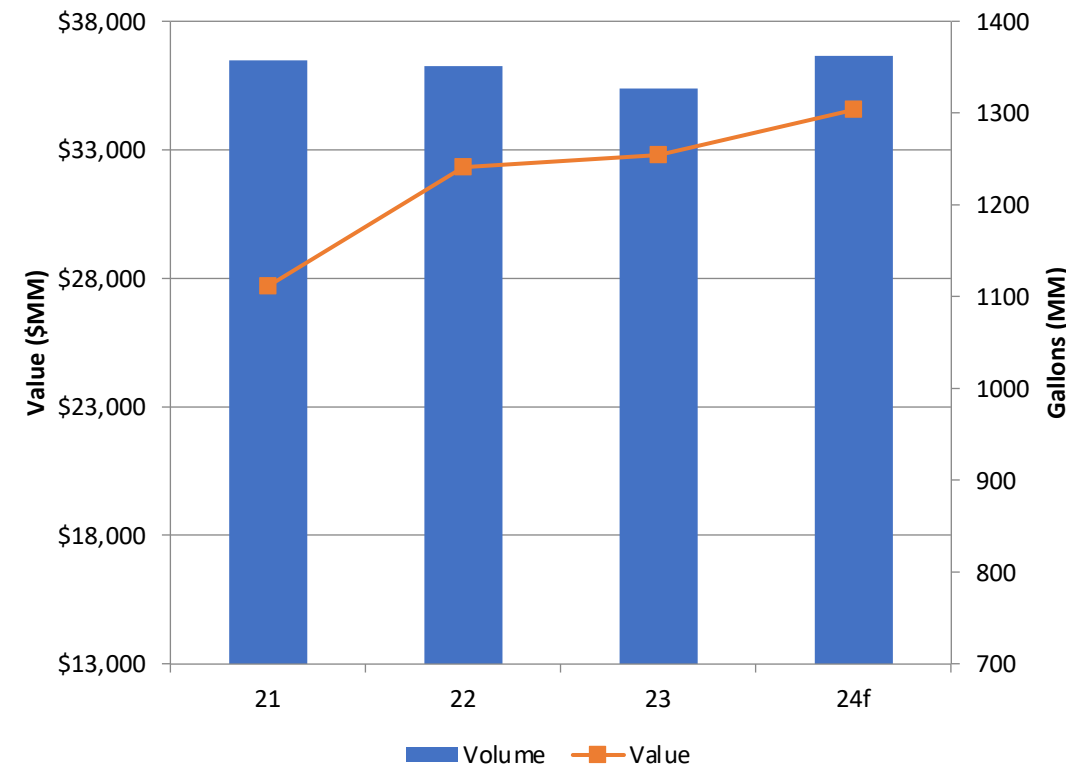
Source: U.S. Census Bureau, The ChemQuest Group, Inc.

2023 & 2024f – Diverging Volume and Value Growth Rates

Overview

- Industry contracted slightly, -1.8% yr/yr in 2023 in volume terms, while industry value increased 1.4% yr/yr, as formulators faced challenges but were able to raise prices. However, margin loss continued due to increased labor and raw material costs.
- ChemQuest forecasts an overall increase in volume of 2.6% in 2024 and an increase in terms of value of 5.3%, as coatings manufacturers see margin normalization from a 5-year industry low in 2022.
- Gross margins increased in 2023, with lower raw material input costs and price increases.
- U.S.-based coatings firms faced pressure from the negative effect of a strong USD, but that has improved recently as the dollar has weakened.
 - Some tailwinds around new residential construction, increased infrastructure spending, and the likely end of the Federal Reserve rate raising cycle

2024f = \$34.5B and 1.36B gals



CONFIDENTIAL

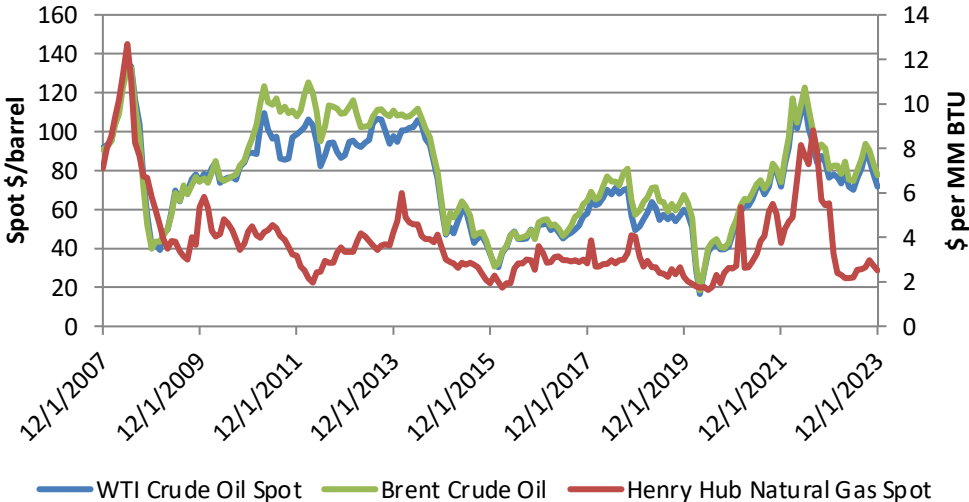
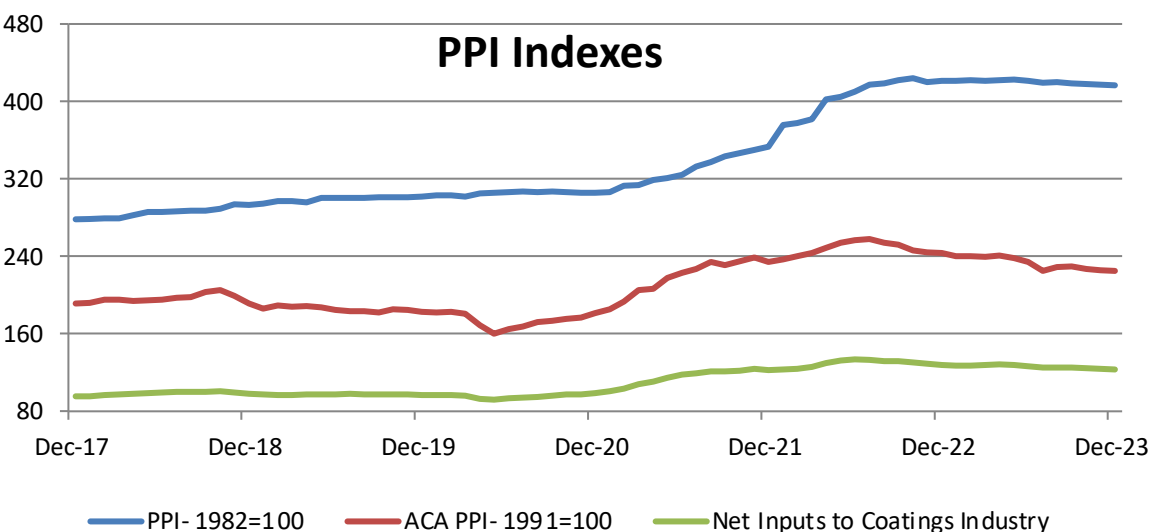
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U.S. Coatings Market

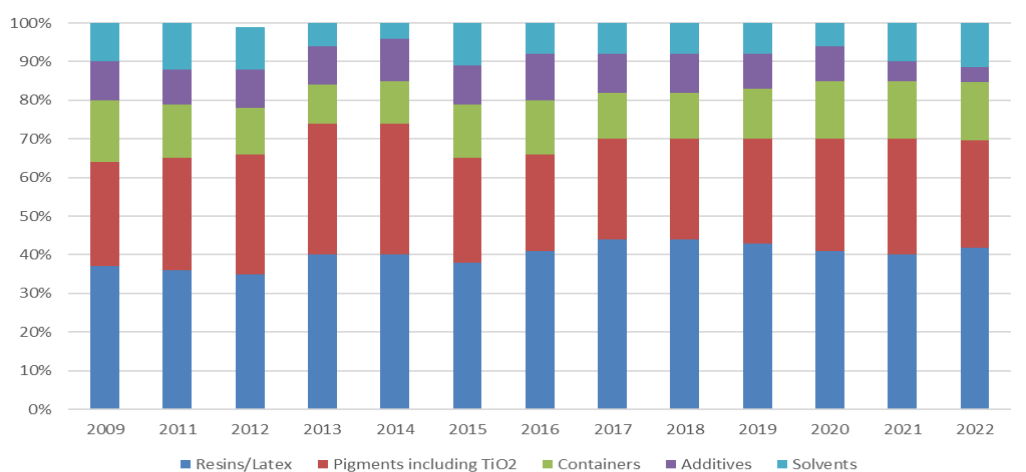
Overview

- Our analysis shows that each \$10 increase in Brent crude results in a 3% increase in overall costs to coatings producers.
- Industry participants expect to see raw material and shipping input costs to continue decreasing on average for 2024: Margin declines seen in 2022 are likely to be the low point of the cycle
- Participants continue to be disciplined in pricing: The industry is expected have difficulty pushing additional price increases in 2024 as input costs continue to decline

PPI Indexes



Sherwin Williams Raw Material Costs

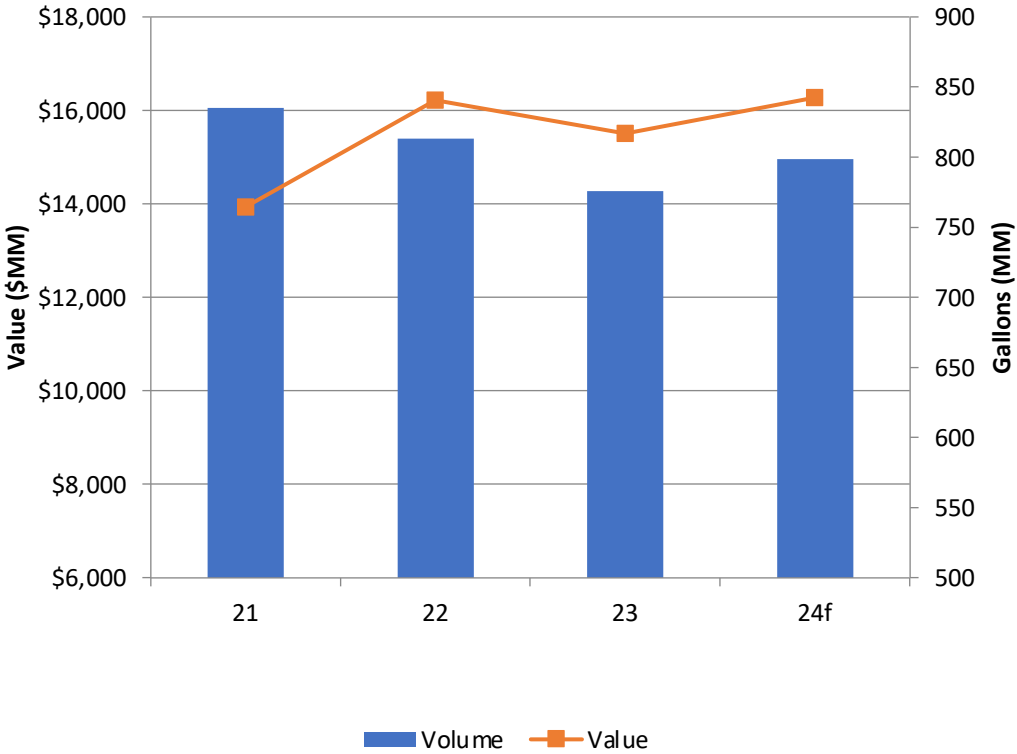


Source: ACA, Sherwin-Williams, U.S. Census Bureau, The ChemQuest Group, Inc.

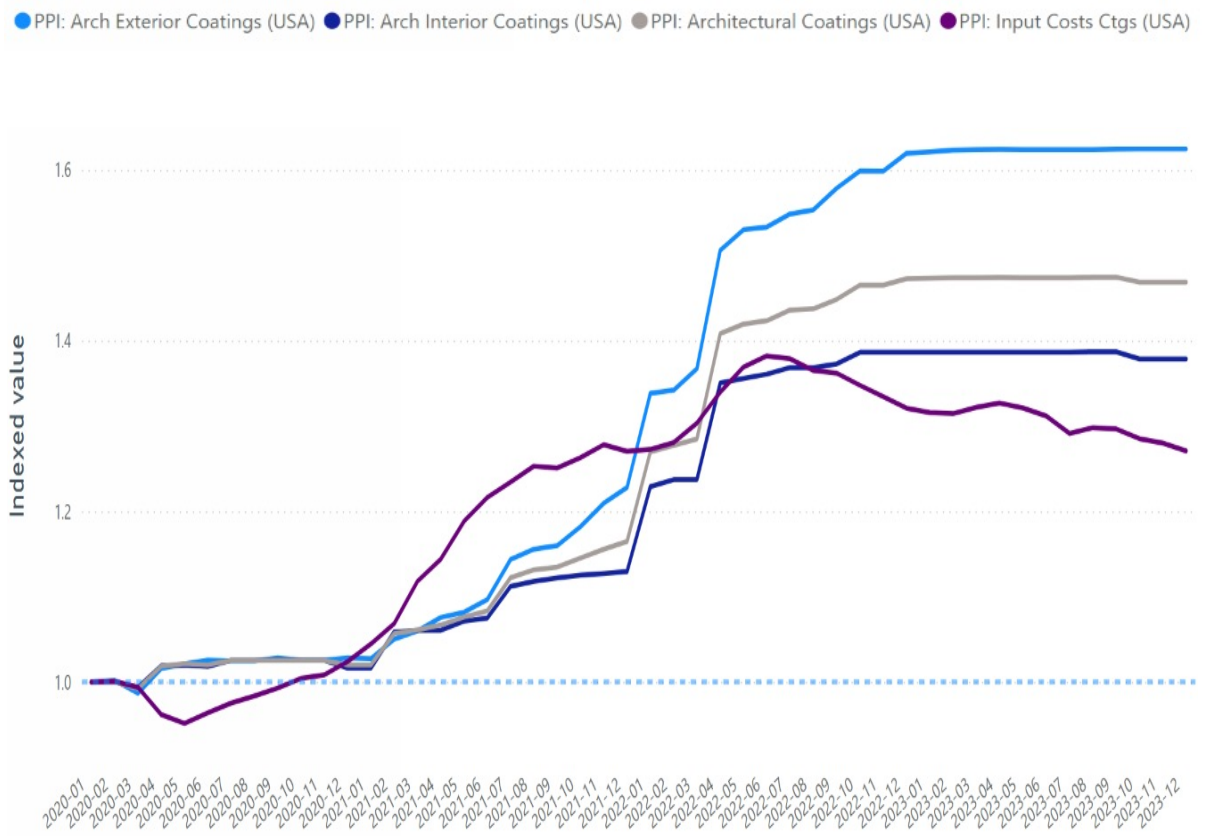
Architectural Coatings

Architectural Coatings – ~60% of the Total U.S. Market

Historical Volume & Value Trends



Arch PPIs Indexed – dramatic increases turned to stability in 2023



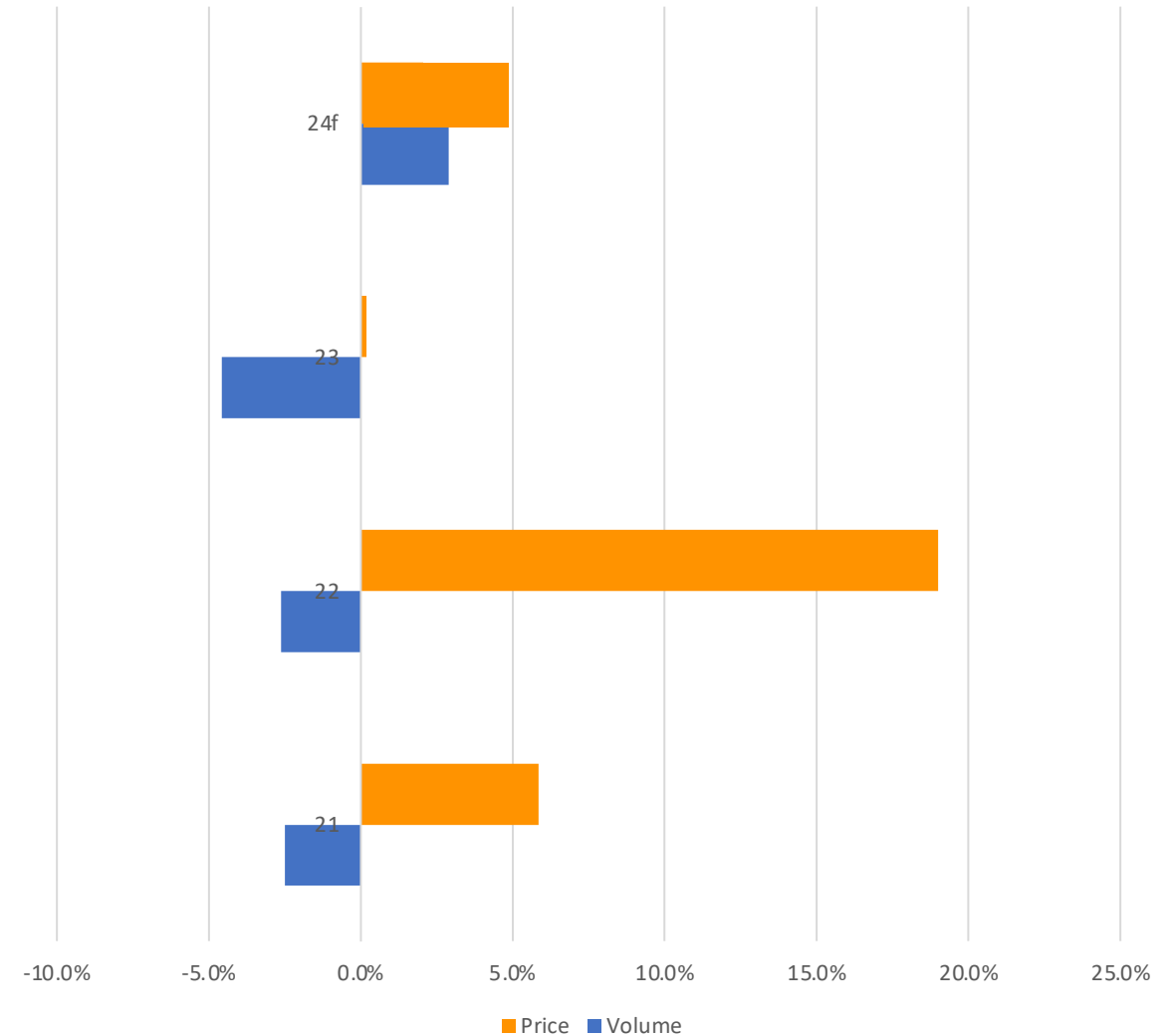
Source: BLS, Coatings TraQr®, The ChemQuest Group, Inc.

Architectural Coatings – 2023 and Outlook for 2024

Overview

- ➔ Preliminary estimate is that volume was down 4.6%, while value decreased 4.4% as existing home sales ended the year at their lowest level since 1995
 - Volume is expected to increase 3.8%, with value up 4.9% in 2024.
- ➔ Low inventory and turnover of existing housing, partly because homeowners are reluctant to sell as most have very low mortgage rates on their current homes
- ➔ New and existing home sales
 - 688,000 new home sales and 4.09M existing home sales in 2023. New home forecasts are for a 12% increase in 2024. Home sales forecasts are only slightly higher.
- ➔ Household formation growth a positive
 - Work from home is still persistent in most industries despite efforts to have workers return to the office
- ➔ Housing price appreciation accelerates
 - Latest Case-Shiller indicated a >20% increase in single-family home prices over the last 12 months

2023 = \$16.4B and 820MM gals



Source: U.S. Census Bureau, The ChemQuest Group, Inc.

Current Industry Trends and Drivers

Overview

→ Real estate and construction uneven in 2023

- Housing market activity remained weak overall, thanks to [high mortgage rates](#), [elevated home prices](#) and [constrained housing inventory](#)—a trifecta of [headwinds](#) perpetuating the housing affordability crisis. At the same time, uncertainty of ongoing inflation, and [impending recession](#) still hang in the air.
- New homes forecast to increase 12% in 2024. Existing home sales are expected to increase in 2024, from a 29-year low.
- Non-residential held up better, but commercial construction slowed in the face of the highest interest rates the market has seen since 2008.

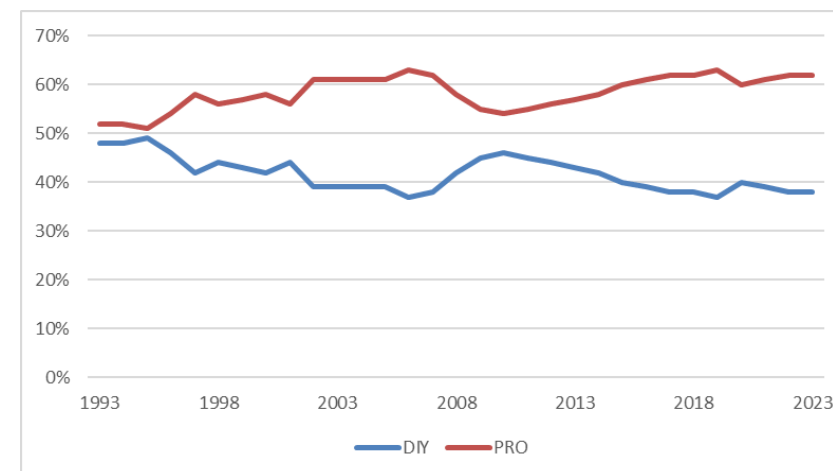
→ Remodel and refinish slowed in 2023, projected to decline in 2024

- The Joint Center for Housing Studies reported a slowdown in the pace of homeowner spending during 2023.
- Reduced home sales will still generate **substantial remodel and refinish** for stay-in-place homeowners.
- Low existing turnover persists as homeowners are less likely to move since the vast majority have low-interest mortgages in place.

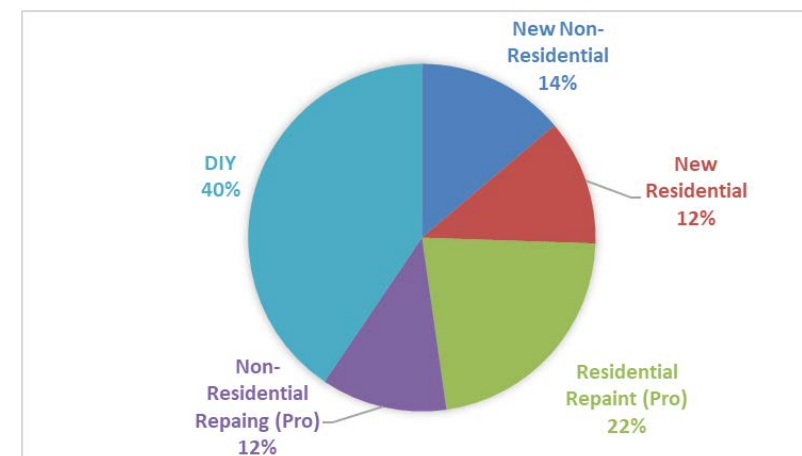
→ Contractor-applied paints increased in 2023 after temporary reversal in first half of 2020

- Increased focus by Lowe's and Home Depot on products and services for professionals
- Market growth driven by contractor volume
- While the U.S. pro-applied paint market is highly fragmented, the U.S. mass merchandise channel is highly concentrated.

PRO vs. DIY

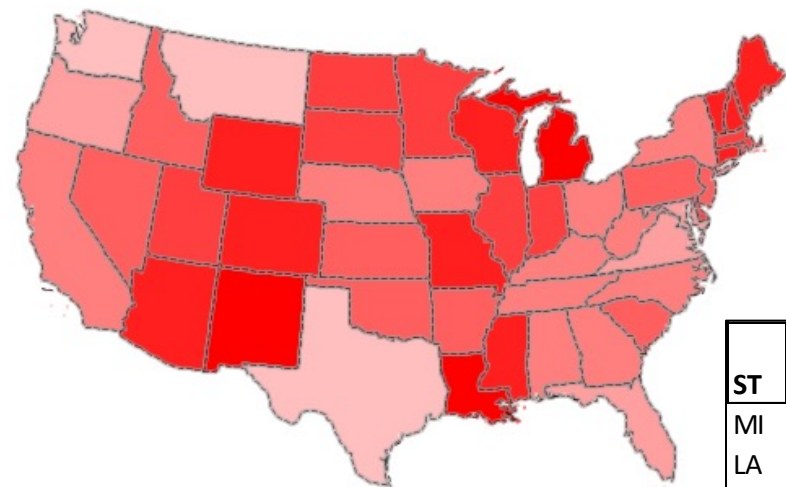


Architectural Distribution by Volume, 2023



Volume Decline 2021-2023 by U.S. State

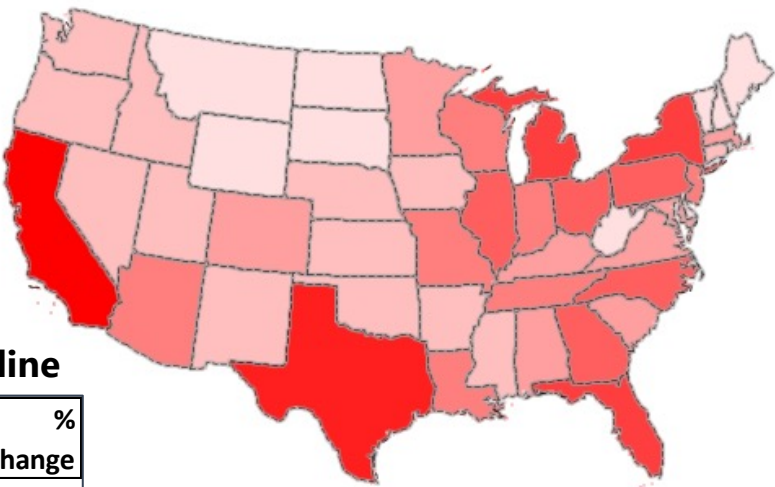
Architectural Coatings Volume % Change, 2021-2023



% Volume Loss

ST	Gallons 2023	Volume ^ 2021-2023	% Change
MI	22.18	(2.23)	-9.1%
LA	12.32	(1.11)	-8.3%
NM	3.78	(0.34)	-8.2%
MS	6.92	(0.56)	-7.5%
CO	11.47	(0.91)	-7.4%
CT	7.04	(0.55)	-7.2%
MO	15.20	(1.14)	-7.0%
VT	1.45	(0.11)	-7.0%
WI	13.24	(0.99)	-7.0%
ME	3.12	(0.23)	-6.9%
NH	2.98	(0.22)	-6.9%
WY	1.11	(0.08)	-6.9%
AZ	17.64	(1.29)	-6.8%

Architectural Coatings Volume Change, 2021-2023

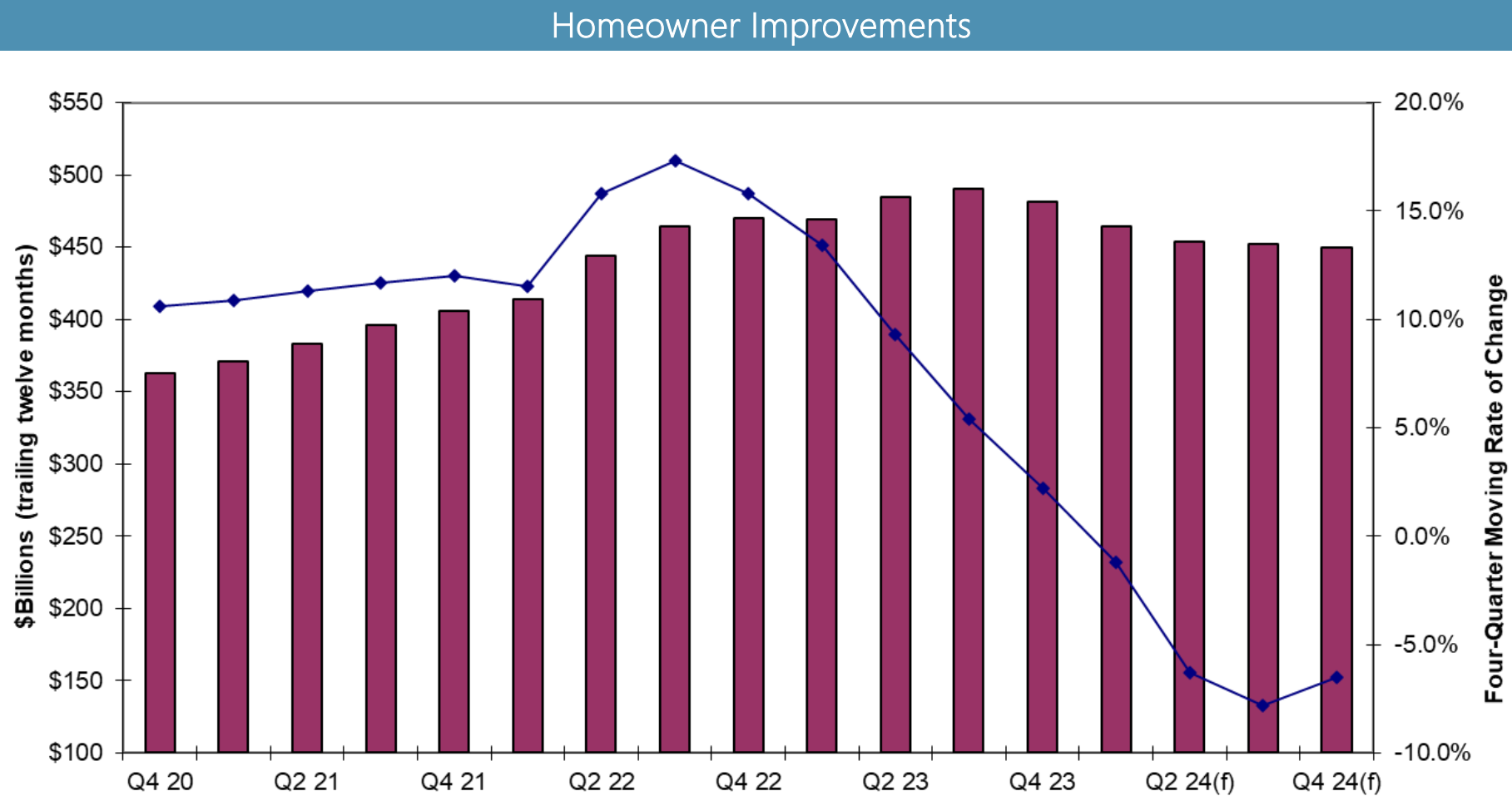


Gallon Volume Decline

ST	Gallons 2023	Volume ^ 2021-2023	% Change
CA	68.19	(3.86)	-5.4%
TX	108.08	(3.36)	-3.0%
FL	64.03	(2.73)	-4.1%
NY	43.55	(2.43)	-5.3%
MI	22.18	(2.23)	-9.1%
IL	26.35	(1.82)	-6.5%
PA	30.46	(1.82)	-5.6%
OH	28.60	(1.65)	-5.4%
GA	26.72	(1.53)	-5.4%
NC	28.04	(1.52)	-5.1%

Remodeling Outlook

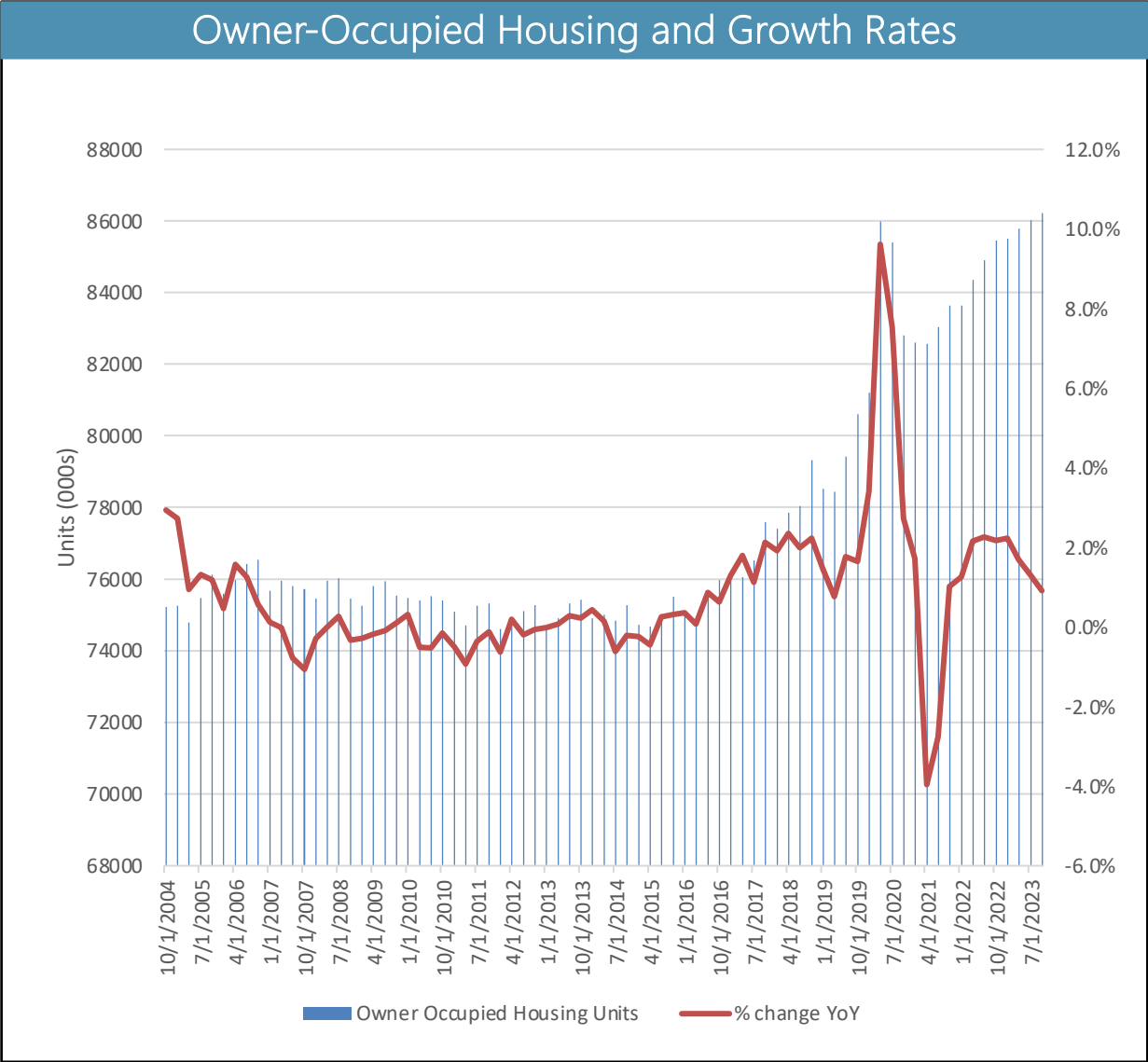
Spending is expected to contract in 2024 for the first time since 2010



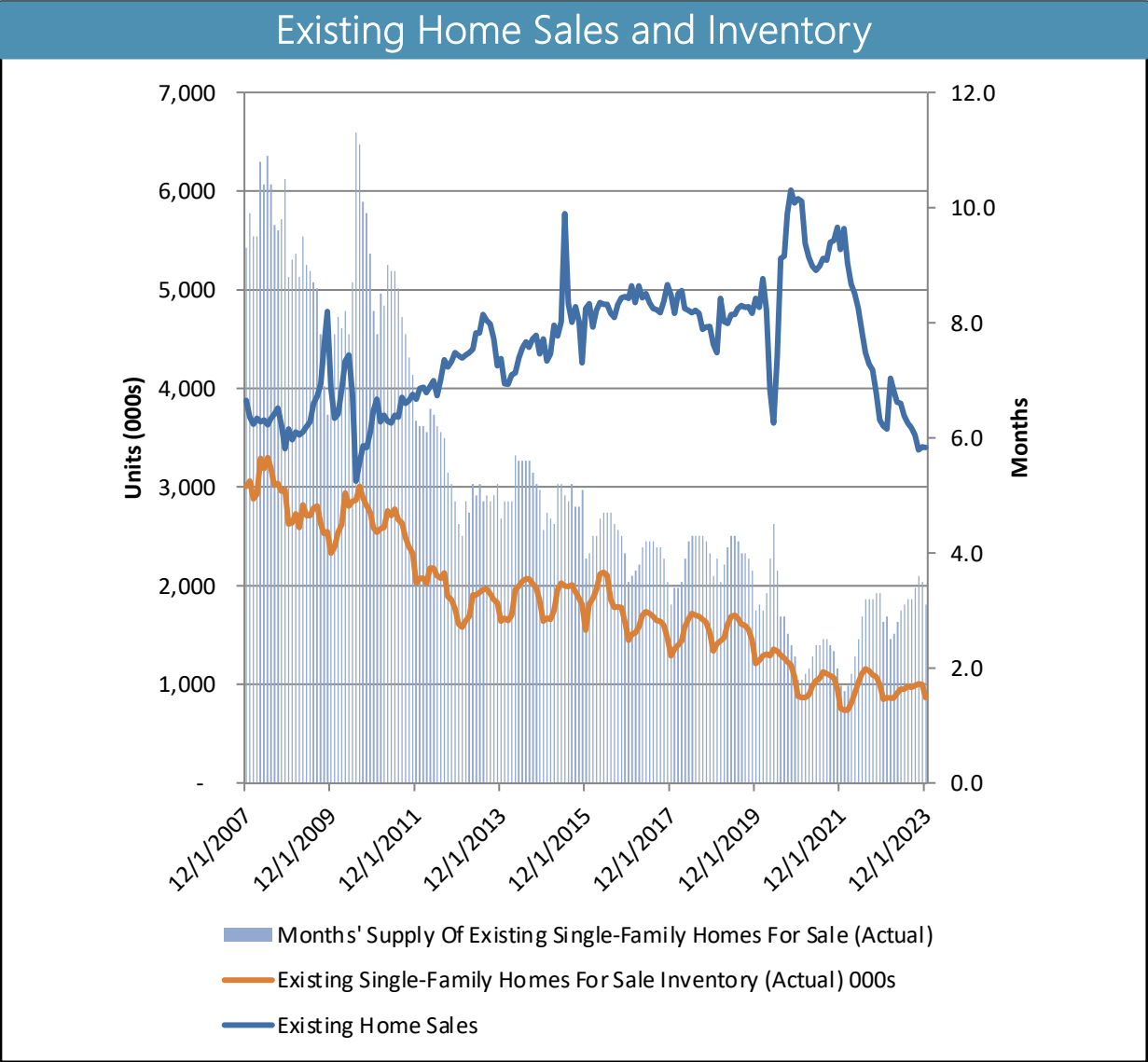
Residential – Single and Multi-Family

Supply Shortfall vs. Household Formation

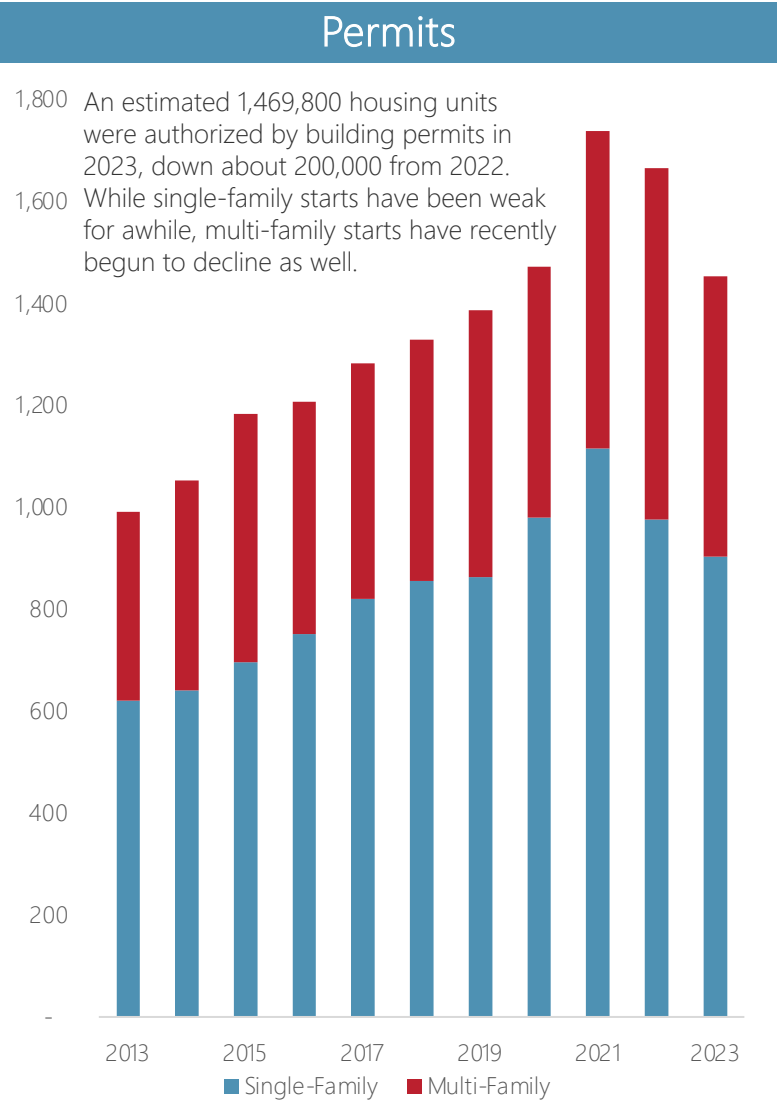
Existing inventory continues to be near historical low



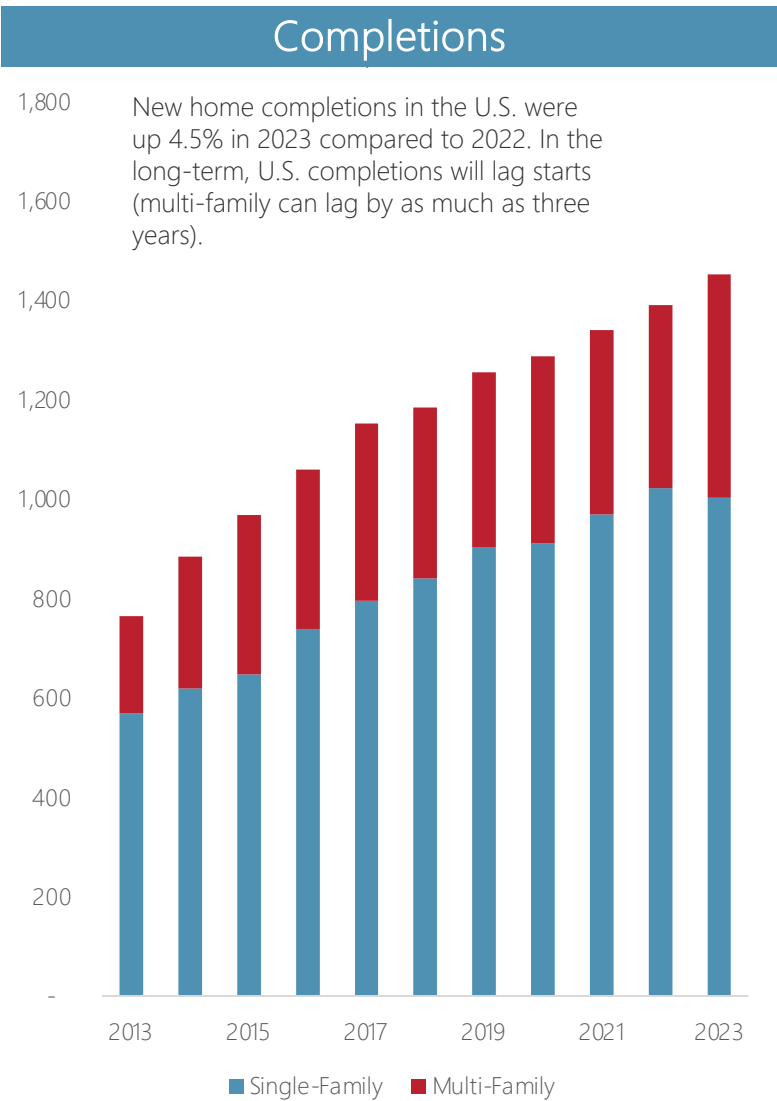
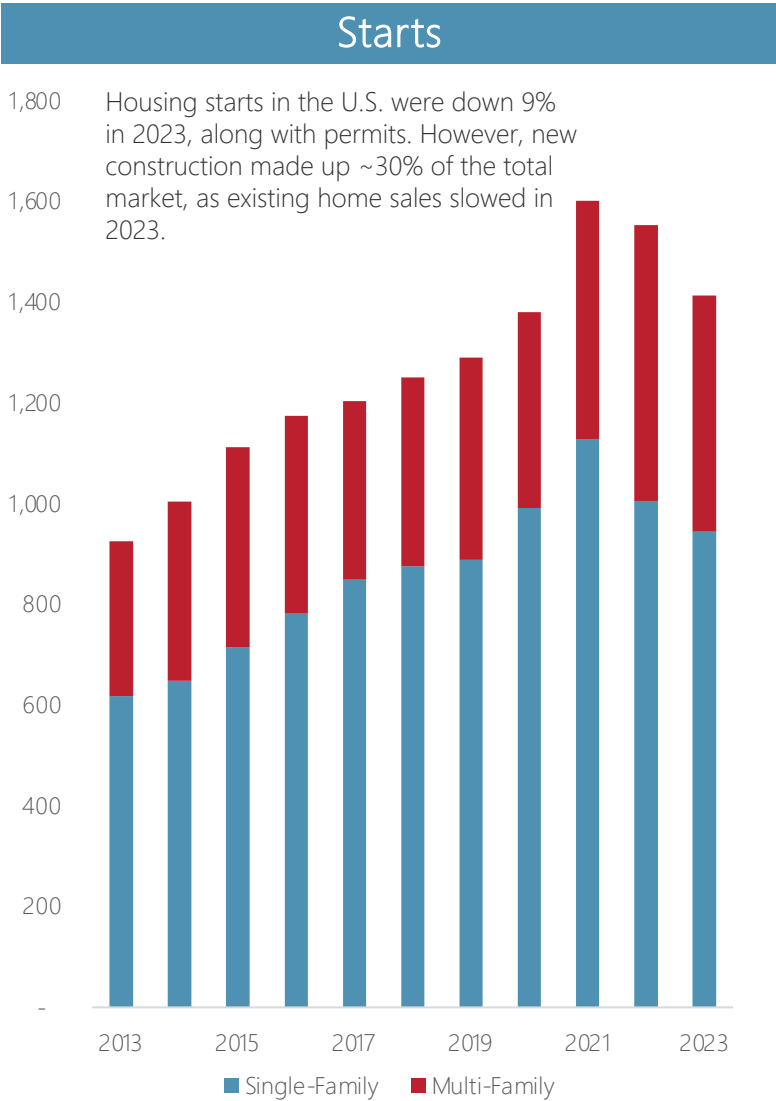
Source: U.S. Census, Federal Reserve



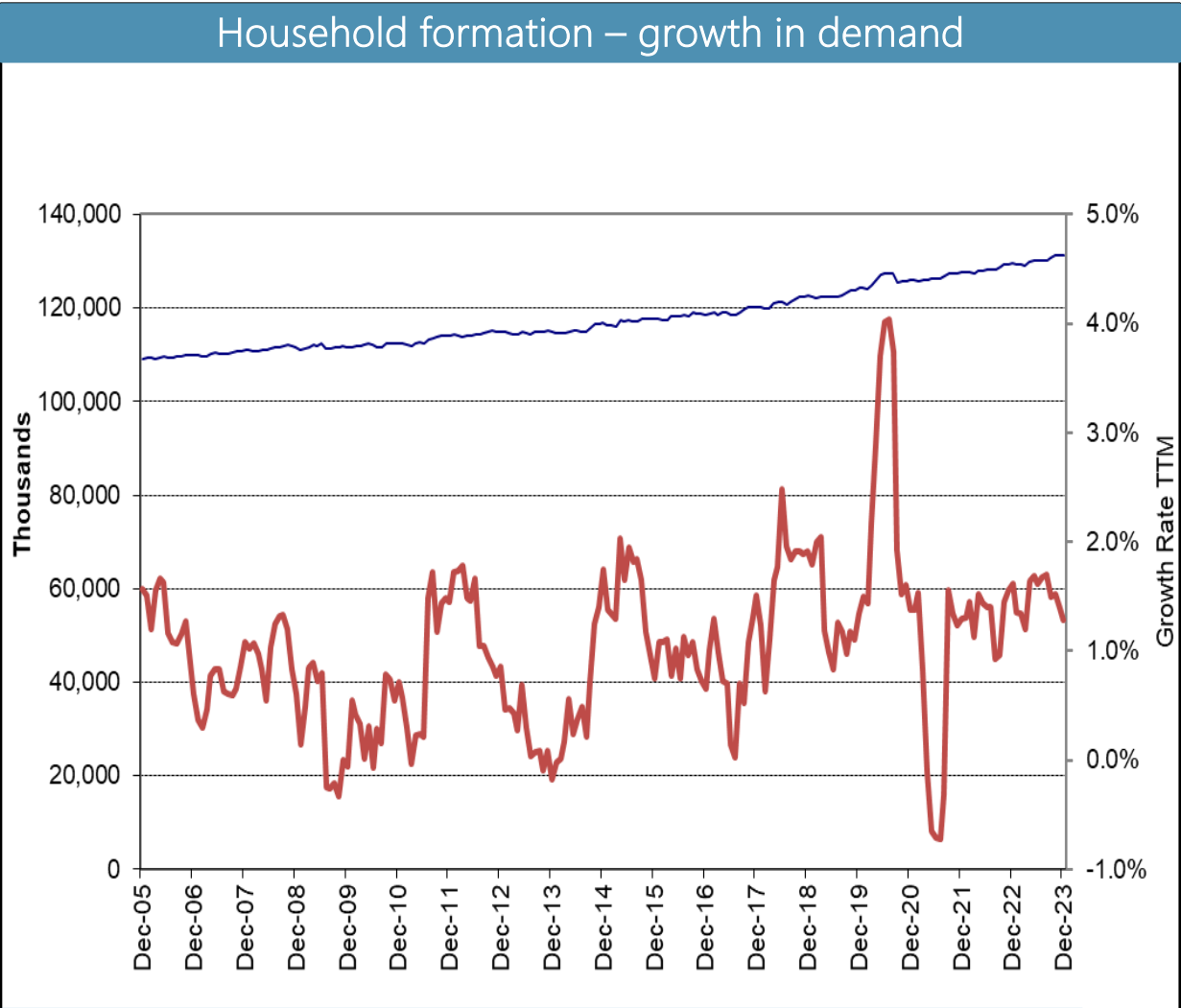
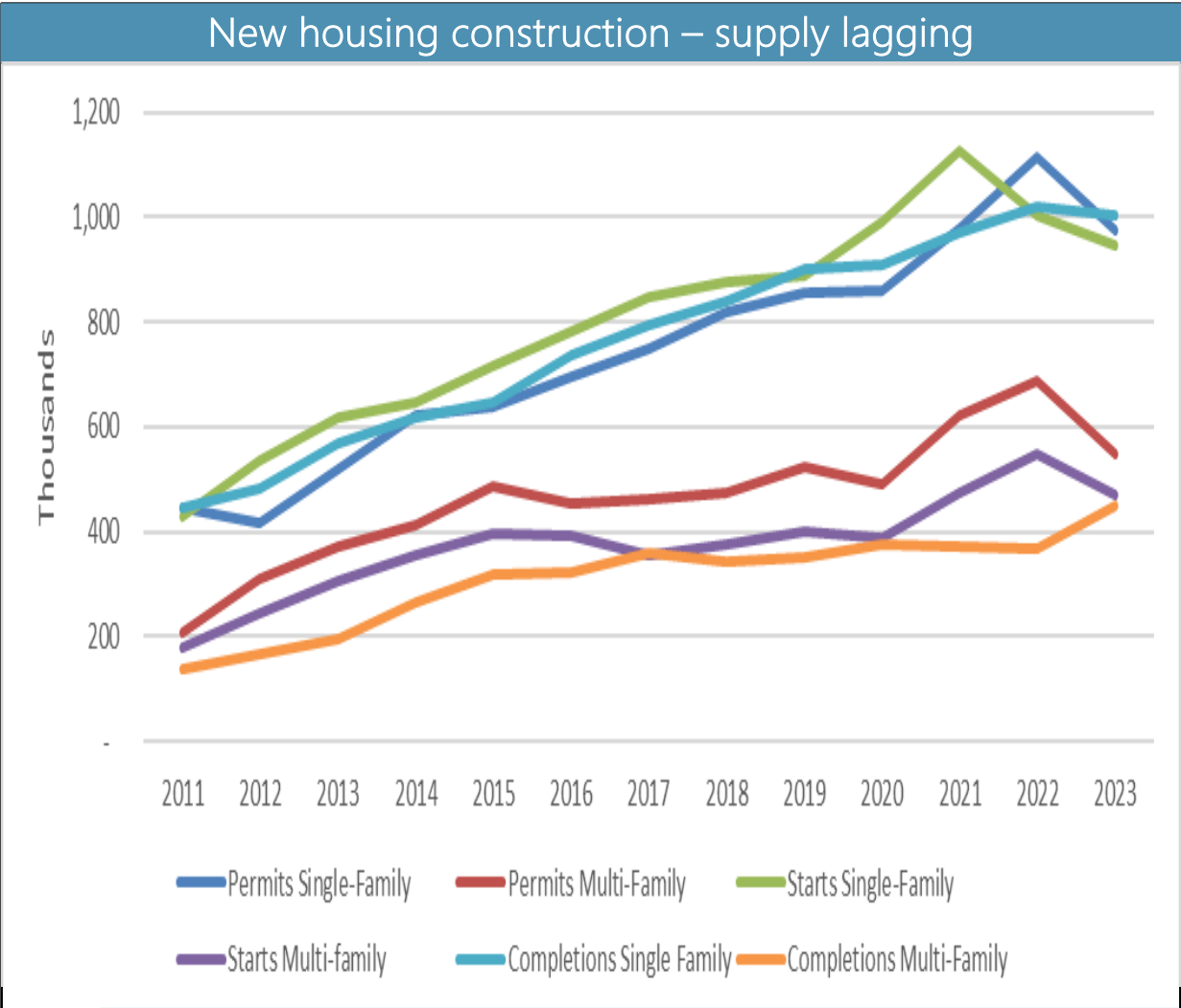
U.S. Housing Downturn – Not Out Yet



Source: U.S. Census Bureau, Calculated Risk



New Housing Construction Lagging Household Formation Growth in Recent Years

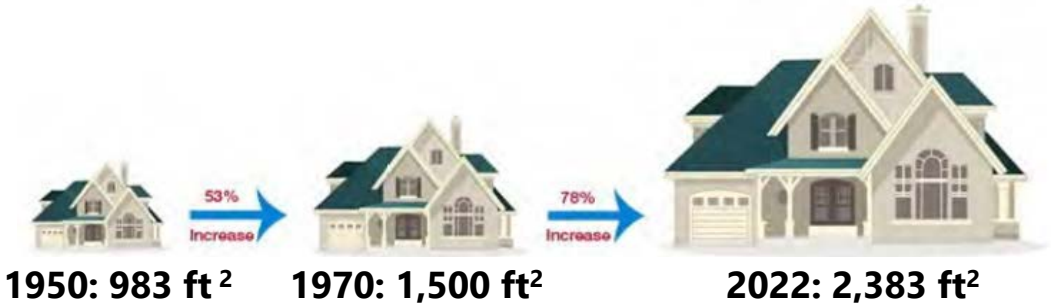
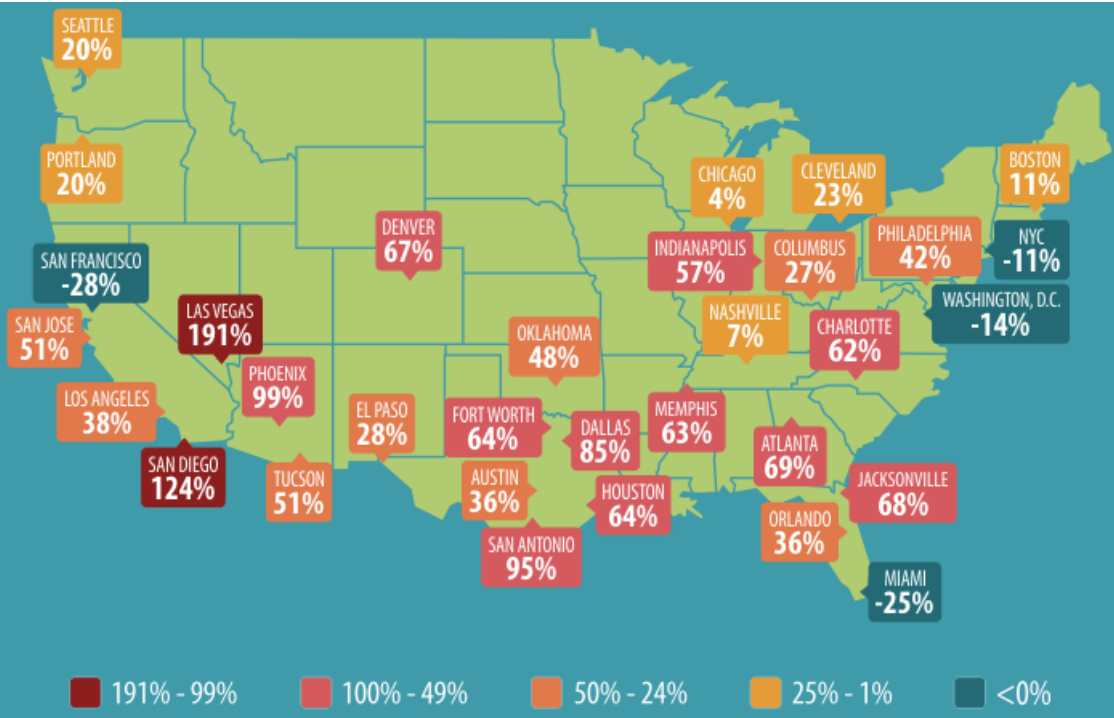


Multi-family construction has outpaced that of single family over the last few years.

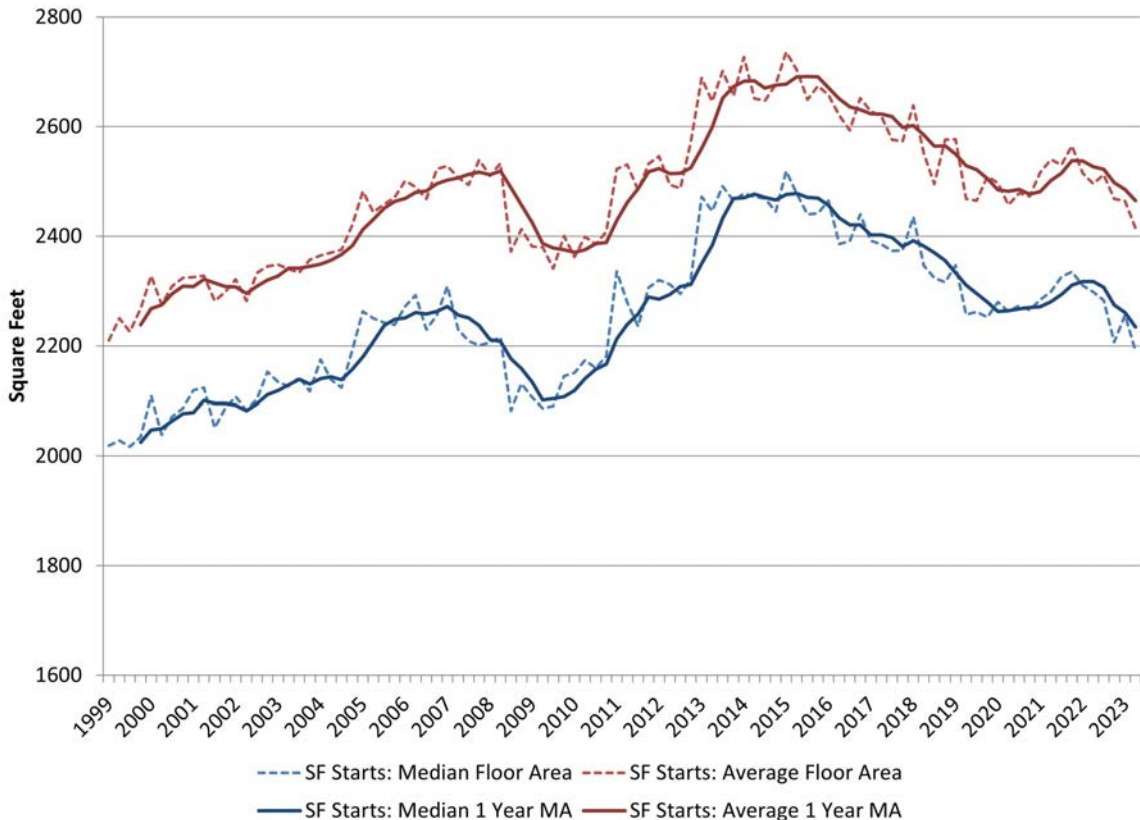
Source: U.S. Census Bureau, National Association of Realtors

Residential Square Footage has been Increasing Since 1999 but has Declined Recently

74% Larger Home Builds on Average over past 20 yrs

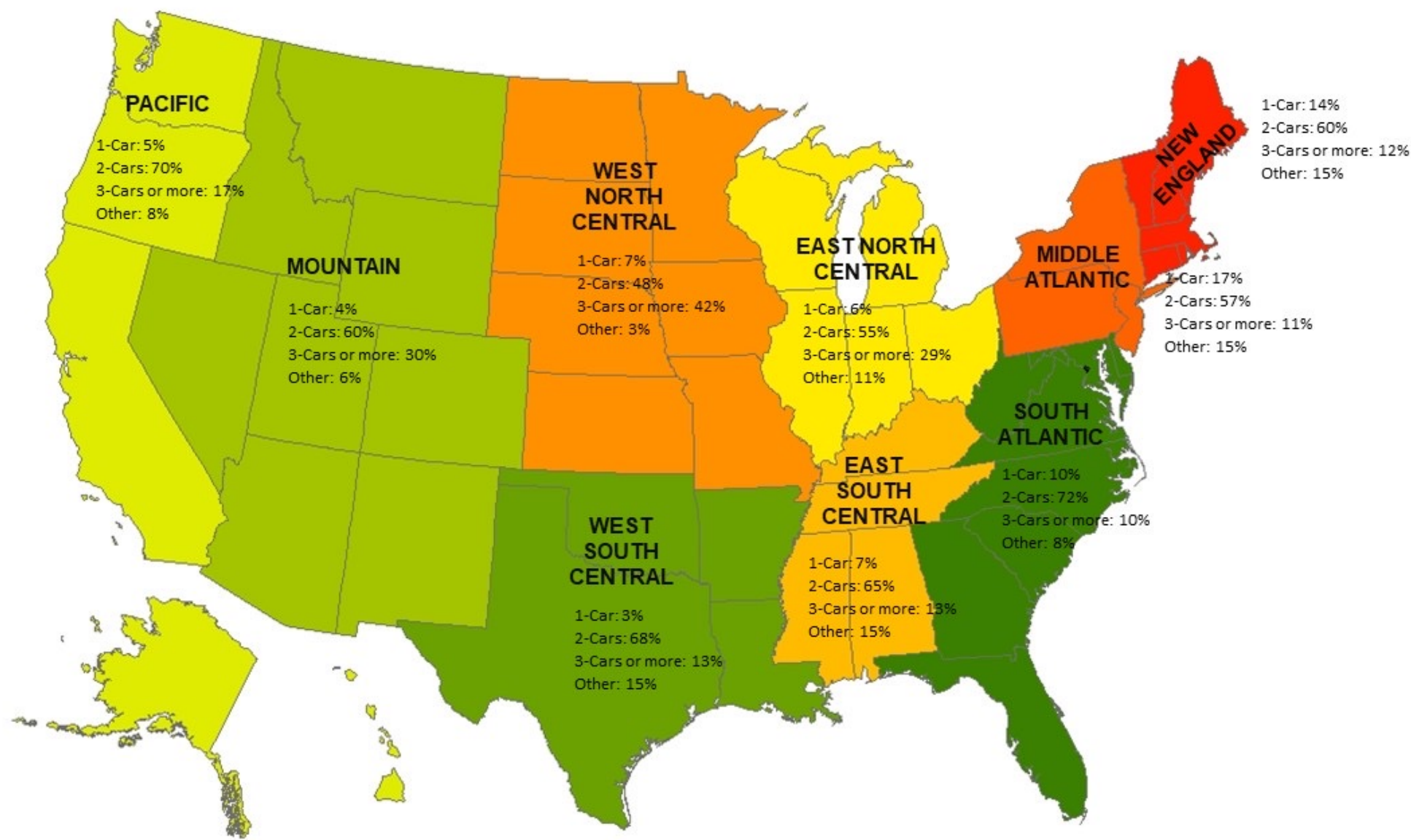


Size of New Single-Family Homes, 1999 to 2023



Source: Dodge Data & Analytics U.S. Building Stock Data, Harvard Joint Housing, EIA, U.S. Census

The 2-Car Garage was the Largest Share of Completed Homes in All Regions

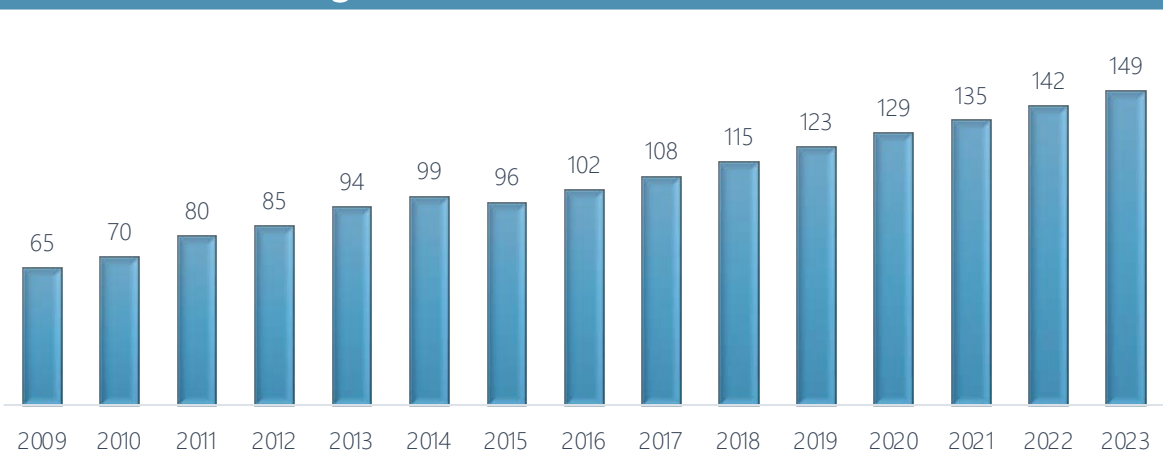


Source: NAHB

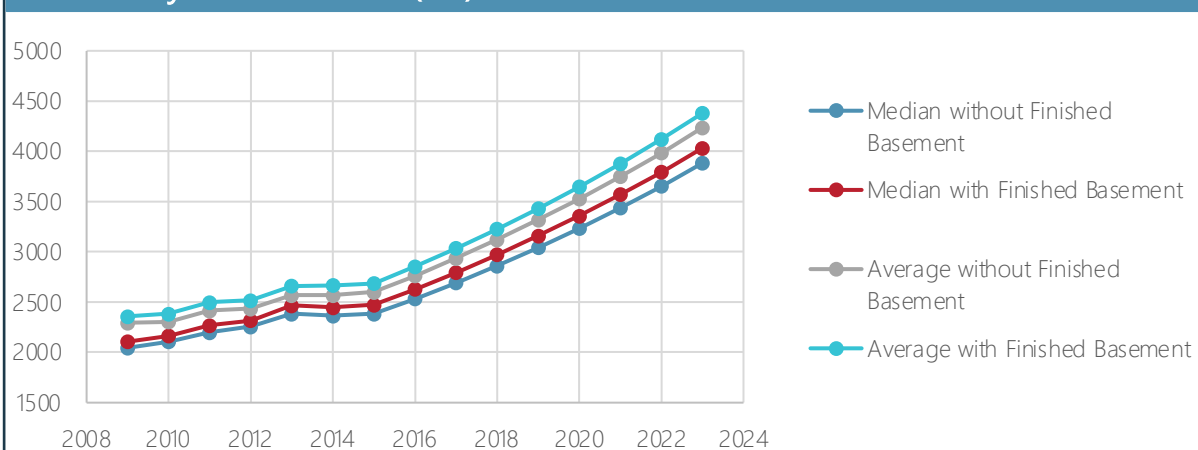
Finished Basement Size is Increasing

Favoring the use of coatings and wood finishes over carpet

Average Area (ft²) of Finished Basement



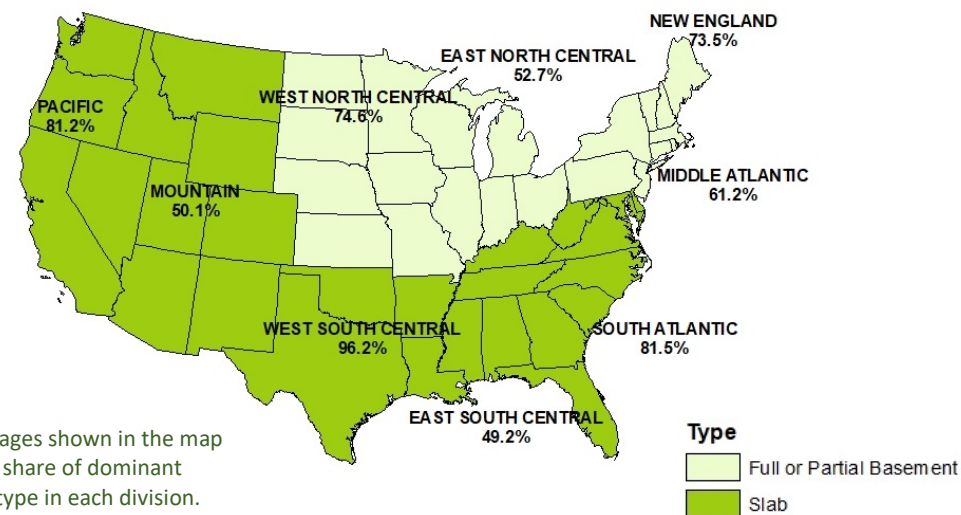
By Home Size (ft²) – Finished Basements Preferred



Source: NAHB, HUD, Census

~30% of All Homes = Full/Partial Basement

Most Commonly Used Foundation Type by Division
New Single-family Homes Started in 2022



Homes in colder areas, where building codes normally require foundations built below the frost depth, are predominately constructed with full or partial basements.

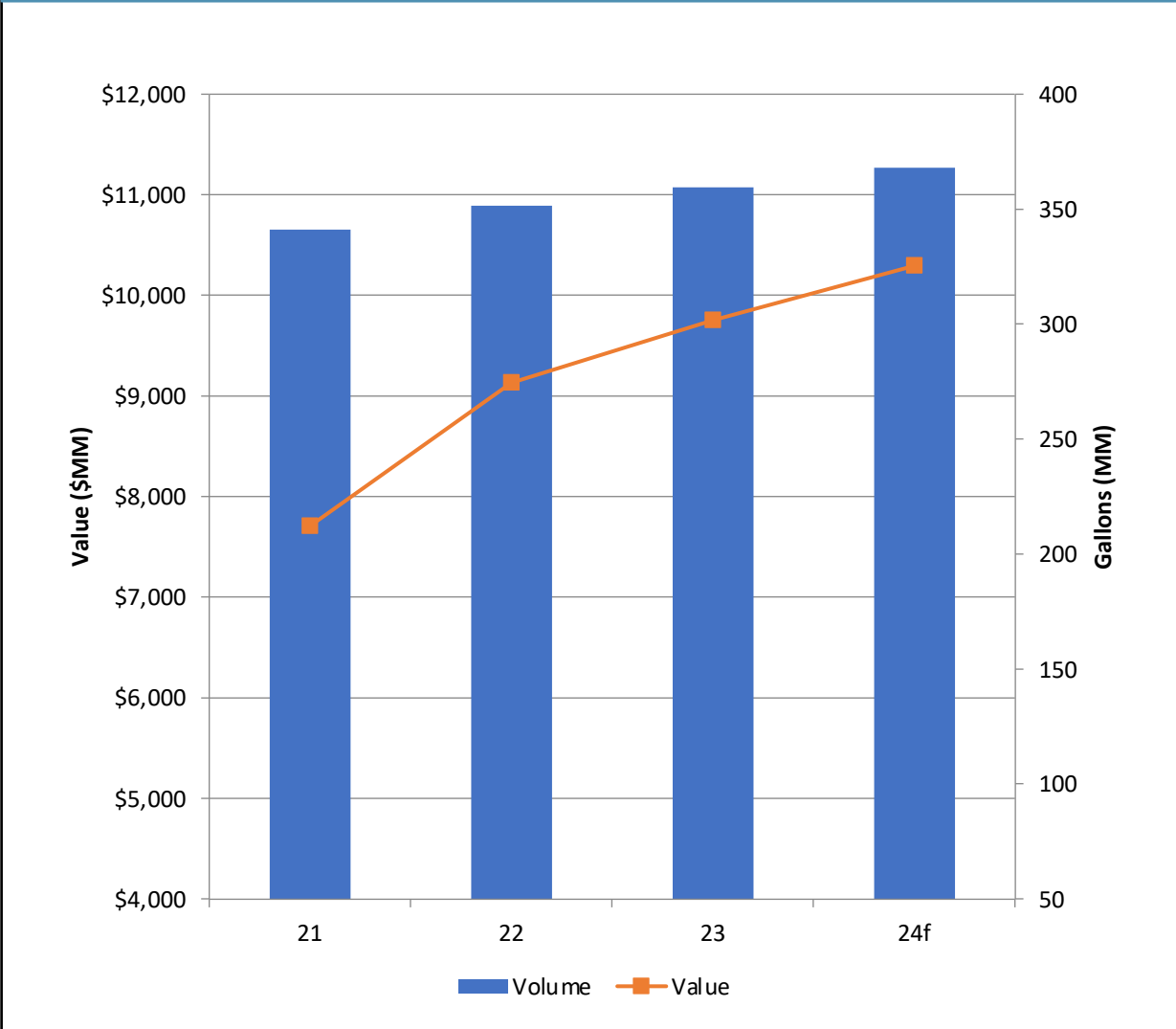
The division with the highest share of full/partial basements in new homes is New England, followed by West North Central, and Middle Atlantic.

In these divisions, full/partial basement foundations offer additional finished floor areas at a marginal increase of construction cost.

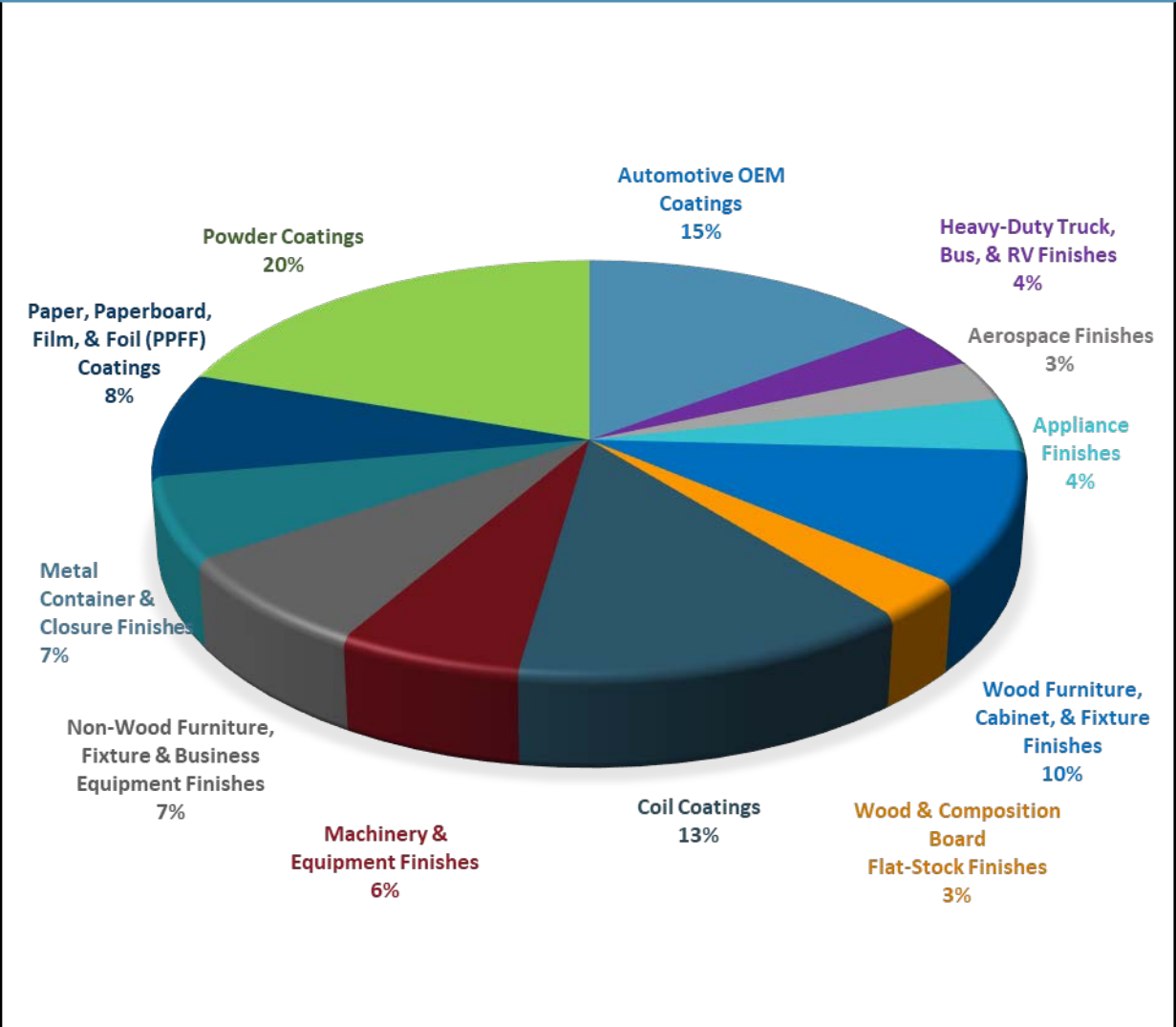
OEM Coatings

Industrial OEM Coatings – Growth Trends and End-Market Segments

Historical Volume & Value Trends



End-Market Segment Share



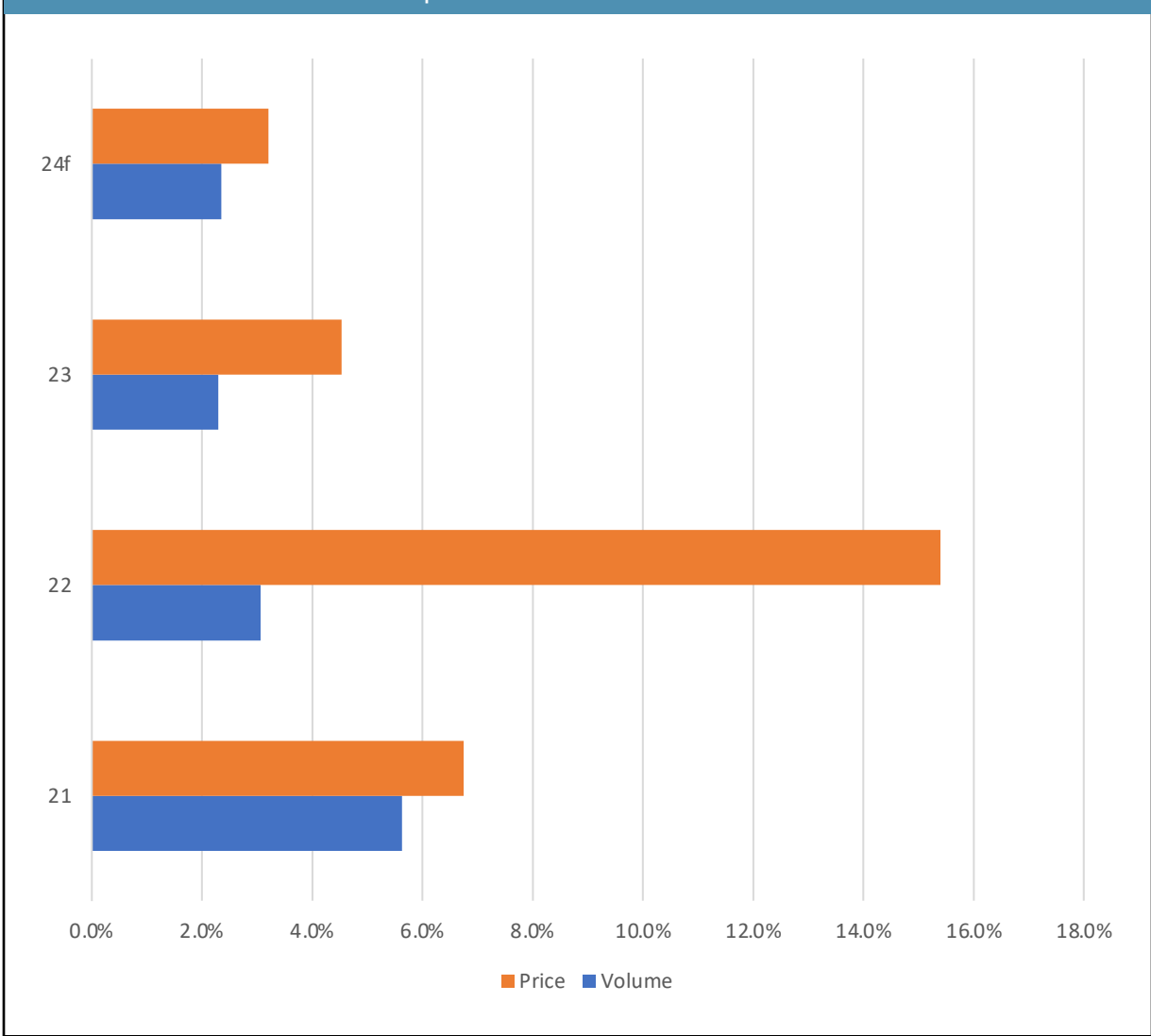
Source: U.S. Census Bureau , The ChemQuest Group, Inc.

OEM Coatings – 2023 and Outlook for 2024

Overview

- Volume was up 2.3% and value was up 4.5% in 2023.
- Transportation-related coatings make up about 1/3 of the market in terms of value, with the remaining 2/3 split among durable goods.
- ChemQuest forecasts volume to increase 2.5% in 2024 and value to increase 3.2%.
 - Value increases are the result of a mix change, as higher value segments like auto OEM expand, as well as price increases
- Light vehicle sales in the U.S. were 15.46 million in 2023, a 12% increase from 2022 and the most since 2019.
- Durable goods demand has slowed, as consumers have favored spending on services instead of goods, similar to during the pandemic.
- Slowing demand in consumer electronics, food and beverage, and packaging

2023 = \$9.8B and 360MM Gallons

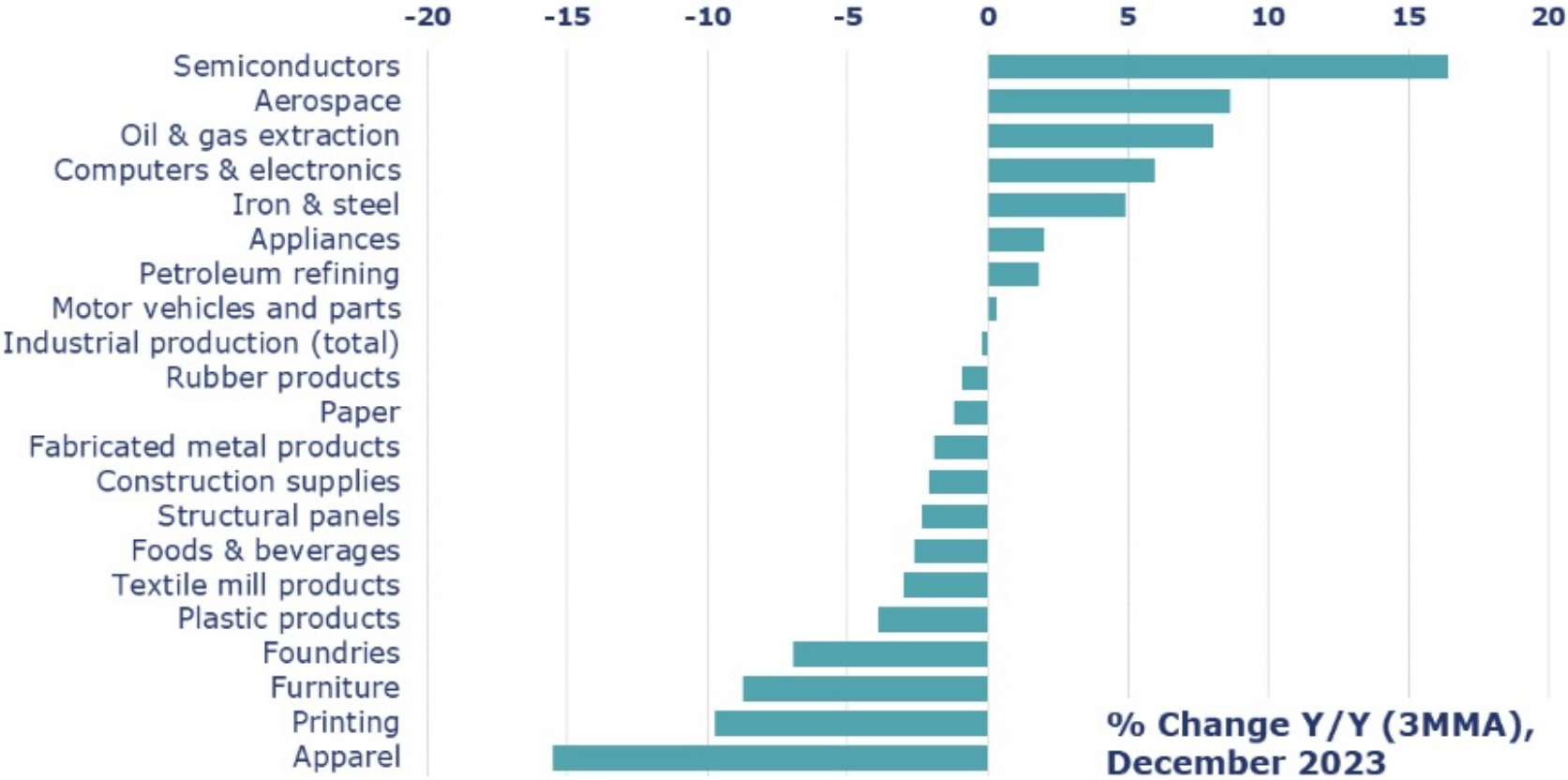


Source: U.S. Census Bureau , The ChemQuest Group, Inc.

End-Use Outlook – Uneven Growth Prospects

Outlook for Key End-Use Markets

Industrial Production: Key End-Use Markets



Source: American Chemistry Council

Light Vehicles are an Important Market for Chemistry

Over \$3,200 in chemistry per vehicle

IHS has been trimming its global vehicle production forecast for 2022, shifting gains to 2023.

	1Q	2Q	3Q	4Q	2021	1Q	2QE	3QE	4QE	2022E	2023E	2024E
Europe	1%	84%	(32%)	(23%)	(4%)	(18%)	(4%)	34%	15%	4%	11%	4%
Greater China	79%	(5%)	(14%)	(2%)	5%	6%	(5%)	7%	(8%)	(1%)	9%	7%
Japan/Korea	(0%)	37%	(21%)	(14%)	(3%)	(11%)	3%	24%	6%	4%	3%	1%
Middle East/Africa	12%	62%	5%	3%	16%	14%	13%	17%	10%	14%	6%	2%
North America	(4%)	132%	(26%)	(14%)	0%	(2%)	13%	30%	15%	13%	12%	5%
South America	3%	301%	(11%)	(8%)	16%	(13%)	14%	37%	5%	10%	11%	8%
South Asia	15%	281%	7%	0%	27%	0%	10%	15%	(6%)	4%	6%	6%
Industry est. (m units)					77					81	88	92
Industry est. y/y % Δ	16%	48%	(19%)	(10%)	4%	(4%)	2%	21%	3%	4%	9%	5%
JPM est. (m units)					77	19.7	18.3	19.7	22.0	80.0	87.0	92.0
JPM est. y/y % Δ	16%	48%	(19%)	(10%)	4%	(4.5%)	(2.3%)	18.3%	3.8%	3.6%	8.7%	5.7%

IHS currently forecasts 4-5% higher y/y global light vehicle production for 2023, approaching 87 million units.

OEM Coatings – Key Trends

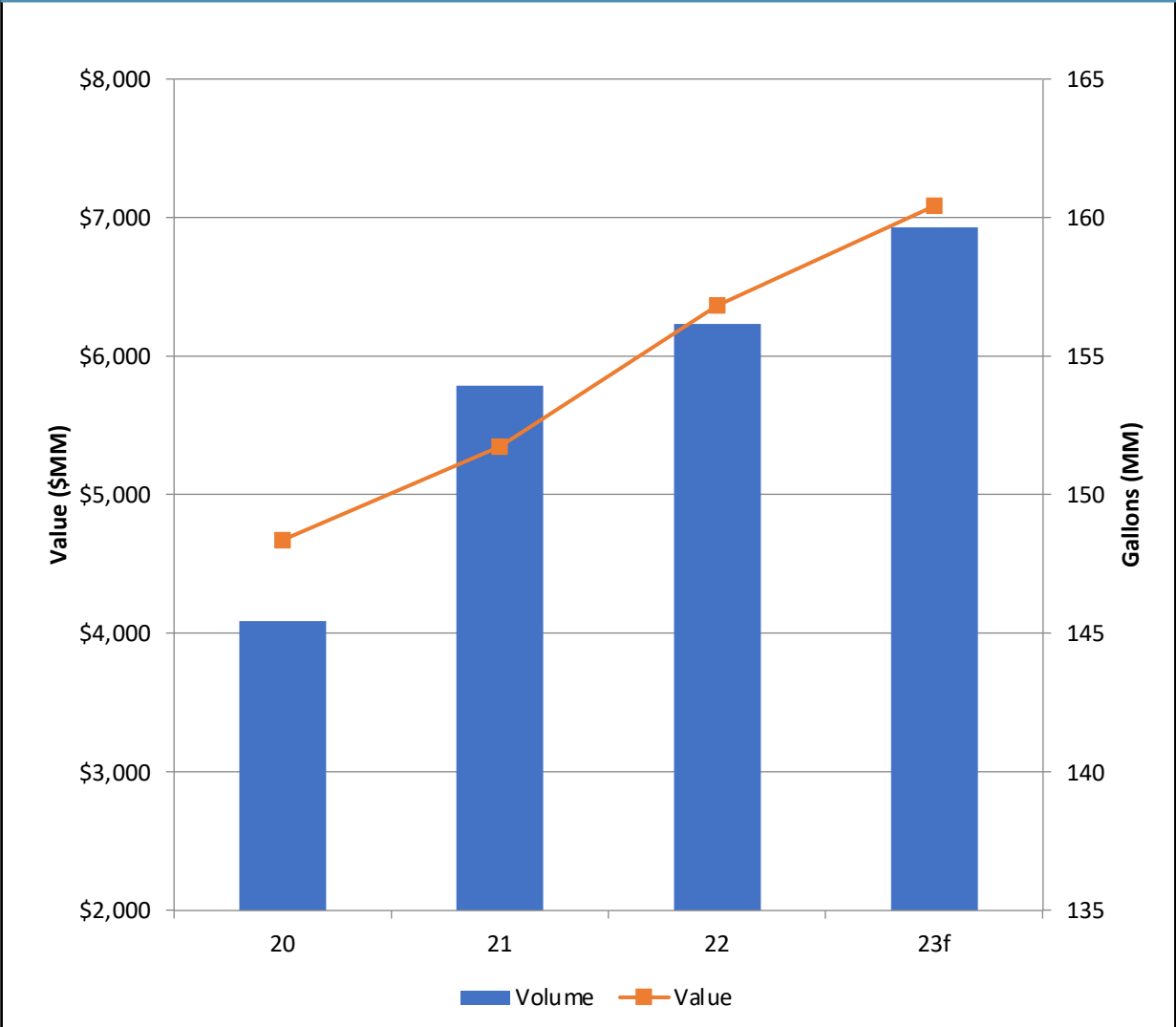
Trend	Implications/Opportunities
Operational efficiencies	• Improve productivity at customers’ painting operations, for example, wet-on-wet applications, reduced labor, faster cycle times, etc. • Increase paint shop productivity and profitability – compact process
Reshoring	Reshoring and nearshoring continues to be a driver and accelerating over the past five years
Innovative solutions	• Auto – matte finishes, glamour clear coats • Solar heat management – enable darker colors, increase passenger comfort, reduce external substrate temperatures, reduce cost • Premium vivid colors with uniform pigment distribution – nano pigments where pigment is embedded into polymer – extremely durable • Enable printed electronics/graphene • Self healing/self cleaning • Coating technology for energy savings (low-temperature cure) and storage
Robust functionality across multiple substrates	• Coatings are a common link across many substrates - coat mixed-material substrates; enable coating on composites, alloys, and plastics to replace metal; contributes to lightweighting, energy efficiency, and reduced corrosion • Drive toward weight reduction to achieve “fuel efficiency” requires robust look and performance across diverse substrates, for example, steel, metal alloys, plastics, and composites

Source: The ChemQuest Group, Inc.

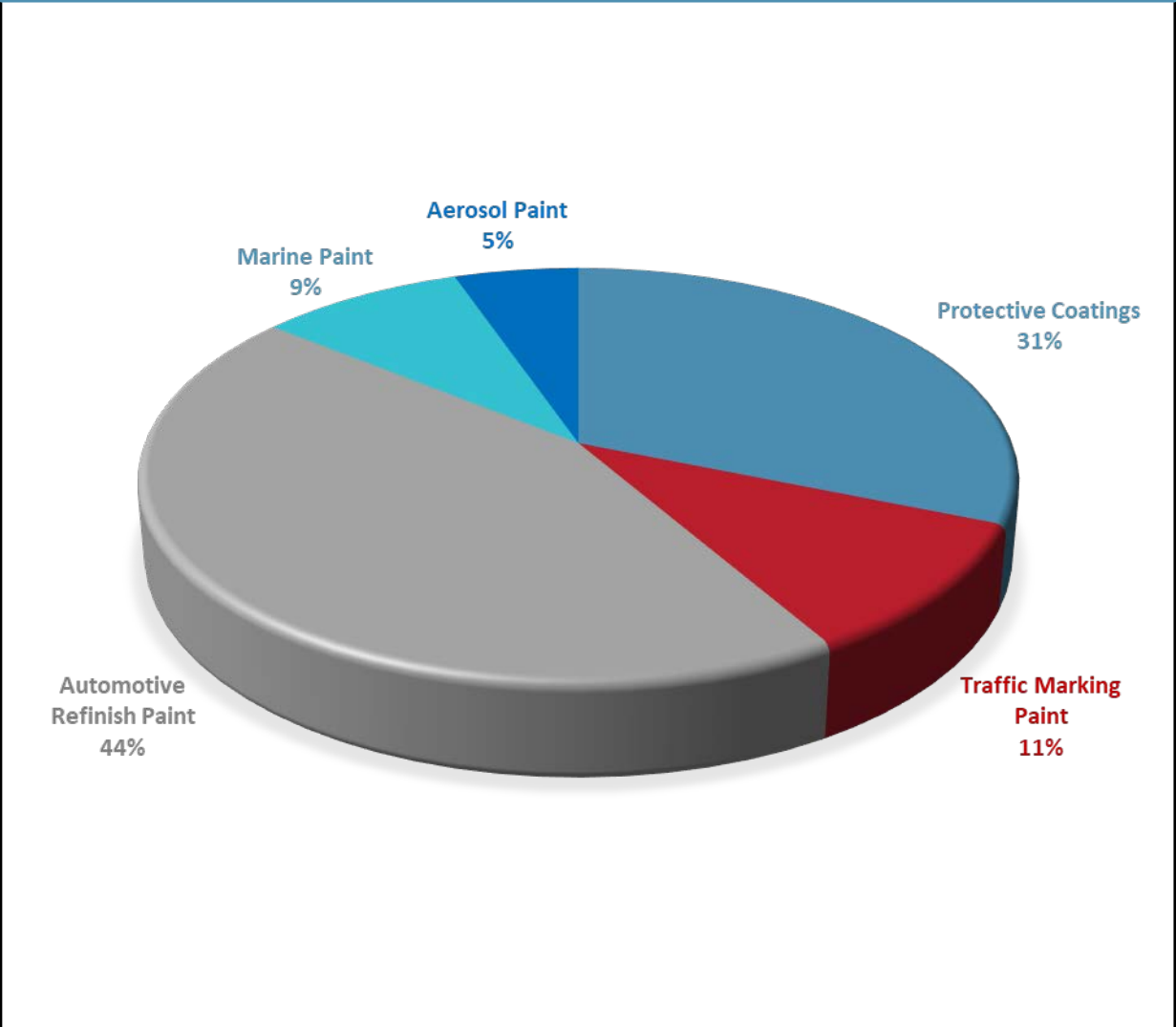
Special Purpose Coatings

Special Purpose Coatings – Growth Trends and End-Market Segments

Historical Volume & Value Trends



End-Market Segment Share



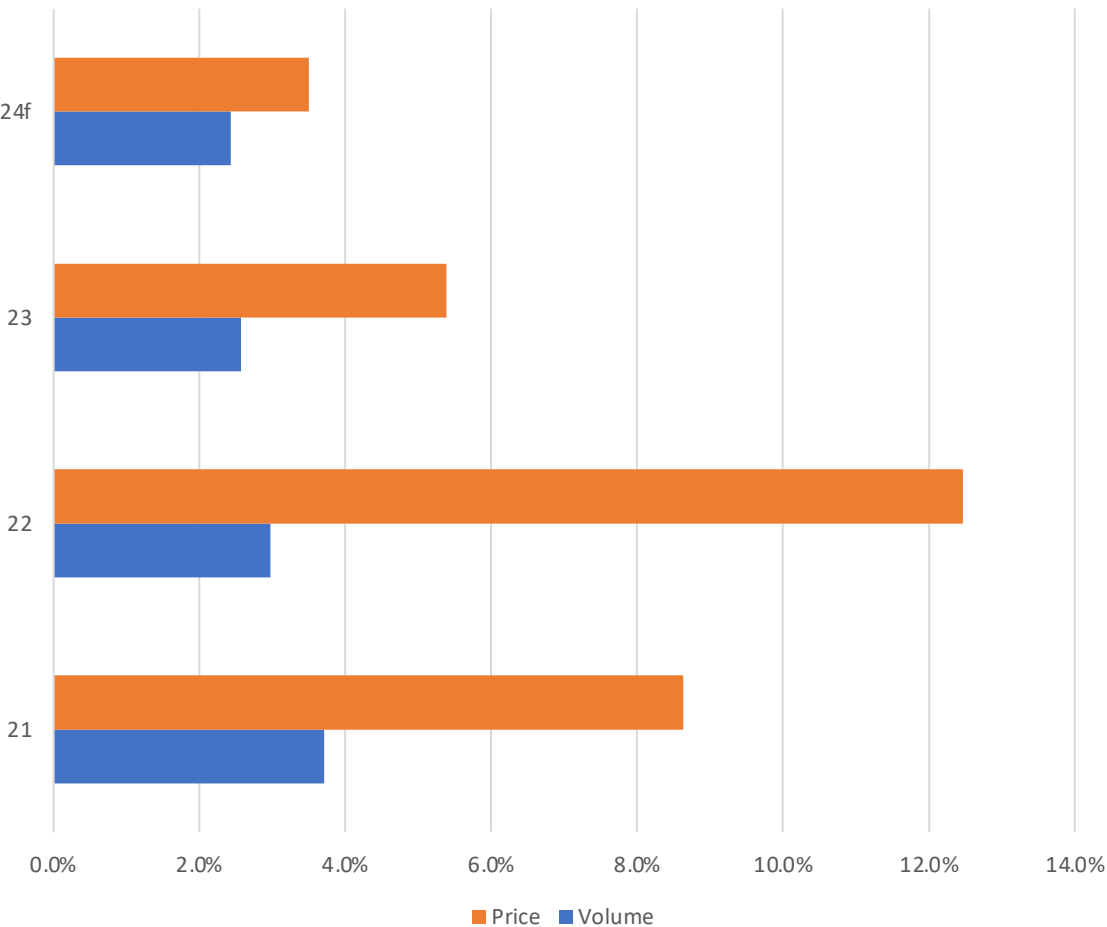
Source: U.S. Census Bureau, The ChemQuest Group, Inc.

Special Purpose Coatings – 2023 and Outlook for 2024

Overview

- Volume and value increased 2.6% and 7.9%, respectively, in 2023.
- Protective coatings looks to continue to rebound from lows of 2020
 - Oil & gas, as well as infrastructure spending, should continue to benefit the sector
 - 2023 set a record for crude oil production the U.S., ~13.5 million barrels a day
- Auto refinish continues to be one of the highest value segments (along with OEM aerospace)
 - Vehicle miles driven returned to near pre COVID-19 levels
 - Accident rates were up substantially in 2022, as vehicle-related deaths hit a 16-year high
- Expect volume and value to continue to expand, 2.4% and 5.9%, respectively, in 2024

2023 = \$7.5B and 191M gals



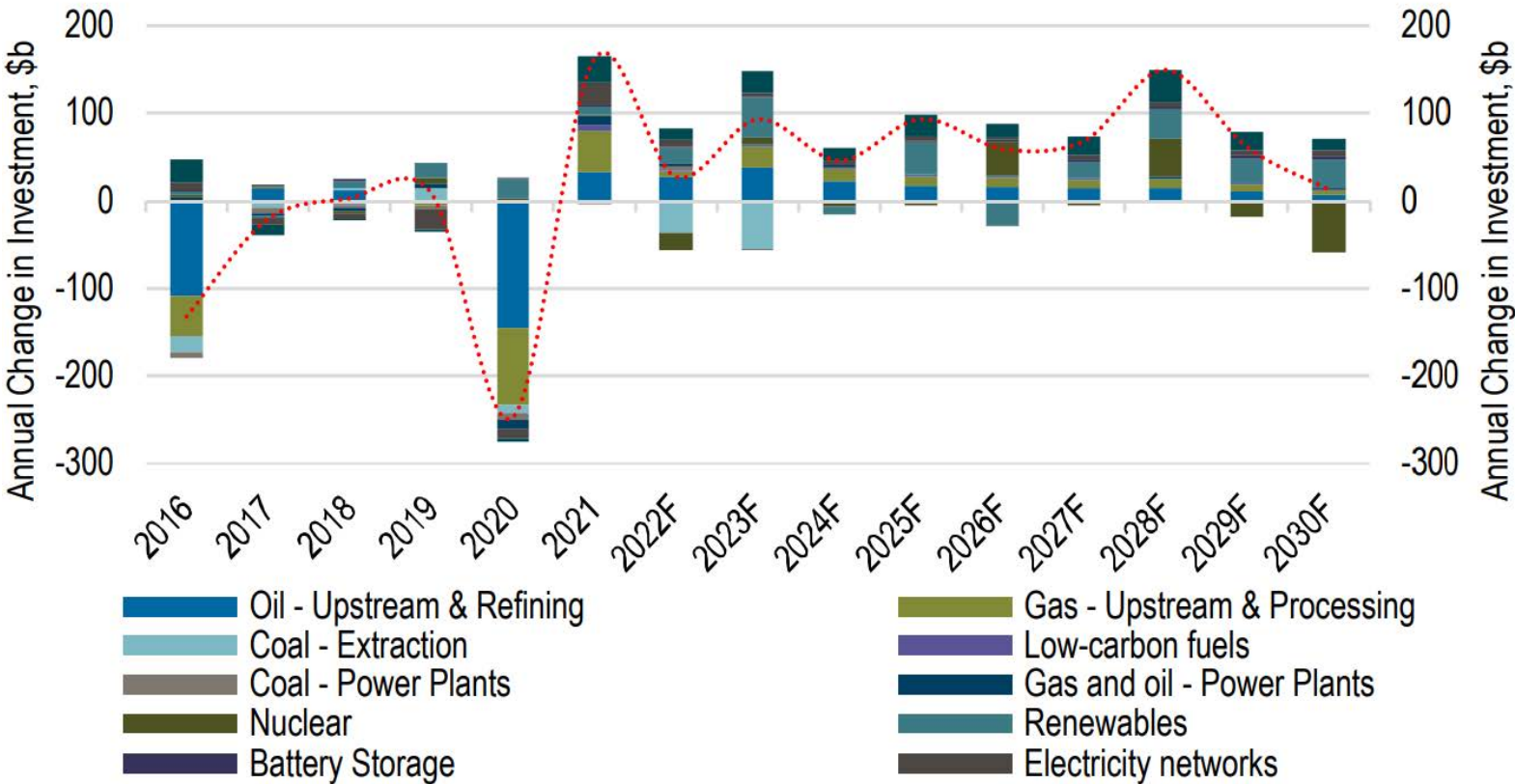
Source: U.S. Census Bureau, The ChemQuest Group, Inc.

Industrial Field-Applied Special Purpose Coatings Volume Trend Expected through 2028

Overview

- ➔ Increased demand driven primarily by IM & Protective Coatings (O&G, chemical processing, utilities, infrastructure, other) and accident rates
- ➔ Global oil demand, rise in oil prices, and resulting capex globally as well as NA
- ➔ Investment in diversified energy sources, led by renewables
- ➔ Accident rates increasing in line with return to higher miles driven after the pandemic shutdown
- ➔ Technology improvements in collision avoidance forecasted to reduce accidents by 30% over the next five years
- ➔ In addition, shared driving trends also likely to have a muting impact on demand
- ➔ High inflation on material costs and persistent supply chain constraints are major headwinds facing manufacturers.

End-Market Investment, 2016-2030f



Source: ChemQuest, J.P. Morgan estimates, IEA, IRENA

Oil & Gas Global Capital Expenditure

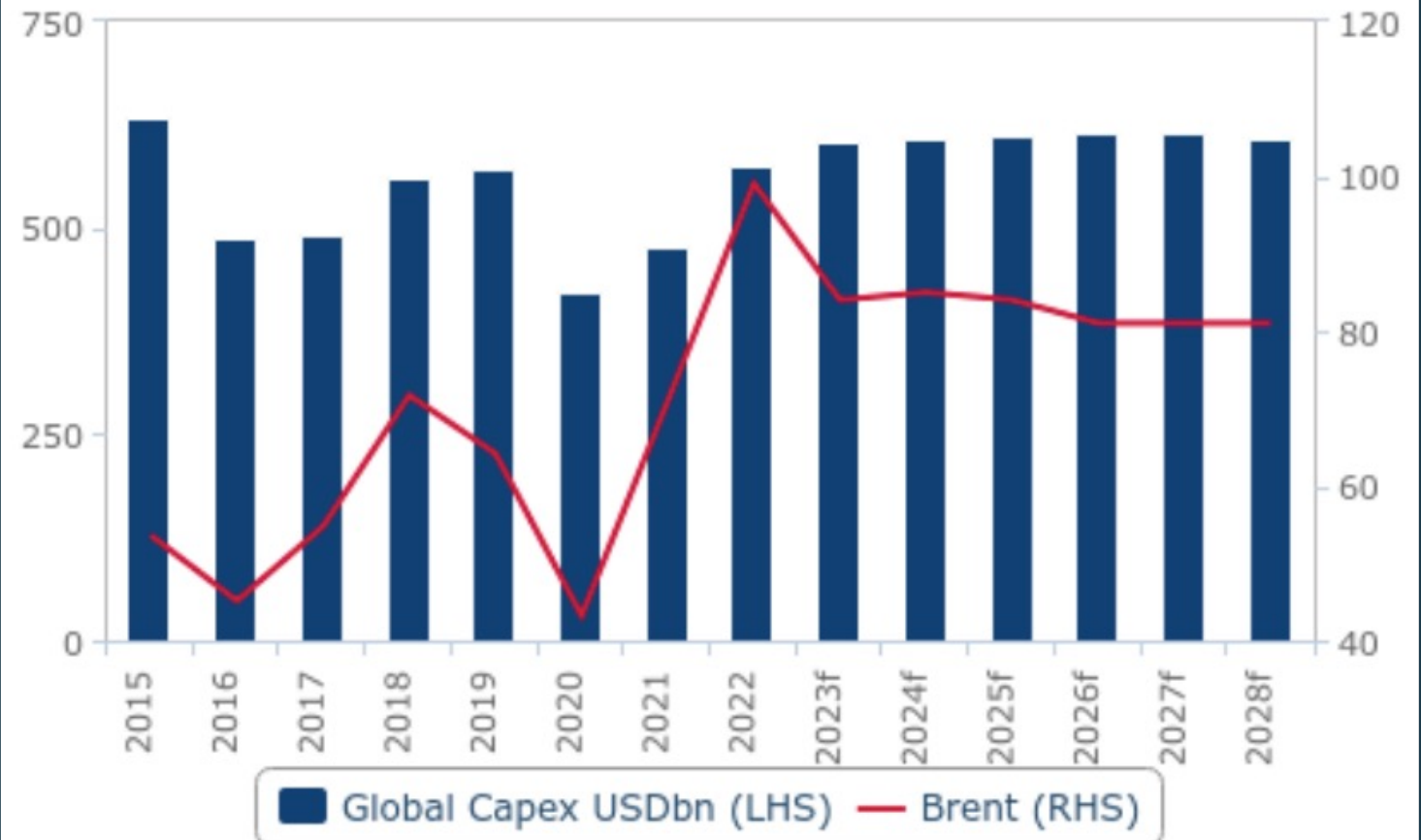
2024 sees deceleration amid cautious investments and regional shifts

Overview

- ➔ **Decelerating growth:** Global capital expenditures (capex) in 2024 are expected to sharply slow down, reaching \$606.6B with a modest 0.5% yr/yr growth, following robust recoveries in 2023 (5.1% yr/yr) and 2022 (20.5% yr/yr).
- ➔ **Cautious investment approach:** Oil and gas companies adopt a more cautious investment approach in 2024, prioritizing value over output growth. Market uncertainty and softened energy prices drive this shift, with persistent cost inflation raising the initial 2024 global capex estimate to \$603.3B.
- ➔ **Regional trends in 2024:** MENA region anticipates the largest and fastest-growing capex globally in 2024, fueled by low-cost, low-emission projects. Asia, the second-largest investment base, expects a 2.5% yr/yr growth. North American capex surpasses expectations but stays below 2017-2019 averages, signaling weakened hydrocarbon production growth.
- ➔ **Medium-term outlook and risks:** Global capex is projected to stabilize around \$610B over the next five years due to elevated cost inflation. Limited upside risk potential is foreseen, influenced by anticipated oil price retreat and slowing demand growth. OPEC+ aims to establish a price floor, but the overperformance of US production poses a downside risk to oil and gas spending forecasts.

Investment Growth to Decelerate Sharply after 2021-2023 Rebound

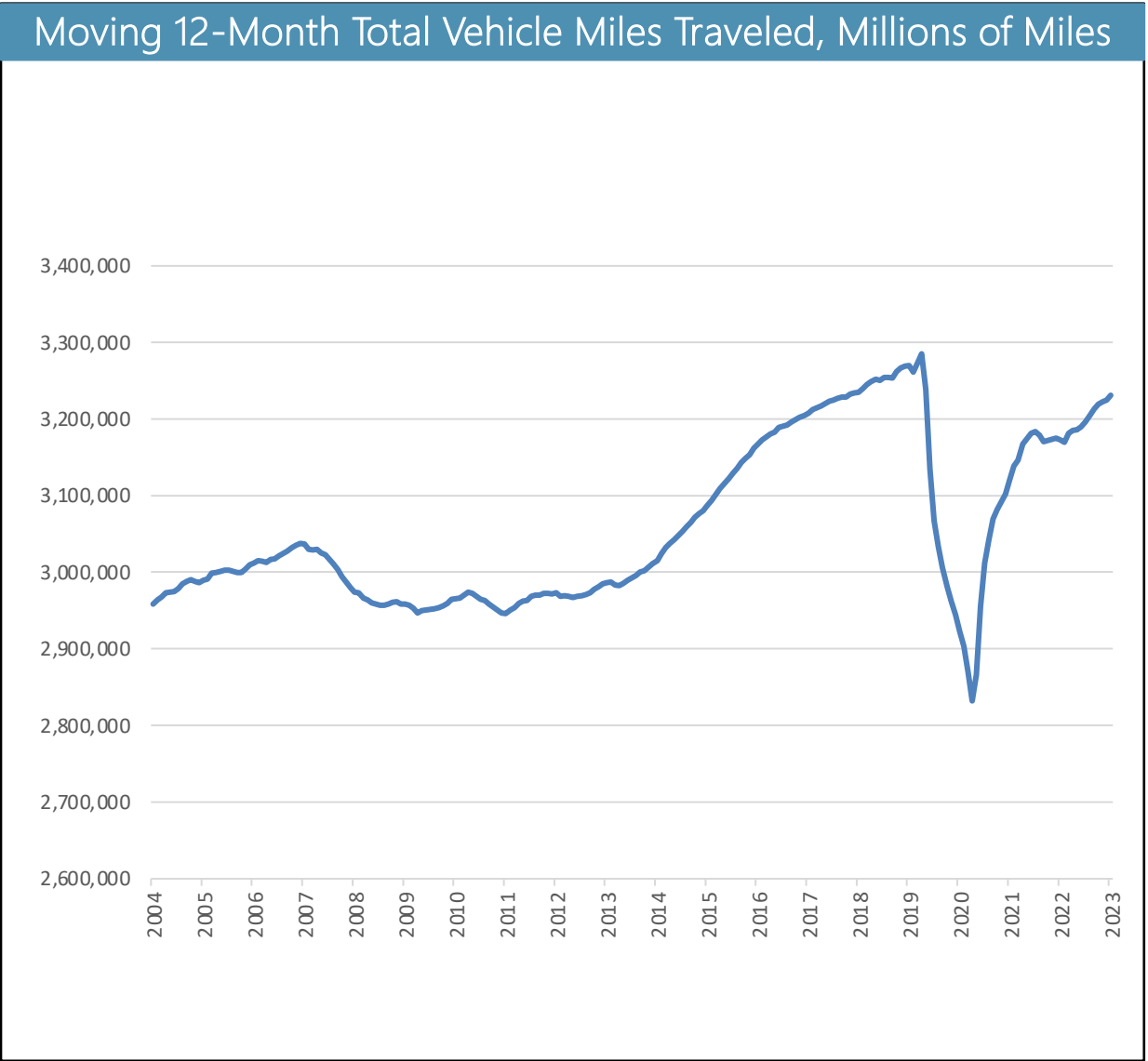
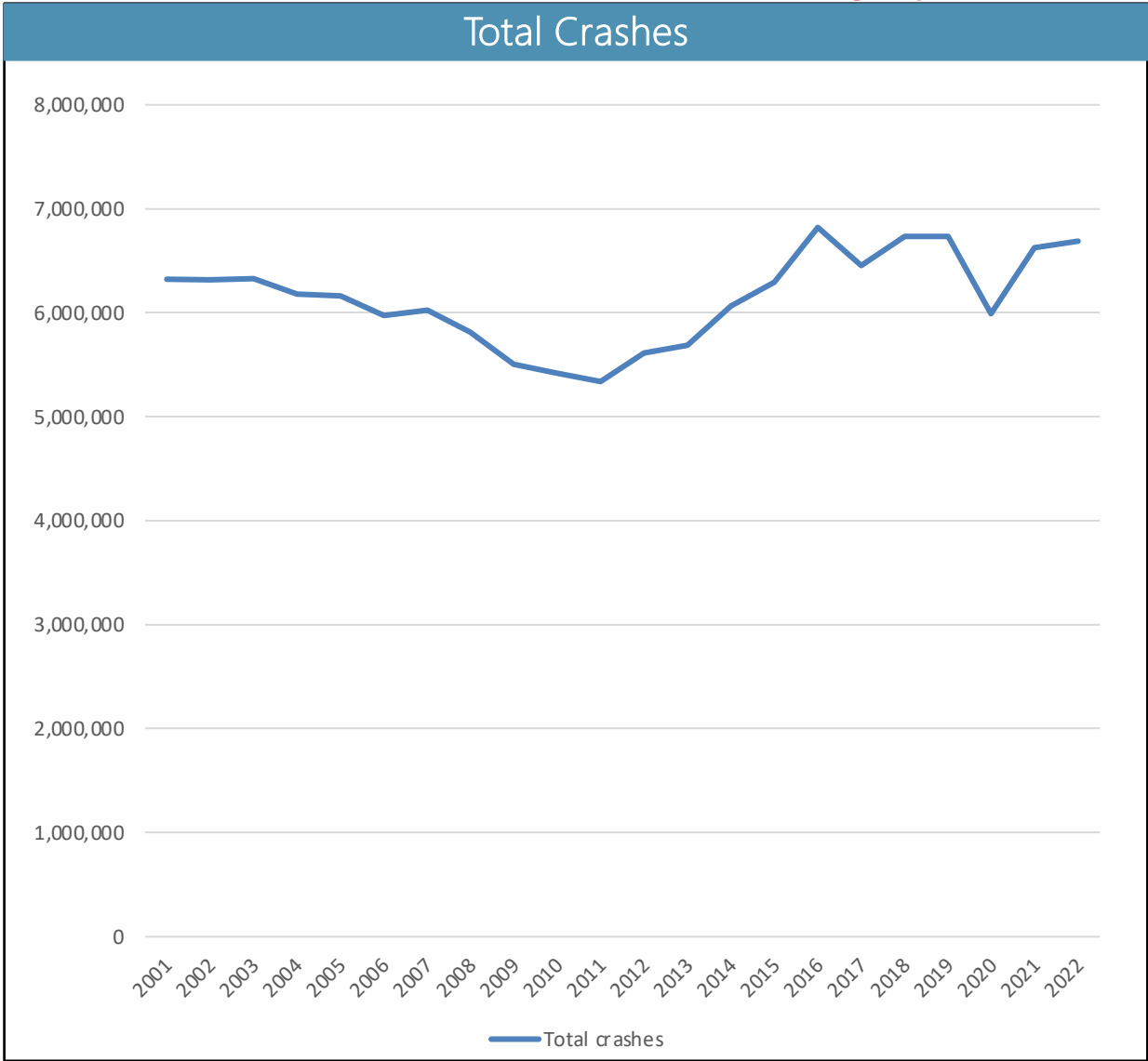
Capex Of Top 100+ Oil & Gas Companies & Brent, USDbn (LHS), USD/bbl (RHS)



f = BMI forecast. Source: Company data, BMI

Refinish Coatings Indicators

Miles driven and accident rates trending up



Source: U.S. Census Bureau, Highway Traffic Safety Administration

Special Purpose Coatings – Key Trends and Opportunities

Trend	Implications/Opportunities
Infrastructure spending outlook	Inflation hit the scope of projects for the \$550 billion earmarked for new road, rail, and broadband funding Congress passed in 2021.
Oil & gas outlook	Oil & Gas is about 1/3 of protective coatings volume and were heavily impacted in 2020. Shift toward LNG for Europe and embargo of Russian oil & gas are affecting spending, but the overall impact of high oil and natural gas production in the U.S. are net positives for the industry
Refinish outlook	Autonomous vehicle research and the trend of collision avoidance systems will continue to lower the rate of accidents. CCC Information Services is forecasting that technology will reduce accident frequency by ~30% in the next 25 years. In the meantime, more miles driven brought accident rates up in 2021 and 2022.
Innovative solutions	• Faster return-to-service of assets • Intelligent surfaces – repair assets only when needed, lower maintenance costs, improved safety • Utilize structural health monitoring to extend asset life and reduce maintenance costs; provide real-time asset assessment utilizing “Internet of Things” • Corrosion protection in extreme environments – increase infrastructure longevity

Source: The ChemQuest Group, Inc.

STATE OF FLORIDA

Trends & Coatings Estimates

Florida Market Size Estimates Based on State-Level Leading Indicators

Leading Indicator - 2023	Primary Coatings Impact	U.S. Total	Florida Total	Florida % of U.S. Total
Total Population	AC, SP	336.8	21.5	6.4%
Occupied Single-Family HH (millions)	AC-DIY, RR	90.1	3.9	4.3%
Occupied Multi-Unit HHs (in millions)	AC-PM	40.3	5.0	12.4%
Existing Home Sales (in 000s)	AC (all)	4,090.1	257.7	6.3%
New SFU Homes Completed (in 000s)	AC-NH	668.2	25.1	3.8%
New MFU Homes Completed (in 000s)	AC-NC	302.1	37.0	12.2%
Commercial Footprint in Place (sqft B)	AC-CM	98.2	5.8	5.9%
Durable Goods Production \$ (billions)	OEM	\$3,373.2	\$95.6	2.8%
Automotive OEM Production \$ (billions)	Auto OEM	\$443.9	\$2.0	0.4%
Auto Accidents (in 000s units)	SP-Refinish	8,502.3	393.3	4.6%
Miles of Interstate Highway	SP-Traffic	48,756	1,497	3.1%
Manufacturing (billions of hours worked)	SP-Protective	201.4	13.3	6.6%
Persons Employed Manufacturing (000s)	SP-Protective	11,808.9	340.1	2.9%
Marine Services Value \$ (millions)	SP-Marine	\$20,921	\$5,040	24.1%

Source: National Association of Realtors, U.S. Census – CBP, American Community Survey, Manufacturing Value Put in Place, Florida MLS, Florida Realtors, Florida Crashdash-FLHSMV.com, BLS.gov, Bureau of Economic Analysis (BEA.gov)

Florida Demand Estimate, 2023

→ Architectural Coatings

- U.S.: 776MM gals
- FL: 62MM gals (8%)



→ OEM Coatings

- U.S.: 360MM gals
- FL: 11MM gals (3%)



→ Special Purpose Coatings

- U.S.: 191MM gals
- FL: 14MM gals (7%)



Florida Coatings Market – Demand-Based Insights for 2023 and a Look Ahead for 2024

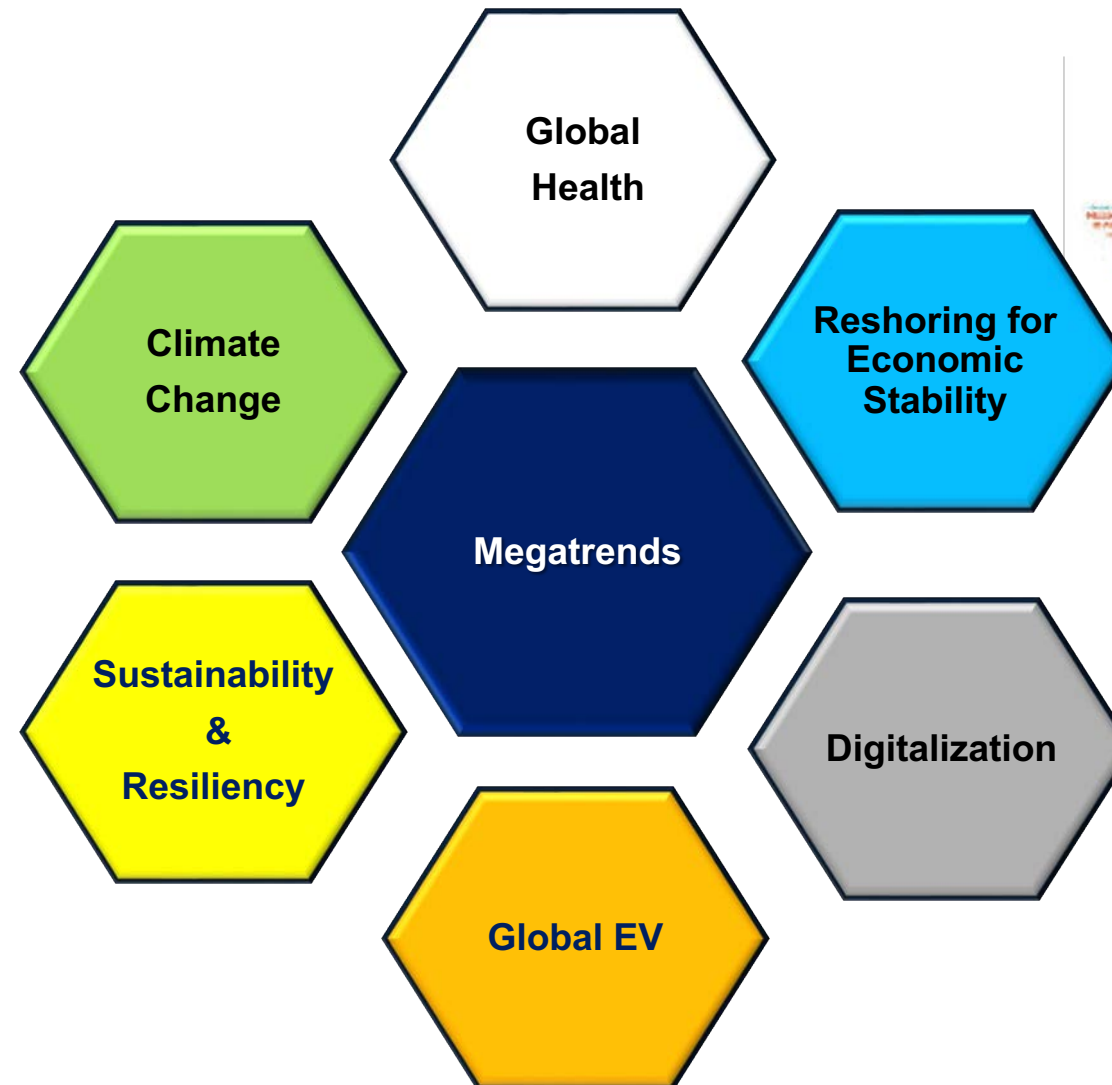
Demand Level/Key Drivers	Implications/Opportunities	Growth % 2024
Architectural Coatings (FL = 8% of U.S. market volume): With 6% of the population but only 4% of single-family unit homes, Florida under-indexes on DIY, new home, and residential repaint – but with 12% of multi-unit households, the commercial building and maintenance sectors are key for the state. Florida has a high share of hospitality, healthcare, and entertainment structures, driving both new commercial and commercial maintenance.	• Demand for housing, in large and mid-size multi-unit structures, will continue to grow through 2030 • Maintenance of existing large commercial and institutional buildings (hospitals, hotels, schools, warehouses) remains a growth market through 2030	2.1%
OEM Coatings (FL = 3% of U.S. market volume): Durable goods manufacturing – and automotive OEM in particular – under-index in volume and value of production in Florida compared to the U.S. This lower production volume translates to demand for OEM coatings.	• Automotive OEM is estimated at <1% of US total • Wood furniture and wood products are roughly 4% of US total, while metal goods and machinery are in line with population – at 6% of US total • Growth will mirror US OEM growth, but volume will remain at 3-4% of US total	1.4%
Special Purpose Coatings (FL = 7% of U.S. market volume): While Florida under-indexes on durable goods production, the state has very high penetration in key markets for special purpose. Auto refinish demand is high in Florida and traffic marking is proportionate to population, but industrial maintenance – due to Space Coast and Disney, as well as a high marine market – over-index relative to U.S., keeping total coatings demand at 7% of U.S.	• Refinish is estimated at 8% of US total due to high volume of auto accidents, but also total stock of older cars in Florida. • Marine – while only 9% of special purpose coatings – over indexes in Florida by 3x the US average and this will continue to be a growth market in 2024 and 2025	3.9%

TECHNOLOGY OUTLOOK

Global Megatrends

For technology,
megatrends drive:

- Direction
- Momentum
- Pivotal effects



Megatrends point to future growth opportunities.

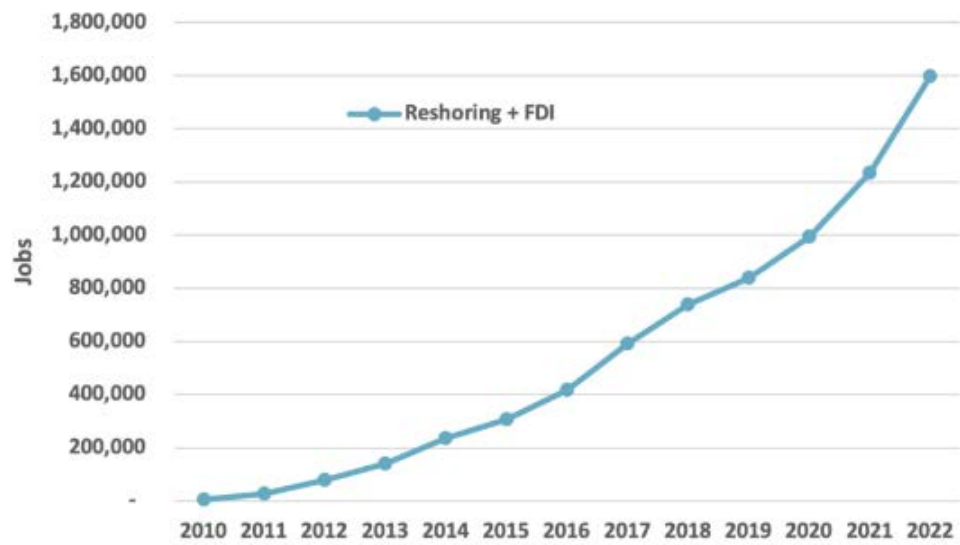


Reshoring for Economic Stability

- ➔ Supply chain instability
- ➔ Just-in-time manufacturing failure
- ➔ Shifts in commodities
- ➔ Domestic source of supply
- ➔ Raw material alternatives

Bringing Manufacturing Back to the U.S.

Cumulative Job Announcements, Reshoring + FDI, 2010-2022



Reshoring vs. FDI, % of Jobs, 2022

	Jobs Announced	% of Total
Reshoring	210,495	58%
FDI	154,409	42%
Reshoring + FDI	364,904	100%

Source: Reshoring Initiative® 2022 Data Report

Lessons Learned

- ➔ Don't put all your eggs in one basket.
- ➔ Have multiple sources of supply.
- ➔ Formulate with alternative raw materials in mind.
- ➔ If resources are thin, use third-party labs to verify results.
- ➔ Shift focus to R&D resources for new product improvement.

IRA and Chips Act Boost Reshoring to Another All-Time High, Up 53%

EV Battery and Semiconductor investments account for the largest increases in job announcements.



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- Data security
- Artificial intelligence
- Machine learning
- Augmented reality
- Digital twins
- 3D printing
- Robotics

Additional Considerations

3D-Printed Structures

- 3-D printed houses use concrete framing instead of traditional materials. The printer squeezes out concrete in layers, like toothpaste out of a tube.
- 15.5-ft (4.7-m)-tall printers can build the exterior and interior wall system for a 2,000-sq-ft (186 sq m), one-story house in a week.
- The machines can print curved walls.
- Building construction businesses are increasingly using 3D construction printing and green construction methods to reduce costs and build energy-efficient buildings.



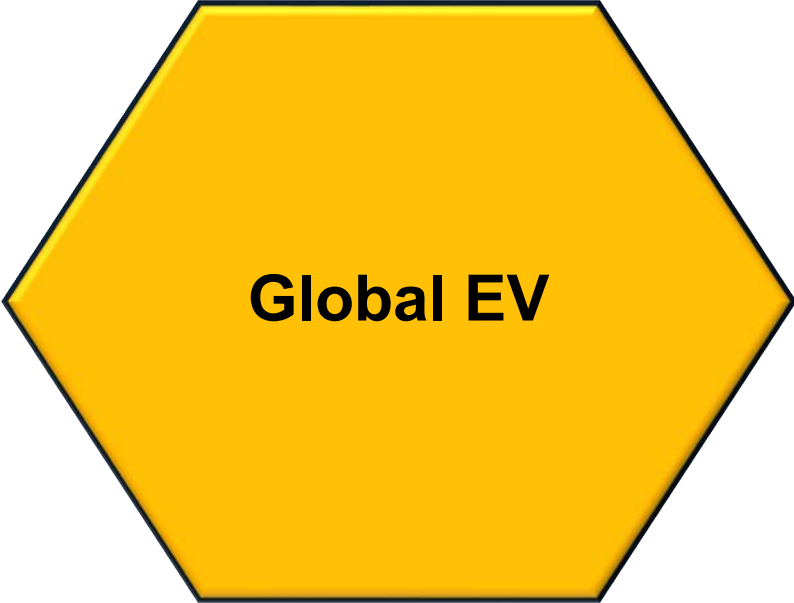
Source: Wall Street Journal Oct 26, 2021, Apellix.com

Robotics for Paint Application

- One of the most innovative new methods for coating application uses aerial robotics or drones.
- Apellix developed a drone for spray paint application and cleaning and won the AkzoNobel Paint the Future Competition.

Apellix Drone for Spray Paint Application and Cleaning





Global EV

- Battery technology
- Heat management
- Lightweighting
- Sensor technology

Expanding Opportunities in Electric Vehicles

Overview

- ➔ Every major automobile manufacturer has announced plans for conversion to electric vehicles in the next 10–15 years.
- ➔ Proliferation of electronic components that control vehicle propulsion, safety and comfort, and convenience systems
- ➔ Electric vehicles currently average 100 more electric control units than gas-powered vehicles.
- ➔ Total EVs
 - 2015: 1.26 M
 - 2025f: 35 M

EV Oil Savings, 2015 vs. 2025f

	Number of Barrels Saved/Day, 2015	Number of Barrels Saved/Day, 2025f
Electric passenger vehicles	8,600	886,700
Electric commercial vehicles	0	145,000
Electric buses	43,100	333,800
Electric two- and three-wheelers	674,300	1,100,000
Total oil barrels per day	726,000	2,465,500



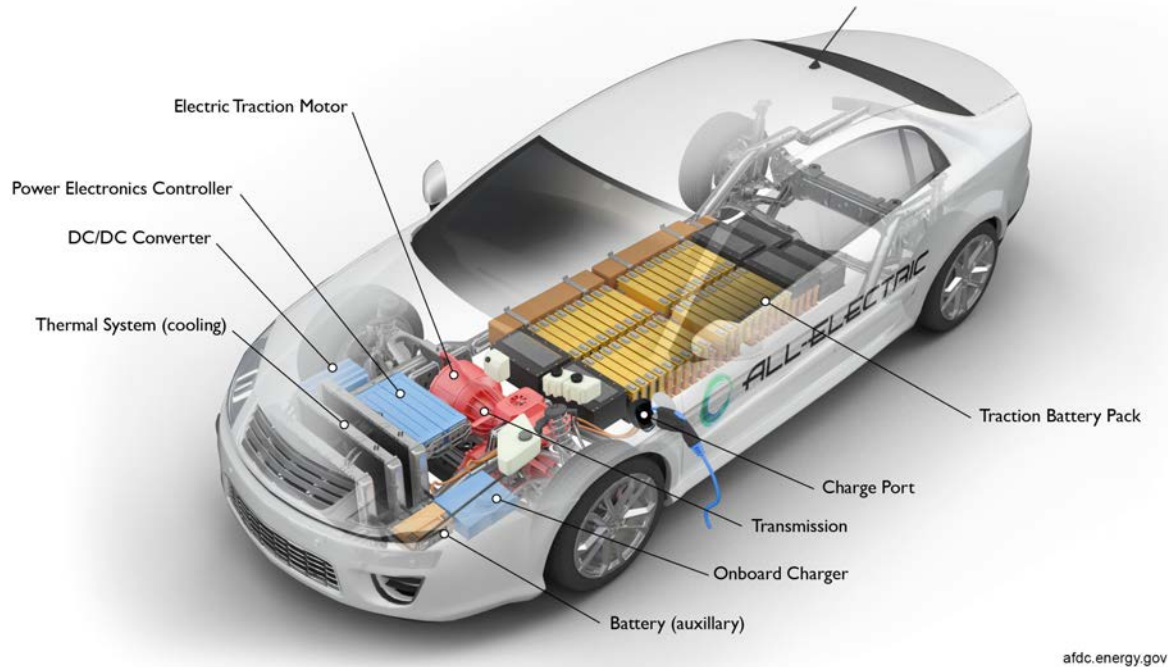
Source: Apellix web site, Future Market Insights

Coatings in Electric Vehicles

Overview

→ Coatings used for:

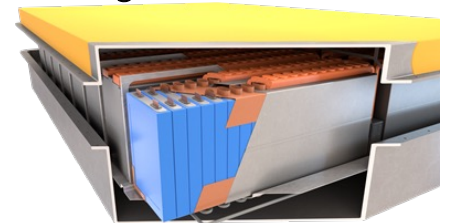
- Battery cells
- Power conversion components
- Electric drive system
- Battery packs that power the vehicles



Coatings for EV Batteries

- Electric vehicle batteries depend on coatings to maintain optimal temperature and reduce the risk of fire damage and electrical interference.
- Each battery pack design has its own set of needs and challenges that need to be addressed, which is why flexibility and diversity of offerings is essential for coatings providers in the EV space.
- They all **need fire protection, corrosion and impact protection, temperature management, and electrical shielding.**
- In order to maintain batteries at the best functional temperatures, OEMs employ battery thermal management systems (BTMS), which are supported by coatings.
- Lithium-ion battery cells are full of flammable solvents, so intumescent coatings help protect batteries from fire damage.
- Dielectric coatings are used to prevent arcing between metal parts.

Battery packs require protection from heat overload and electromagnetic interference.



Source: Product Finishing Magazine: Coatings Drive Electric Vehicles Further, Jan 2023

CLOSING THOUGHTS

Main Industry Dynamics in 2024 – Challenges and Opportunities

Market Dynamics

- Low demand with historic inflation
- Ukraine/Russia – Middle East Conflict
- Labor shortage
- Soft landing or recession?
- Relocating supply chains
- Restricted panel of raw materials due to EHS regulations and registrations
- Innovation: EHS, multifunctional properties, sensors, and robotics
- e-Commerce impact on sales/marketing/manufacturing
- Future digitalization and digitization strategies – Industry 4.0 and 5.0

Coating Company Dynamics

- Stable, predictable cashflow
- Improving margins – delayed recovery of inflation
- Mid-teens ROIC
- Low capital intensity
- Consolidating steadily
- Technology/innovation becoming higher driver of functional needs
 - Different substrates, conductive materials, e-mobility
- Low cost-in-use and value-in-use enabling pricing power
- Moderate to high substitution costs
- Sticky customers



Thank you!

Questions?

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

<https://chemquest.com>