

September 3, 2025

2025 Paints, Coatings, Adhesives: All Eyes on Housing/Economy Turnaround

We were pleased to host the **ChemQuest Group** for our 26th annual *Paints, Coatings, & Adhesives* conference call. **CEO Dan Murad** once again provided insights into the ~\$200B+ coatings industry, including an overview of market conditions, trends, and forecasts. Looking back in time, the industry leaders were relatively close together in scale: SHW, PPG, and then, AkzoNobel. However, it's become clear that **SHW** is now the 800 lb. gorilla (**Figure 1**) and its recent acquisition of BASF's Brazilian business further enhances its scope. Furthermore, PPG's sale of its N.A. architectural coatings business to private equity has led to market share gains for SHW and others. At a time when the macro backdrop is less than stellar (close correlation between global coatings/adhesives consumption and GDP), we view SHW as the conference call winner.

That's not to say that **PPG** has been entirely left behind as it has multiple businesses that are improving though the overall outlook is more muted. For example, the company, along with **AXTA**, will continue to be market share gainers in auto refinish (at the expense of **BASF**, and other smaller competitors), though the longer-term volume trends are less exciting due to the complexity of newer cars resulting in higher rates of total loss claims, along with the recent downturn in total accidents (but pricing/margins improving). However, the N.A. arch sale was addition by subtraction in terms of its own growth and margin profile. Dan also views PPG and SHW as the leading potential consolidators among the strategics. On **M&A**, Dan noted that deal activity is *up* 22% YTD after 2023 and 2024 took a noticeable step down from the active levels in 2020 – 2022.

Among the key highlights is ChemQuest's tracking of ~20 **raw materials** with its *CQMI Index* (**Figure 2**). The patterns are clear with deflation during the initial stages of Covid, only to begin an upward tilt in the fall of 2020 sparking a rise that lasted into the middle of 2022. Tariffs and anti-dumping duties are having a modest impact though less so than expected three months ago. In total, Dan expects to see raws flat in 2025 (steadier for coatings vs. adhesives), following the ~2% decline in 2024 and ~8% decline in 2023; a sheer contrast to the double-digit inflation seen in 2022. Interestingly, SHW sees 2H deflation while PPG sees modest inflation.

After 3.2% growth in 2024, global coatings value is expected to top **\$210B** in 2025, gaining another 2% but down from ~5% expected earlier this year. CQ estimates the overall U.S. coatings market saw volumes and pricing each up 0.8% in 2024. 2025 is now forecast to see total U.S. volumes decrease 0.8%, while pricing is trending up 1.9%.

Within the \$16.2B U.S. **Architectural Coatings** segment, sales are forecast to decrease ~2% in 2025 following a ~1% increase in 2024. For 2025, new homes sales are forecast to be up 2% and existing home sales are expected to recover 3%; significantly down from prior expectations of 9%. Remodeling activity shined through the pandemic as the crown jewel but slowed in 2023, declined in 2024, and is expected to rebound to 2.5% growth. Importantly, overall existing structures provide a fixed component of ~550MM gal though variable demand has been the issue. SHW, AIP, MAS (Behr) and BRKA (Benjamin Moore) are the segment leaders making up more than 90% of NA Arch coatings.

Following a 2% increase in 2024, 2025 **Industrial OEM** is forecast to see volumes up 1.3% and pricing up 2.2%. The slowdown in durable goods has had a dampening effect as it accounts for 2/3rd of the segment, while auto OEM is another ~13%. The shift towards hybrids/EVs doesn't have a major impact on the exterior but the inclusion of battery packs requires higher value coatings for better heat dissipation. Following a 2% increase in 2024 U.S. **Special Purpose Coatings** sales, 2025 is forecast to be up ~4%. The growth over the recent past hasn't been stellar but has been steady.

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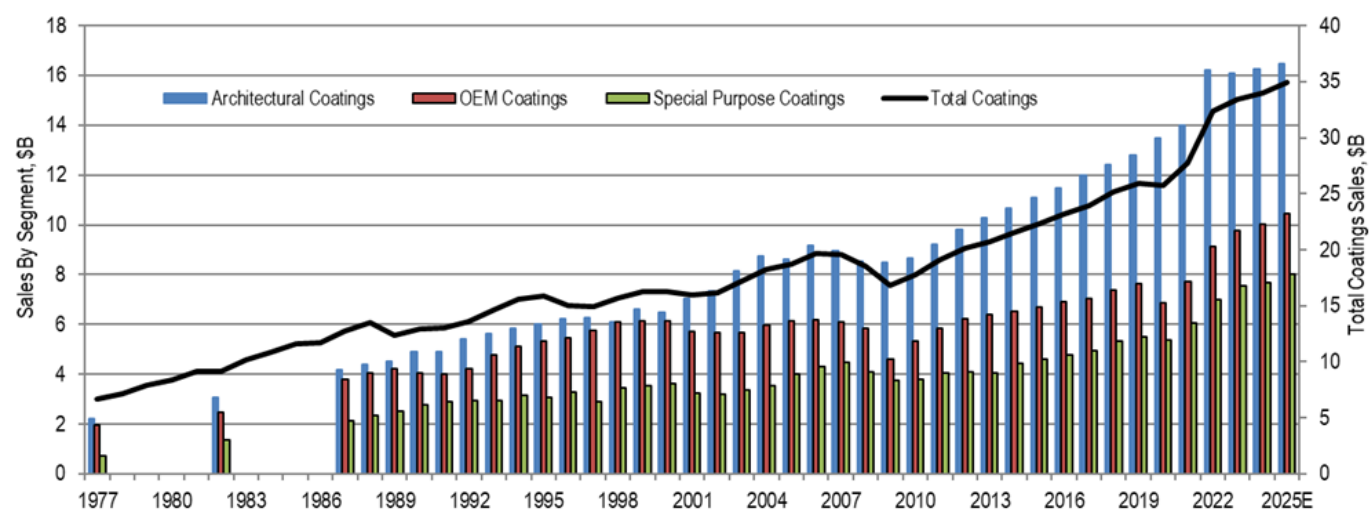
Thank you to our summer intern, Edi Quvus, for his notable contributions to this report.

Paints and Coatings

Market Overview

Since the turn of the century (actually, millennium!), coatings have shown relatively steady growth, at about **3.3% CAGR** (2000-2024). The paints and coatings industry can be categorized into three markets: *Architectural* (aka: decorative), *OEM*, and *Special Purpose*. *Architectural Coatings* have been a clear outperformer, growing at a 4.1% CAGR (2000-2024). *OEM* and *Special Purpose* coatings have grown at 2.1% and 3.3% CAGRs, respectively, over the same time period. All three are forecast to see continued growth in 2025.

Figure 1. U.S. Coatings Sales by Segment, 1977-2025

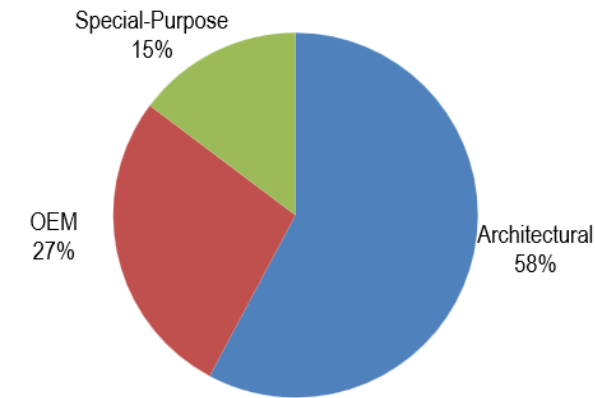


Source: The ChemQuest Group and Fermium Research LLC

Architectural Coatings make up 47% of the **\$34.0B** U.S. coatings sector value and 58% of the **1.34B gal** volume. New home sales typically contribute just 25% of demand for coatings, while existing home sales really drive Architectural, contributing 75%. For 2025, new homes sales are forecast to be up 2% and existing home sales are expected to recover 3%; significantly down from prior expectations of 9%. OEM constitutes roughly 30% of the sector, followed by Special Purpose at 23%.

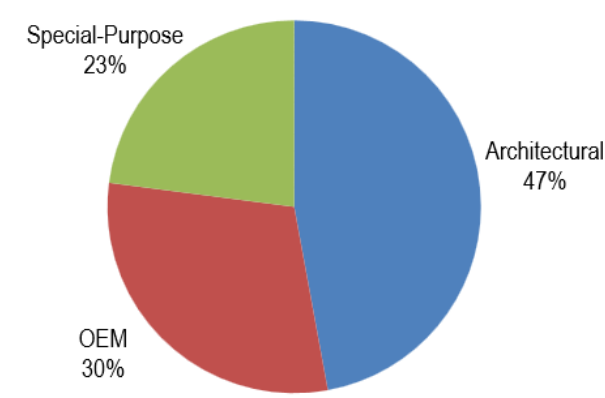
For its 2025 U.S. outlook, CQ forecasts Architectural volumes to increase to 783MM gal (**\$16.5B** in value). OEM and Special Purpose volumes are expected to increase to 372MM gal (**\$10.5B**) and 200MM gal (**\$8.0B**), respectively. These forecasts reflect yr/yr **volume** increases of ~2% for OEM and Special Purpose and flattish volumes for Architectural.

Figure 2. 2025 U.S. Paints & Coatings Segments by Volume, 1.36B gal



Source: The ChemQuest Group and Fermium Research LLC

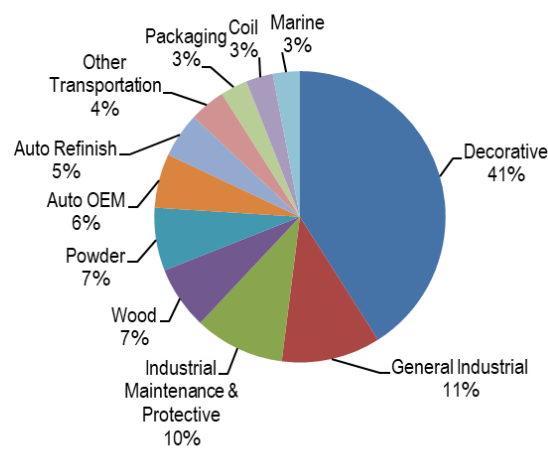
Figure 3. 2025 U.S. Paints & Coatings Segments by Value, \$35.0B



Source: The ChemQuest Group and Fermium Research LLC

The 2024 global breakdown differed from that of the U.S., as Architectural accounted for a smaller piece of the pie in other regions. Specifically, Architectural/Decorative accounted for 41% of sales on a global basis and ~50% in the U.S., while OEM accounted for a larger portion of demand worldwide.

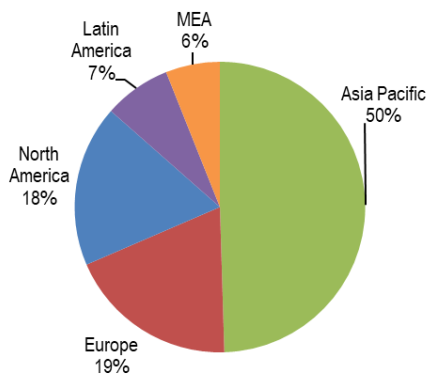
Figure 4. Paints & Coatings Global End-Market Breakdown, 2024



Source: The ChemQuest Group and Fermium Research LLC

By region, **Asia** is the leading coatings consumer, accounting for 50% of global demand, followed by **Europe** at 19%, and **North America** at 18%

Figure 5. Global Coatings Regional Breakdown, 2024



Source: The ChemQuest Group and Fermium Research LLC

Leading Producers

Since the early 2000s, the landscape of coatings companies has changed significantly. In recent years, **SHW** has moved to the No. 1 position following its acquisition of Valspar, with **PPG** trailing behind. The top three coatings firms, SHW, PPG, and AkzoNobel, account for ~60% of the top ten coatings producers' sales. Looking back in time, the industry leaders were relatively close together in scale, however, it's become clear that SHW is now the 800 lb. gorilla and its recent acquisition of BASF's Brazilian business (years after losing out on *Comex Mexico*) further enhances its scope. Furthermore, PPG's sale of its N.A. architectural coatings business to private equity has led to market share gains for SHW and others. At a time when the macro backdrop is less than stellar (close correlation between global coatings/adhesives consumption and GDP), we view SHW as the winner for our 2025 ChemQuest conference call.

That's not to say that **PPG** has been entirely left behind as it has multiple businesses that are improving though the overall outlook is more muted. For example, the company, along with AXTA, will continue to be market share gainers in auto refinish (at the expense of BASF, and other smaller competitors), though the longer-term volume trends there are less exciting due to the complexity of newer cars resulting in higher rates of total loss claims, along with the recent downturn in total accidents (but pricing/margins improving). However, the N.A. arch sale was addition by subtraction in terms of its own growth and margin profile. Dan also views PPG and SHW as the leading potential consolidators among the strategics. On **M&A**, Dan noted that deal activity is up 22% YTD after 2023 and 2024 took a noticeable step down from the active levels in 2020 through 2022.

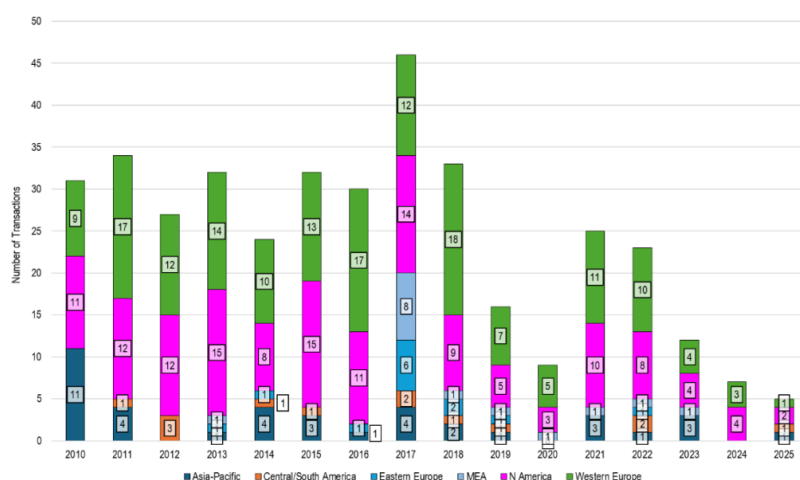
Figure 6. Top Coatings Producers, Sales in \$B, 2003 – 2024

\$ Billions	2003	2008	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Sherwin Williams	5.4	8.0	11.1	11.3	11.9	15.0	17.5	17.9	18.4	19.9	22.1	23.1	23.1
PPG	4.8	10.1	14.3	15.3	14.8	14.8	15.4	15.1	13.8	16.8	17.7	18.3	15.8
AkzoNobel	6.3	14.2	12.1	11.1	10.5	10.4	10.9	10.9	10.0	11.3	11.6	11.6	11.6
Nippon Paint	1.9	2.0	2.8	3.9	3.9	5.2	5.7	5.6	6.3	8.1	10.0	10.1	10.8
Axalta	3.7	4.1	4.4	4.1	4.1	4.4	4.7	4.5	3.7	4.4	4.9	5.2	5.3
BASF	2.4	3.3	3.8	3.5	3.5	4.3	4.5	4.4	4.0	4.0	3.9	4.7	4.7
Asian Paints	-	-	1.5	1.6	1.7	1.9	2.1	2.3	2.6	3.7	4.2	4.3	3.9
Kansai Paint	-	1.9	2.9	2.9	3.0	2.8	3.6	3.8	3.3	3.0	3.8	3.8	3.7
Jotun	-	1.6	2.0	2.0	1.8	1.8	2.0	2.2	2.4	2.6	2.9	3.0	3.2
Masco	-	-	2.0	2.0	2.1	2.2	2.4	2.5	2.8	3.0	3.0	3.3	3.0
Valspar	2.3	3.3	4.5	4.4	4.2	-	-	-	-	-	-	-	-

Source: The ChemQuest Group, Inc., Company Reports, and Fermium Research LLC

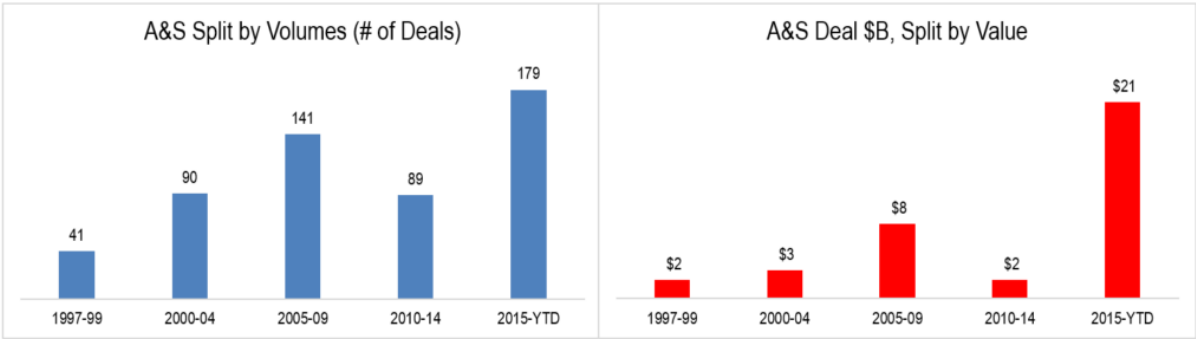
PPG completed multiple transactions in recent years (e.g., Tikkurila, Ennis-Flint, and VersaFlex in *Performance Coatings*, and Wörlag and Cetelon in *Industrial Coatings*) as M&A has been the largest use of cash over the past 10 years (~35% of total), but has shifted its strategy toward organic growth in the last two years, with a focus on acquisitions of "the right property at the right price at the right time." **RPM** has largely focused on its acquisition strategy as a main pillar for the company over the last 30 years. After spending \$127MM on M&A in F2022, it declined to \$48MM in F2023 and just \$16MM in F2024. For F2025, RPM M&A spend jumped to \$569MM with 6 acquisitions, which included the Star Brands' The Pink Stuff for \$487MM. It views the current valuations as more attractive so should expect F2026 to be another year of being active in M&A.

Figure 7. Paints and Coatings Acquisitions by Acquiring Region, 2010 – 2025



Source: The ChemQuest Group, Inc.

Figure 8. Adhesives & Sealants Deals by Volume and Value, 1997 – 2025 YTD

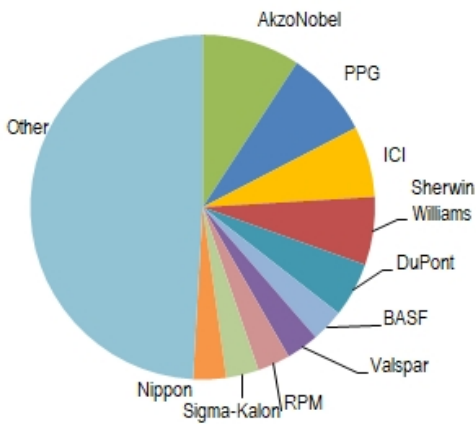


Source: The ChemQuest Group, Inc.

Since 2002, we’ve seen both **SHW** and **PPG** grow to their current dominant positions, with AkzoNobel trailing closely.

Figure 9. Global Coatings Industry, 2002

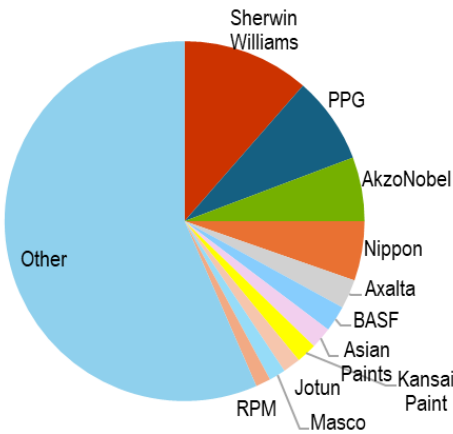
\$65B



Source: PPG and Fermium Research

Figure 10. Global Coatings Industry, 2024

\$202B

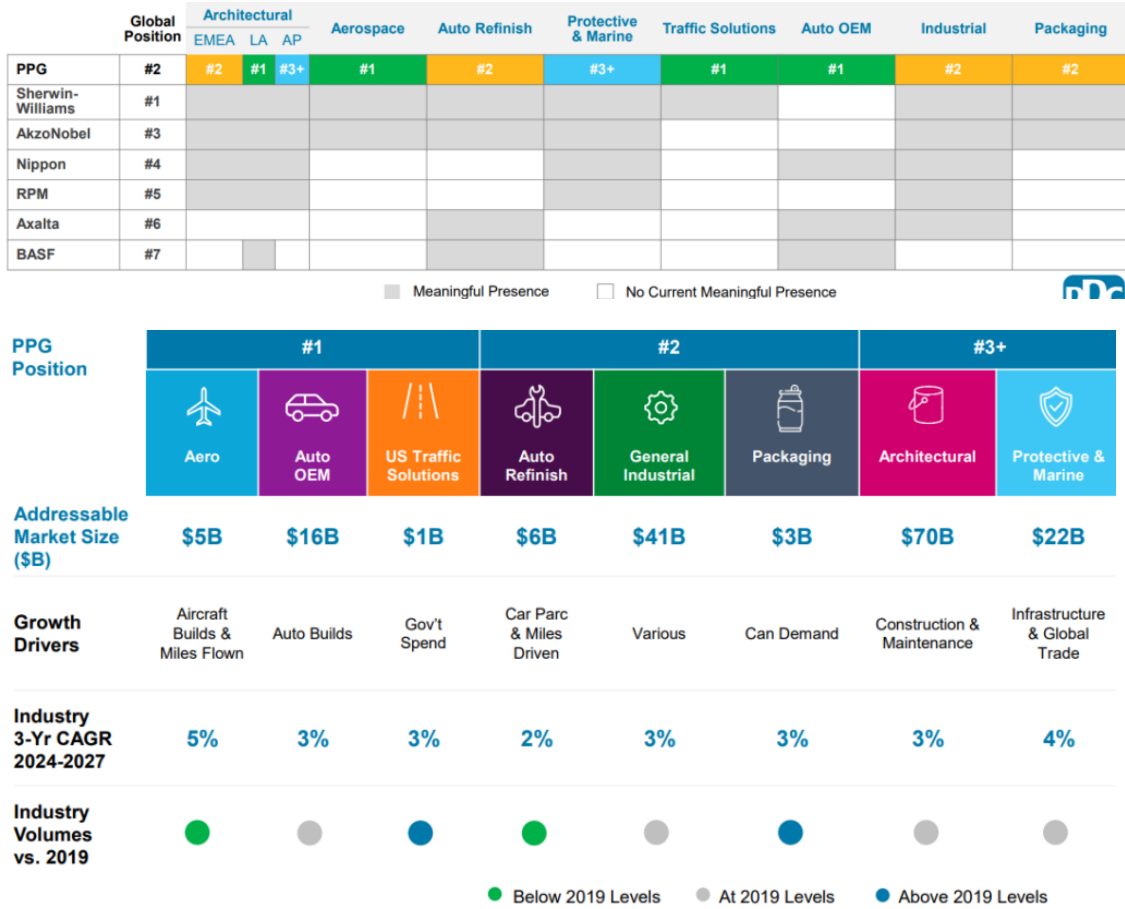


Source: PPG and Fermium Research

By end market, **PPG** is the only global player that competes in all major categories, with its Ennis-Flint acquisition propelling it into the pavement markings category, as well. Despite the 2012 sale of AkzoNobel’s North American Architectural Coatings business to **PPG**, AkzoNobel still ranks within the top three global coatings positions across most markets (except for auto OEM, as it does not participate). Also notable from this analysis is **RPM**’s participation in only three of the seven segments, focusing on architectural, general industrial, and protective & marine coatings.

SHW is the No. 1 architectural paint supplier globally, with the highest brand awareness and it has an exclusive agreement with Lowe’s Home Improvement, allowing it to be the sole supplier of architectural paints within Lowe’s stores. **PPG** ranks No. 2, and the AkzoNobel North America deal added the popular Glidden brand. **PPG** strength stems from its leadership positions in the auto OEM, aerospace, architectural LatAm, and traffic solutions segments, while holding #2 positions in architectural EMEA, general industrial, refinish/collision, and packaging. **PPG** is also ranked third for its protective & marine segment.

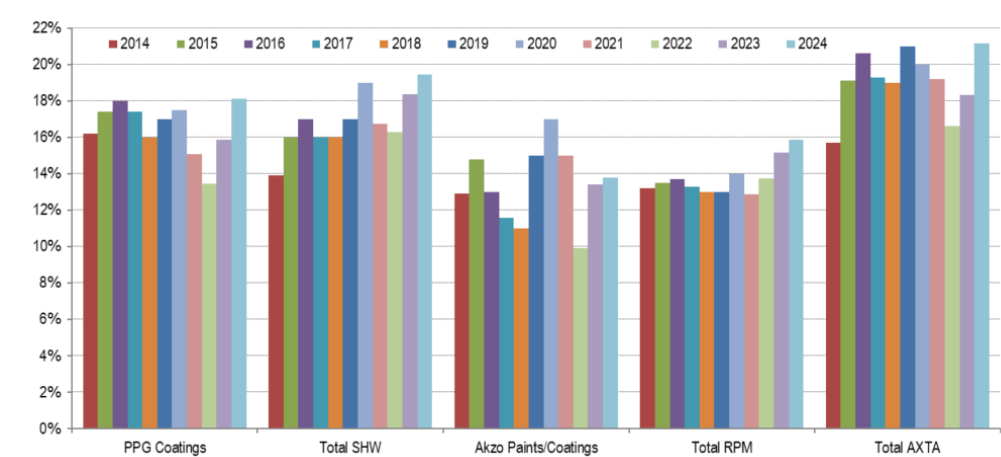
Figure 11. Global Competitive Positions of Coatings Companies, June 2025



Source: PPG

Comparing the **margins** of major coatings producers, **PPG** historically was the leader among its competitors, sporting a ~17% margin in strictly coatings, but trailed behind SHW and AXTA through Covid. It has been returning to margin expansion as it focuses on regaining volume growth and divesting low margin businesses. AXTA took first place in 2015 with a 19% margin. Other companies such as **SHW**, **AkzoNobel**, and **RPM** all ranged between 11% and 19% in recent years. Historically, RPM's margins have lagged peers, giving more than enough ambition to catch up through its renditions of MAP to Growth programs.

Figure 12. Coatings Peers' EBITDA Margin, 2014-2024



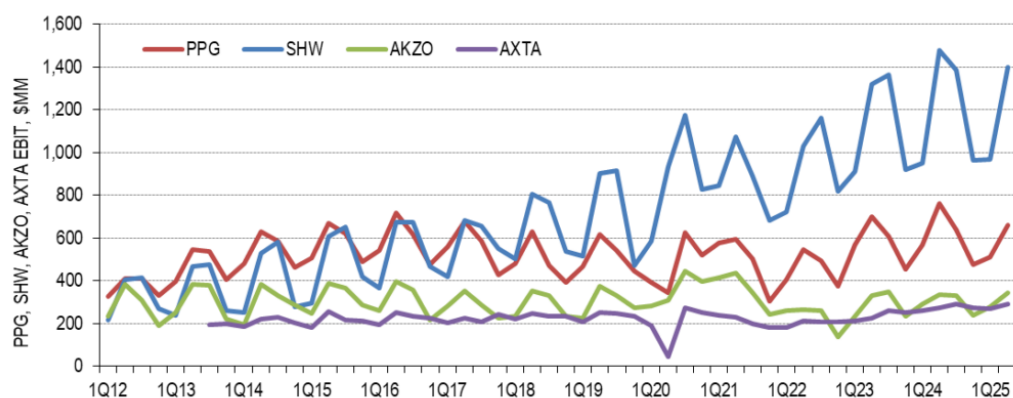
Source: PPG and Fermium Research LLC; Note that PPG adjusted all historical data to reflect Glass operations as disc ops.

Looking more recently at the topline yr/yr comps for 2Q25, performance was mixed with **PPG's** sales down 1% yr/yr (**price +1%, vol +1%**, FX flat, divestitures -3%) with 3% volume growth in *Performance Coating* led by double-digit organic sales gains in P&M. For comparison, **Akzo's** and **SHW's** 2Q organic sales were flat. After 27 consecutive quarters of higher pricing at PPG, 2024 saw pricing flat yr/yr with 1Q25 following suit, BUT 2Q25 returned to +1% pricing gains. Volumes remained in the green territory after finally turning positive in 1Q, with another 1% growth in 2Q. Volume growth is expected to accelerate in 2H due to share gains it's realizing in auto OEM, packaging, and general industrial. With BASF effectively vacating the Brazilian auto OEM market, PPG expects to see a \$60MM annual benefit. **RPM** saw F4Q25 sales up 4% yr/yr (organic 2.0%, M&A 2.0%, FX -0.3%) as NA sales (78% of F4Q sales) increased 3% yr/yr driven by systems and turnkey solutions tied to high performance buildings and European sales (15% of F4Q sales) posted 14% with higher performance coatings and M&A contributions.

For **3Q25**, PPG expects to see *organic* sales flat to up low-single-digits yr/yr. *Performance Coatings* is trending up LSD to MSD (powered by aerospace/protective & marine), and *Industrial Coatings* is expected to be flat or increase LSD (share gains from Brazil a key). The *Global Arch Coatings* is expected to be flat or decline LSD (weakness in Europe likely offsetting strength in Mexico). PPG reaffirmed its **2025** guidance range of **\$7.75 – \$8.05** (consensus \$7.88), which partly reflects the lessening headwinds from FX. The guidance also factors in raw material inflation of low-single-digits for 3Q and the year. Note that **SHW** sees modest *deflation* in raws in 2H25 largely from petrochemicals and resins resulting in flattish for the full year, down from its prior expectation in raws coming in “at the high end of low-single-digits.” Among the differences is PPG's proportionally higher exposure to epoxy resins as well as implications from its Mexican business purchasing in USD terms though PPG is able to fully offset by price. **SHW** recently lowered its earnings outlook to **\$11.20 – \$11.50** for 2025 citing softer architectural volumes and supply chain inefficiencies with sales +/- LSD and raws expected flat yr/yr.

Compared to F1Q26 EBIT consensus of \$339MM, RPM is guiding to a range of **\$335MM – \$350MM**, with sales expected to also increase LSD to MSD yr/yr to a range of **\$2.00B – \$2.09B**. SG&A (deal expenses) and price/cost are expected to be headwinds for F1Q, but flip following a series of soon-to-be price increases, with FX to provide a benefit as well. For F2026, sales guidance is for an increase of up LSD to MSD (**\$7.52B – \$7.82B**) with the adj EBIT range expected to be up HSD to LDD (**\$1.05B – \$1.10B**). With **MAP 2025** concluded, another \$70MM related benefit is expected to be captured in F2026.

Figure 13. EBIT Comparison for Coatings Competitors, 1Q12 – 2Q25



Source: Company reports and Fermium Research LLC; Note: AKZO results converted to USD

Margins and Raw Materials

The cost structure for a U.S. coatings company has continued to remain relatively unchanged over the past few years, though raws captured a decline. On average, raw materials moved up slightly beginning in 2018, but started to moderate in 2022 and now settled around 41-52% of sales, off of the peaks of earlier years with TiO_2 inflation. Other major raw materials include acrylics, phenol, and other pigments. Gross margin was in the mid-30% area a decade ago but is ranging between 35-48% recently.

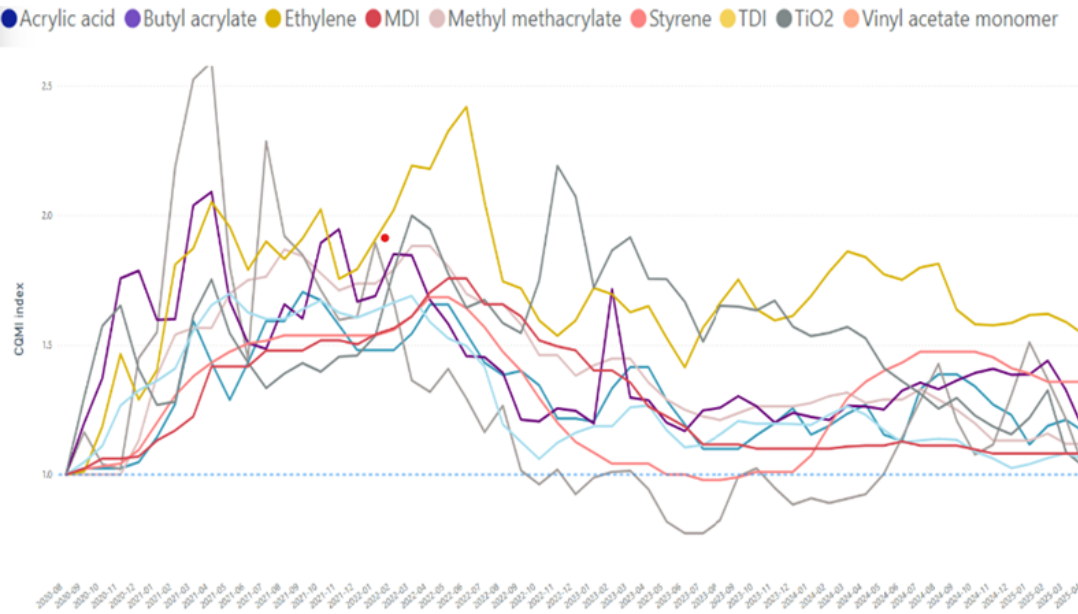
Figure 14. Comparison of Average U.S. Companies' Cost Structures, 2005-2024

	2005	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Sales	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Goods Sold																
Raw Materials	50-55%	45-49%	47-53%	45-53%	45-53%	43-51%	44-52%	43-51%	45-53%	45-55%	45-55%	45-55%	47-58%	46-57%	43-54%	41-52%
Labor	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Energy	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Overhead, Taxes, Ins., Dep., Pkg.	7%	6%	6%	6%	6%	6%	6%	6%	6%	4%	4%	4%	4%	4%	4%	4%
Total	65-70%	58-62%	60-66%	58-66%	58-66%	56-64%	57-65%	56-64%	58-66%	57-66%	57-66%	57-66%	60-69%	57-66%	54-63%	52-61%
Gross Margin	30-35%	38-42%	34-40%	34-42%	34-42%	36-44%	35-43%	36-44%	34-42%	34-43%	34-43%	34-43%	31-44%	32-45%	35-48%	35-48%
SG&A	20-30%	19-34%	19-34%	19-34%	19-34%	19-34%	19-34%	20-35%	19-34%	19-34%	19-34%	19-34%	19-34%	19-34%	19-34%	19-34%
EBIT	5-10%	8-17%	6-15%	8-15%	8-15%	10-17%	9-16%	9-16%	8-15%	6-13%	6-13%	6-13%	3-10%	4-11%	7-14%	9-16%

Source: The ChemQuest Group, Inc. and Fermium Research LLC

Among the key highlights is ChemQuest's tracking of ~20 raw materials with its CQMI index (Figure 15). The patterns are clear with deflation during the initial stages of Covid, only to begin an upward tilt as we entered the fall of 2020 sparking a rise that lasted into the middle of 2022. Tariffs and anti-dumping duties are having a modest impact though less so than expected three months ago. In total, Dan expects to see raws flat in 2025 (steadier for coatings vs. adhesives), following the ~2% decline in 2024 and ~8% decline in 2023; a sheer contrast to the double-digit inflation seen in 2022.

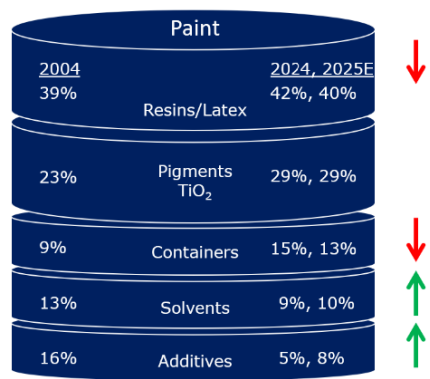
Figure 15. Steep Increases in Raw Material Costs Have Reversed



Source: The ChemQuest Group, Inc.

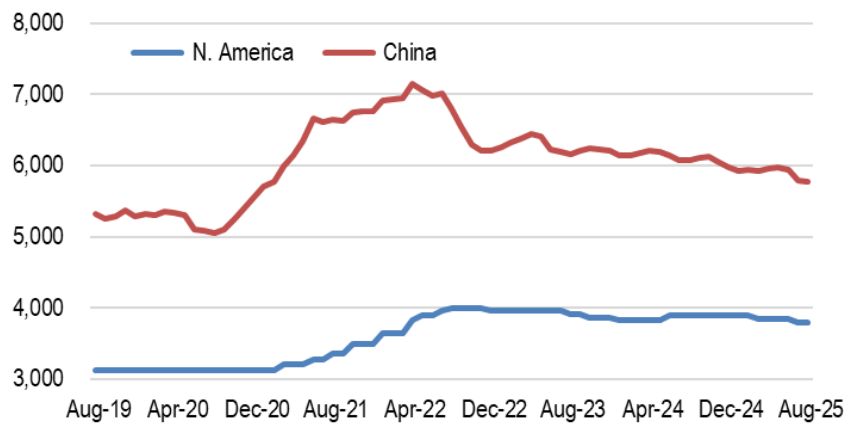
The following exhibit shows the expected breakdown of the various raw materials found in a typical can of paint. Compared to 2024, CQ expects a slight increase in the share of additives and solvents, offset by resins/latex and containers ticking down. In recent years, the cost of containers also increased considerably, primarily reflecting metals inflation, but has shown some easing.

Figure 16. Raw Material Input for Avg Unit of Coatings, 2004, 2024, 2025



Source: The ChemQuest Group, Inc. and Fermium Research LLC

Figure 17. Regional TiO₂ Pricing, \$/MT



Source: TiPMC Consulting

During 2012-14, pigments input was driven by mix, as solvent prices declined and new low-VOC resin systems utilized latex binders, driving higher pigment use. A look at the coatings cost structure over time shows that pigments trended upward during 2012-14 despite the considerable decline in TiO₂ prices. However, further TiO₂ price drops finally depressed cost in 2015, causing the input per unit percentage to drop from 2013-14 levels, though it has recently been increasing. Pigments now account for ~30% of raw material inputs.

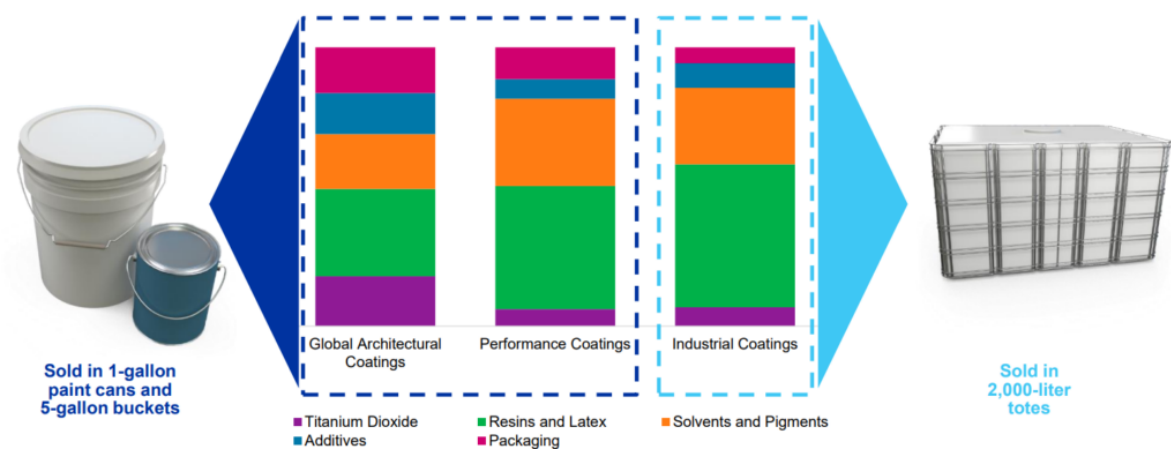
Figure 18. Historic Raw Materials Input Per Unit of Coatings (%), 2010-2025

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Resins/Latex	37	36	37	40	40	38	40	44	44	43	41	43	40	40	42	40
Pigments	27	29	27	34	30	27	25	26	26	27	29	29	30	30	29	29
Containers	16	14	16	11	11	14	14	12	12	13	15	15	15	15	15	13
Solvents	10	12	10	5	9	10	8	7	7	8	8	7	10	10	9	10
Additives	9	10	10	10	10	11	13	11	11	9	9	7	5	5	5	8

Source: The ChemQuest Group, Inc. and Fermium Research LLC

Manufacturing costs and raw material inputs vary for Architectural Coatings and Industrial/OEM Coatings. Architectural paints use more TiO₂, as decorative paints require more opacity. Industrial Coatings use a larger amount of other such raws as resins, latex, solvents, and pigments. In terms of packaging, Architectural is typically sold in one-gallon paint cans and five-gallon buckets, while Industrial Coatings are mainly sold in 2,000-liter totes.

Figure 19. Coatings Cost Comparison, Architectural vs. Industrial

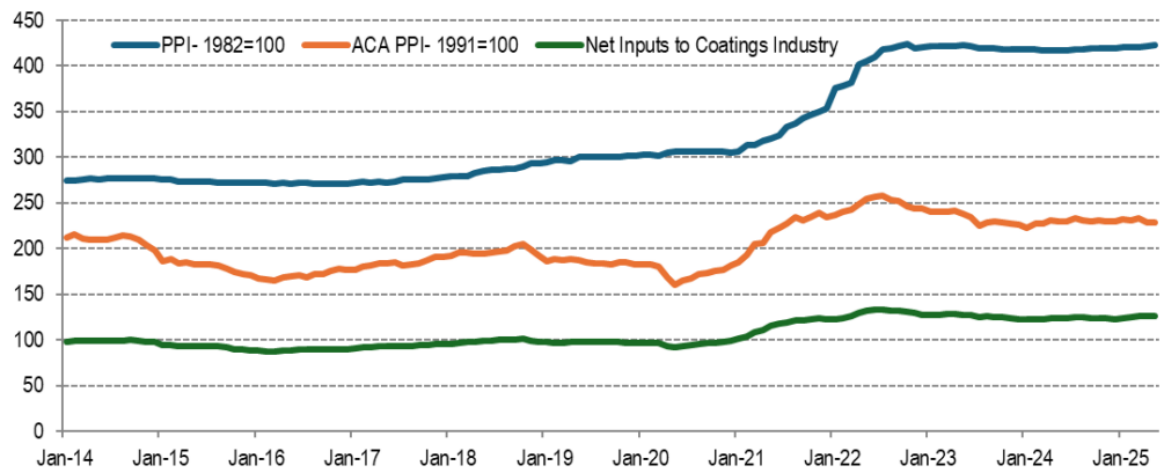


Source: PPG

Historically, price increases typically lagged raw material inputs by 3-6 months, resulting in margin squeezes in inflationary environments. The PPI and PMI for coatings dating back to February 2004 have ~80% correlation, though have been showing more of a divergence since 2024.

Paint producers have been effective at raising prices, with a significant step-up after 2010 in response to higher raws. Price increases accelerated in 2012 and have since been steady at a moderate level despite more volatile raw materials, though saw an acceleration in 2021. In fact, one of the attractive attributes of paints is that prices rarely go down, even if the underlying raw materials do.

Figure 20. PPI and PMI, Paints and Coatings Manufacturing, 2014 – Current

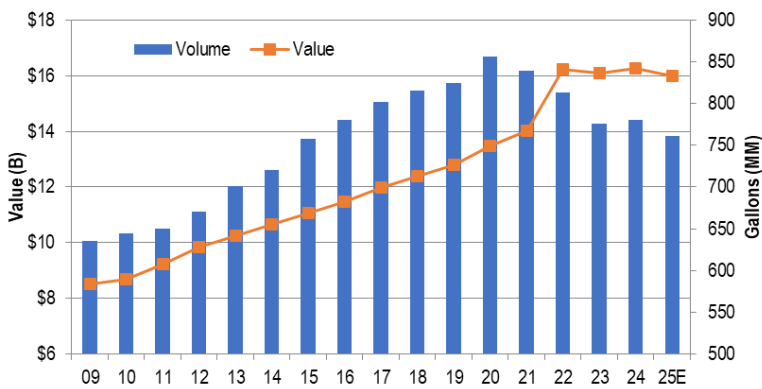


Source: Bureau of Labor Statistics and Fermium Research LLC; Note: PPI Index 1982=100, PMI Index 1991=100

Architectural Coatings

Architectural. Within the \$16.2B U.S. *Architectural Coatings* segment, sales are forecast to decrease ~2% (vol 2.5%, price +1.0%) in 2025 following a ~1% increase in 2024. For 2025, new homes sales are forecast to be up 2% and existing home sales are expected to recover 3%; significantly down from prior expectations of 9%. Remodeling activity shined through the pandemic as the crown jewel but slowed in 2023, declined in 2024, and is expected to rebound to 2.5% growth. Importantly, overall existing structures provide a fixed component of ~550MM gal though variable demand has been the issue.

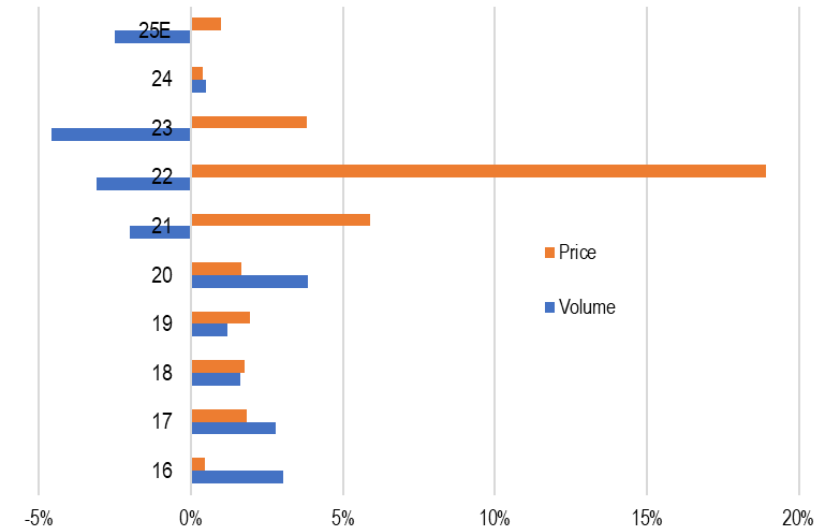
Figure 21. U.S. Architectural Value and Volumes, 2009 – 2025



Source: The ChemQuest Group, Inc.

Dan detailed the ongoing issues of the housing market/affordability crisis and constrained housing inventory, which sits around ~3 months of housing inventory now (above 1-2 months we saw last year but below the normalized 6-month level). A further headwind has been the recent consumer trend away from premium paints towards lower cost. The preferences toward zero VOC formulations (regulatory-driven), odor absorbing, and convenience paints (2-in-1 paint and primer products, faster dry, etc.) continue, while global warming is requiring more durability with harsh weather. The contractor portion (65%) has rebounded off the 2020 lows and back at 2019 peak level so is a modest benefit for SHW.

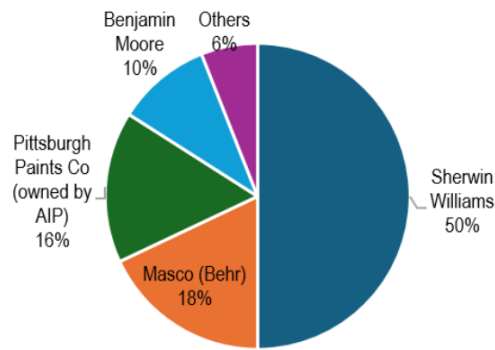
Figure 22. U.S. Architectural Yr/Yr Volume and Price Trends, 2016 – 2025



Source: The ChemQuest Group, Inc.

SHW, AIP, MAS (Behr) and BRKA (Benjamin Moore) are the segment leaders making up more than 90% of NA Arch coatings.

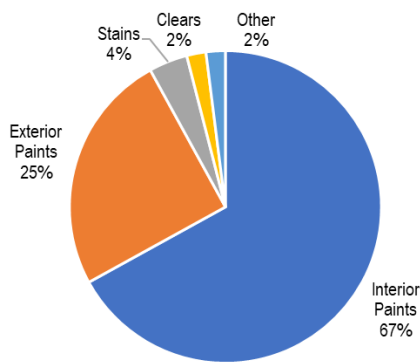
Figure 23. N.A. Architectural Coatings Producers, 2024



Source: The ChemQuest Group, Inc.

The end-market breakdown is estimated to be a 67/25 breakdown of interior paints vs. exterior, compared to 2018's 75/13 interior vs. exterior. The remainder includes stains, clears, lacquers, varnishes, and other categories.

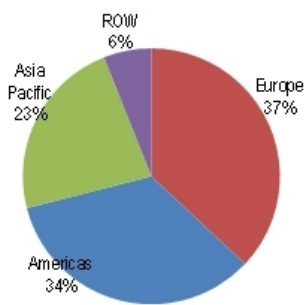
Figure 24. Arch Coatings End Market Segment Share



Source: The ChemQuest Group, Inc.

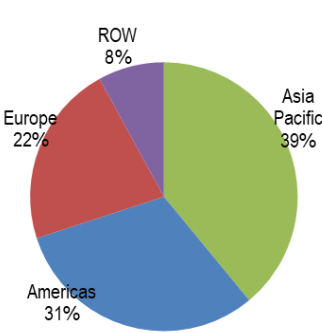
Regionally, Asia and the Americas account for roughly a third of sales each. Over recent years, Asia grew as a percent of total demand, due to faster economic growth, which has subsided. Consequently, Europe makes up a smaller percentage of the pie today.

Figure 25. 2009 Arch Coatings Demand by Region



Source: SHW and Fermium Research LLC

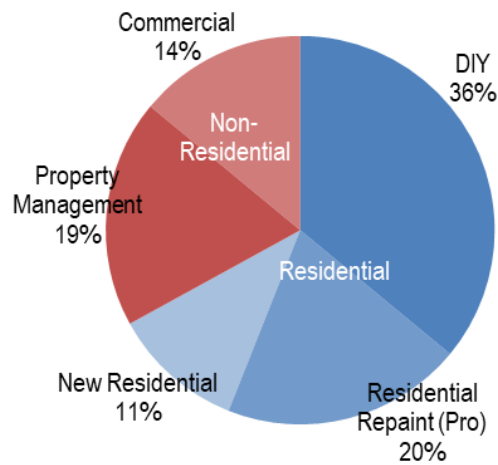
Figure 26. Recent Arch Coatings Demand by Region



Source: The ChemQuest Group, Inc.

Regardless of region, Architectural Coatings sales are largely driven by the residential market, with CQ estimating that residential accounts for almost ~67% of U.S. architectural coating’s volumes and closer to 75% in Canada.

Figure 27. U.S. Arch Market Breakdown by Type

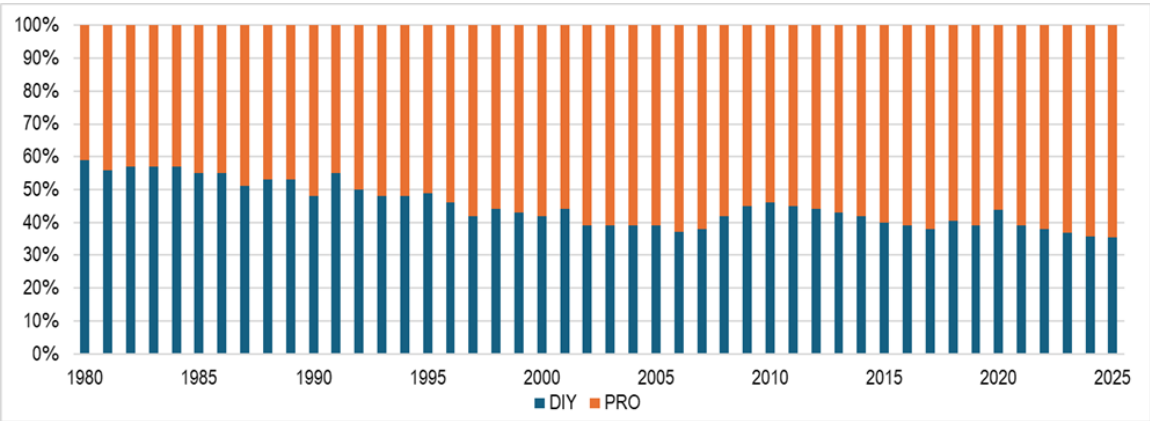


Source: The ChemQuest Group, Inc.

Over the past several years (and punctuated during the recession), there has been a moderate shift back toward professional contractors (DIFM), representing about 61% of the market in 1919, well above 1980’s 41%. 2020 saw an uptick in DIY projects during the pandemic, with 2020 reaching a 60/40 split but has since reverted back to 64/36.

Millennials have been moving toward DIY through their use of *Youtube* to learn how to paint, while Baby Boomers have moved toward professional contractors as they age. The majority of DIY purchases occur through such home centers as Home Depot and Lowe’s. However, Home Depot and Lowe’s are focusing on providing more products and services for professionals. Paint stores are a distant second, with dealers and mass merchants contributing to the remainder of sales. In contrast, contractors make most of their purchases at paint stores.

Figure 29. PRO vs. DIY in U.S., 1980-2025



Source: The ChemQuest Group, Inc

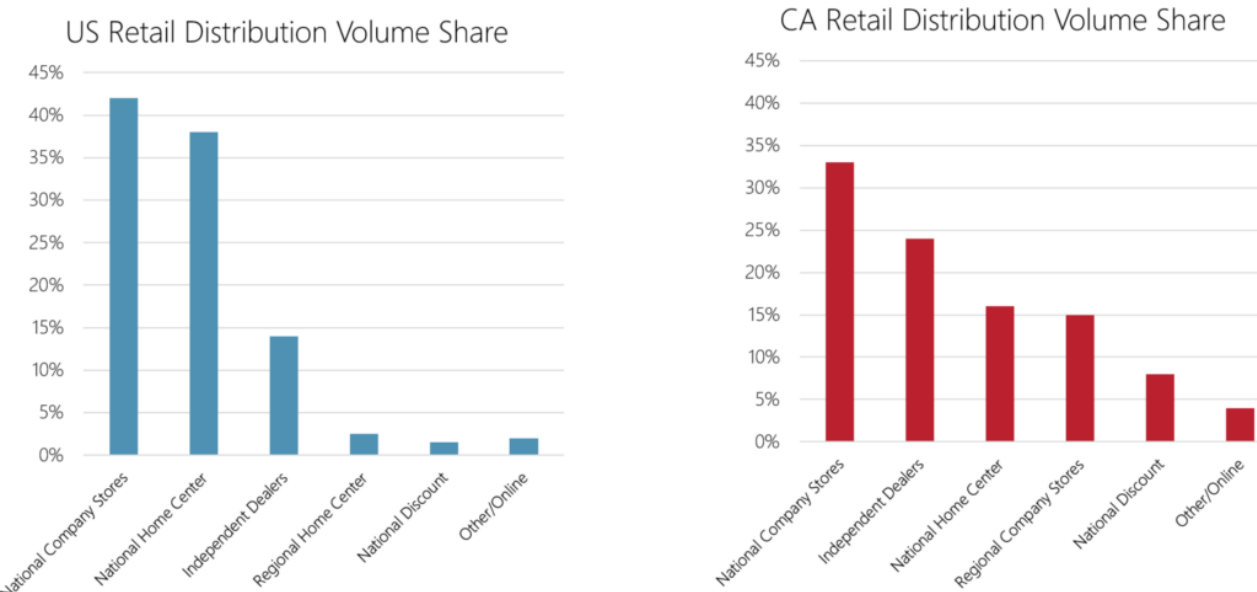
Looking more closely at the channels of distribution, the predominance of company-owned paint stores for the contractor market shows why the aforementioned shift has continued to be favorable for **SHW**, which has 5,107 stores across its Americas Group. Since divesting its N.A. Arch business, **PPG’s** Architectural segment exposure is 60/34/9 split across EMEA, LatAm, and Asia, with 5,200 concessionaires in Mexico, having added ~1,600 new stores since the *Comex* acquisition. Globally, the *Architectural Coatings* channels of distribution mix is composed primarily of independent distributors, followed by such regional home centers as Lowe’s, Home Depot, and Bunnings, while mono-branded stores make up the remaining portion.

Figure 28. CQ Arch Coatings Estimates

Sector	Approximate % of Market Gallons	Key Drivers of Growth for This Market Sector
DIY	40-45%	New and existing home sales
Residential repaint	15-20%	Existing home sales
New residential construction	5-8%	New home sales
New commercial and institutional construction	4-6%	Value of construction put in place
Residential property maintenance (MFU, condo)	5-8%	New and existing home sales Rental turnover rates
Commercial-institutional property maintenance	15-20%	New and existing home sales Economic growth – productivity, labor hours

Source: The ChemQuest Group, Inc.

Figure 30. Arch Distribution Channel Evolution



Source: The ChemQuest Group, Inc.

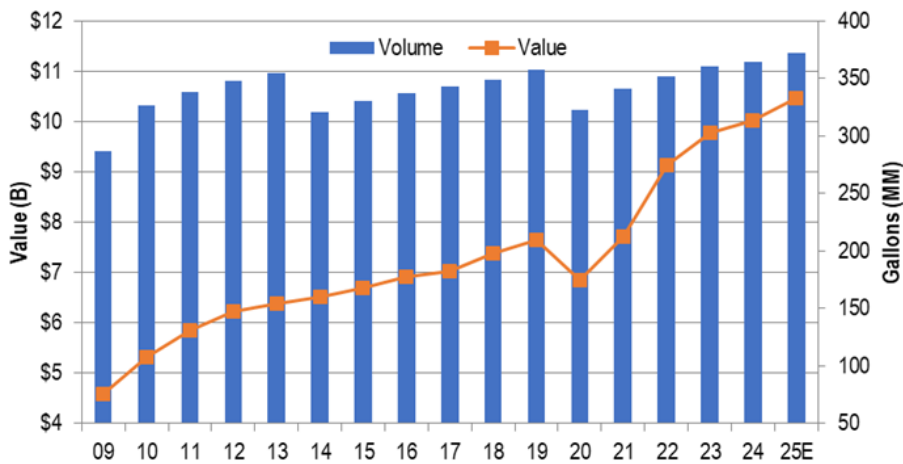
A trend that has continued to be popular is **zero-VOC** formulation. Despite what the name implies, “zero-VOC” is not completely devoid of volatile organic compounds, as a small amount is added when color is blended with the base coats at the retailer level. Manufacturers are moving to a zero-VOC colorant/tinting system as they try to stay ahead of industry standards. Other formulation innovation has taken the form of **de-polluting coatings**, which prevent dirt from ruining surfaces. These can be used to keep buildings clean and reduce the need for renovations. **De-Nox coatings** have been on the rise as well, serving to reduce the number of nitrogen oxides and particulates that contribute to smog.

Emphasis on **convenience** also continues to be a major focus for consumers, which also include digitalization and automation processes in color selection. Opportunities to save time or the number of painting steps are being developed, with a prime example being “*paint and primer in one*.” Manufacturers are formulating paints that dry faster or reduce surface preparation to paint. Additional emphasis is also being placed on the durability of the paints, with lifespans of greater than 25 years being targeted, especially with the continued impacts of extreme weather. This increases the value-add felt by consumers when using these new formulations of paint. All these changes help add value to products beyond what traditional painting provides, lending support to higher average selling prices, regardless of the level of raw material inflation/deflation.

Industrial OEM Coatings

Industrial. Following a 2% increase in 2024, 2025 is forecast to see volumes up 1.3% and pricing up 2.3%. The slowdown in durable goods has had a dampening effect as it accounts for 2/3 of the segment, while auto OEM is another ~13% (transportation overall at ~33%). The shift towards hybrids/EVs doesn't have a major impact on the exterior but the inclusion of battery packs requires higher value coatings for better heat dissipation.

Figure 31. U.S. OEM Value and Volumes, 2009 – 2025

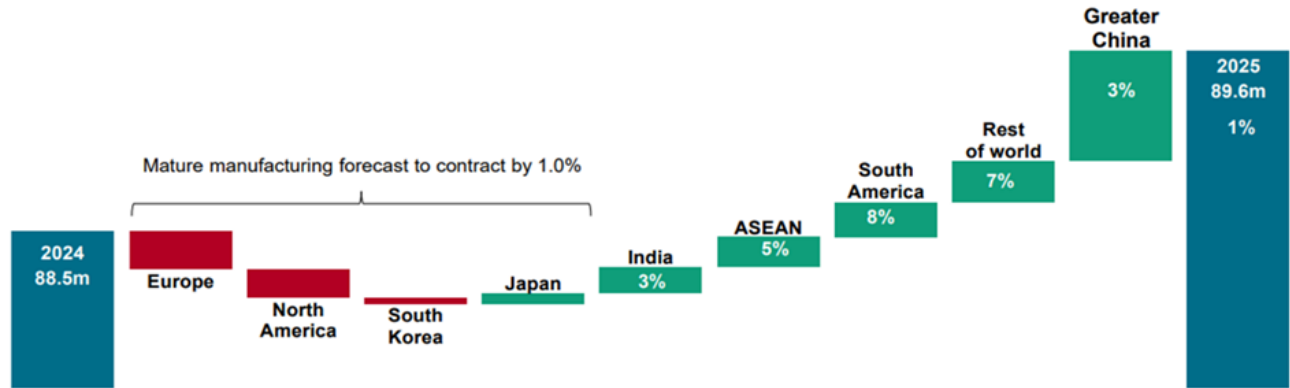


Source: The ChemQuest Group, Inc. and Fermium Research LLC

CQ highlighted such major trends as products that create reformulations amidst raws inflation, operational efficiencies (improve productivity/provide wet-on-wet applications, UV-curable coatings and powder coatings), increase sustainability especially in energy consumption, and provide innovation (solar heat management/infrared reflectance/noise vibration/uniform pigment distribution of premium vivid colors/self-healing). With such trends as light-weighting, there is also an increased need for functionality and fuel efficiency across multiple substrates (i.e., steel, metal alloys, plastics, composites). **PPG, BASF, AXTA, and SHW** are the segment leaders.

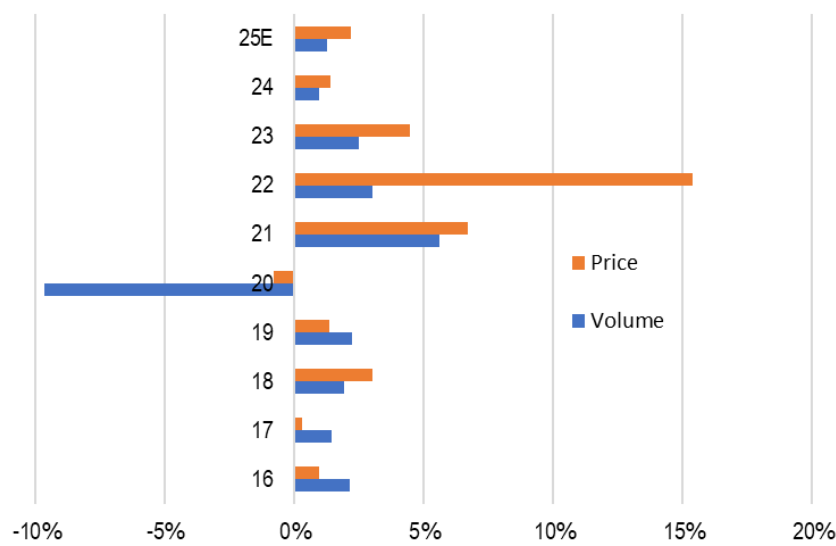
CQ also highlighted *Light Vehicle Production*, which is expected to be down LSD for 2025 in the U.S. In terms of geography, South America and South Asia show the best opportunities for LVP growth with China leading production and Europe, NA, and Japan/Korea showing stability or modest declines. Additionally, higher than expected interest rates, greater impact related to the transition to battery-electric vehicles, and some automakers running with less inventory, are expected to put a cap on sales and production volume over the next five years. However, LVP is still expected to experience moderate growth until 2031, with a consistent upward trend each year. PPG estimates the global auto OEM coatings market at ~\$16B.

Figure 32. LVP Regional Manufacturing



Source S&P and The ChemQuest Group, Inc.

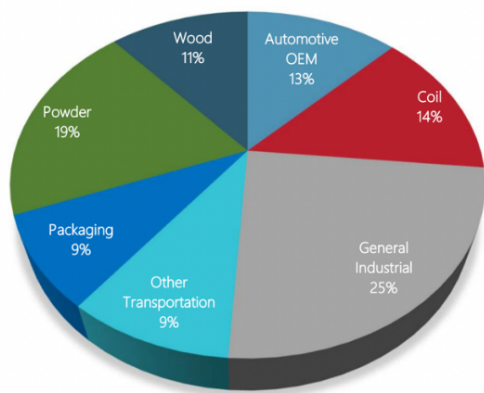
Figure 33. U.S. OEM Yr/Yr Price and Volume Trends, 2016 – 2025



Source: The ChemQuest Group and Fermium Research LLC

General Industrial is the largest OEM end market at about a fourth of sales, followed by powder and auto OEM, at 19% and 13% respectively. Industrial Coatings can serve functional (hardness, corrosion resistance) and decorative purposes in such household objects as refrigerators, HVAC, fireplaces, microwaves, and vacuum cleaners, and in such automotive parts as bumpers, axles, brake systems, and rigid and flexible exterior trim systems. They can also be used in electronic devices including mobile phones, laptops, and tablets. PPG estimates the global industrial coatings market at ~\$41B, with packaging at ~\$3B.

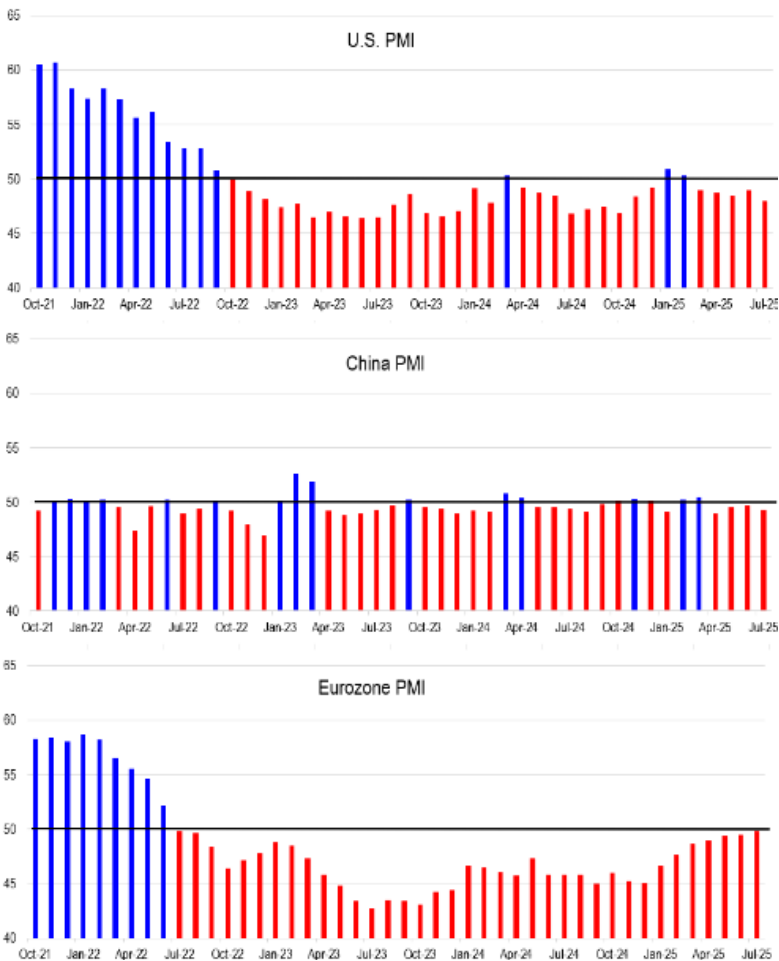
Figure 34. OEM Coatings End Markets, 2024



Source: The ChemQuest Group and Fermium Research LLC

SHW estimates that more than half of OEM Coatings sales are in Asia, followed by ~20-25% in Europe, and ~20% in U.S./Canada, and has highlighted that most regions are trending flattish or contracting, with the exception of Brazil.

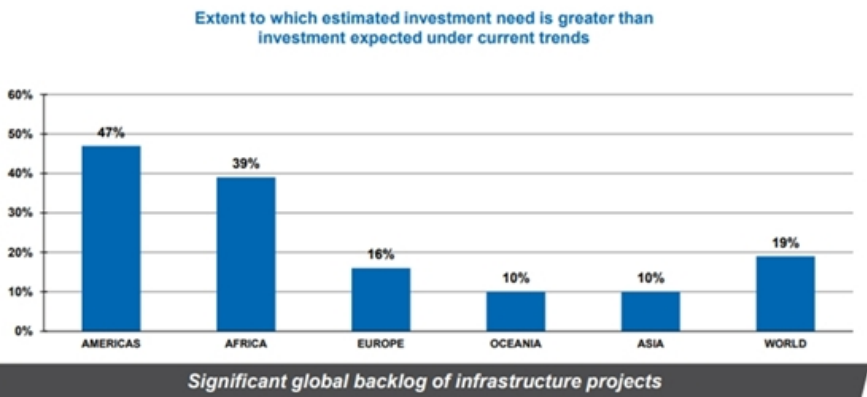
Figure 35. Purchasing Manager Index (Manufacturing) by Region, 2021 – Present



Source: Bloomberg

Much of what drives demand in Industrial Coatings end markets relies on the macroeconomic environment and is fueled by industrial production. The fastest-growing region (in non-Covid times) was Asia Pacific, as it saw bursts of economic and GDP growth. However, there are current concerns over the ability to maintain this in future. There are some expectations calling for even greater investment in infrastructure than is currently being planned, with the largest gap in the Americas. The discussions about added investment in U.S. infrastructure from new legislation are serving to bolster future expectations from many.

Figure 36. Infrastructure Investment Gap by Region, 2016-2040



Source: SHW

Compared to 2005, the competitive landscape has seen the biggest players take a larger share, though the market still remains fairly fragmented with the 2024 global industrial coatings estimated to be ~\$41B. PPG has expanded its footprint through acquisitions mainly focused on technologies, including *Worwag* (a global manufacturer of coatings for industrial and automotive applications), and *Cetelon* (a manufacturer of coatings for automotive and light truck wheel applications), though AkzoNobel remains the industry leader.

On Industrial Coatings, PPG has noted that there are four technology offerings, including liquid, powder, pretreatment, and electrocoat. **Liquid**, which consists of traditional primers and topcoats, is by far the largest, accounting for nearly two-thirds, and continues to outpace competing technologies. **Powder**, for which a solid coating is applied by electrostatic spray, follows at ~25% but PPG believes it is growing faster than the market and will likely expand its portion of the market. **Pretreatment** and **electrocoat** are about 5% each; the former includes cleaners and phosphate chemicals to condition metal before paint is applied, while the latter applies coatings by electrically charged immersion. All major coatings producers offer liquid solutions, many offer powder, a handful offer E-coat, and **PPG** offers all four. Pretreatment is a primary technical solution in appliances, auto parts, general finishes, and heavy-duty equipment.

Several **major trends** are defining the current OEM coatings landscape. Operational efficiencies continue to be a major focus of the industry with the rise of automation in manufacturing leading to increased demand for coatings that cure faster and require less manual labor. Such advanced materials as nanocomposite coatings are being explored to enhance performance. These coatings will allow for superior strength and scratch resistance, as well as thermally conductive coatings for better heat dissipation in electronics.

Innovative solutions are also a key part of the evolving field of OEM coatings, with work being carried out on numerous new functional coating technologies. Some of the areas being explored include self-healing paints for minor scratches, antimicrobial coatings for hygiene, and even self-cleaning surfaces. Additionally, reformulation of key products has increased due to the raw material shortages in 2022, resulting in manufacturers finding alternate ways to meet demand. Data-driven development is also something to look at going into the future as manufacturers are increasingly using data analytics to optimize coating formulations and application processes, allowing for more targeted solutions and improved quality control.

Interestingly, PPG has noted that motorcycle coatings, with a diversity of applications, represent a high growth segment in emerging markets.

Figure 37. Fermium Conducts Field Research



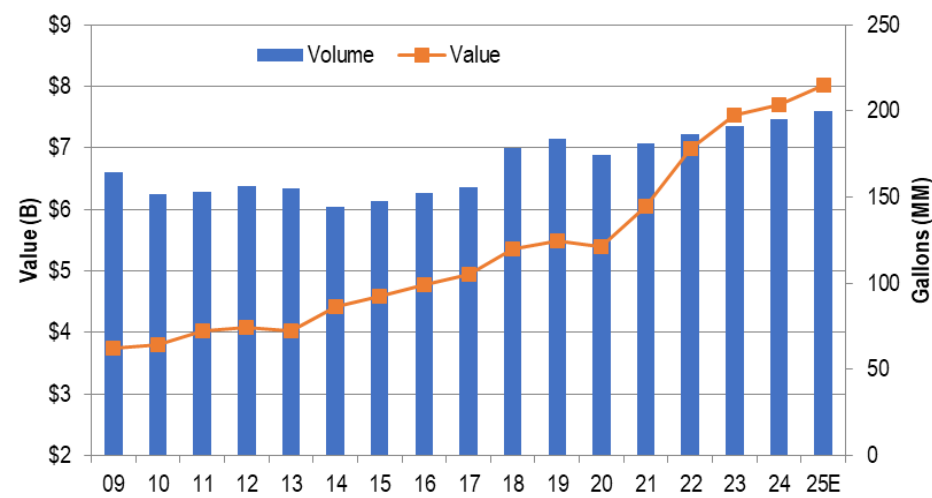
Source: PPG and Fermium Research LLC



Special Purpose Coatings

Special Purpose. Following an 2% increase in 2024 U.S. *Special Purpose Coatings* sales, 2025 is forecast to see volumes up 2.1% and pricing up 1.6%. The growth over the recent past hasn't been stellar but it has been steady. Auto refinish coatings remain among the highest value segments as VMT has surpassed pre-Covid levels but accident rates have declined for the last 2 years. There is still a positive outlook for protective coatings through 2030 as well, with higher capex another benefit.

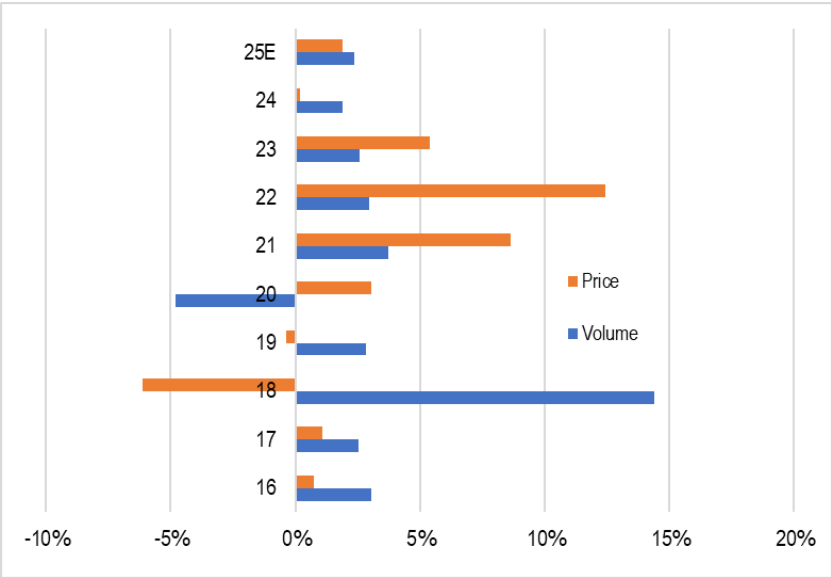
Figure 38. U.S. Special Purpose Value and Volumes, 2009 – 2025



Source: The ChemQuest Group, Inc. and Fermium Research LLC

Longer term, however, autonomous driving technology, new safety systems in cars (collision avoidance) and ride sharing apps pose a threat to the segment. Aging U.S. infrastructure remains an area of opportunity, along with the focus on solvent-borne coatings. **PPG**, **AXTA**, and **RPM** are among the segment leaders.

Figure 39. U.S. Special Purpose Yr/Yr Price and Volume, 2016 – 2025

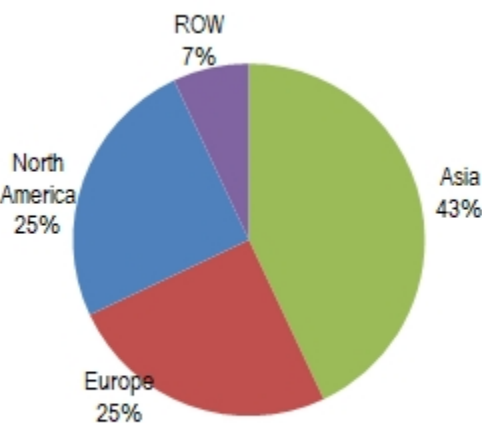


Source: The ChemQuest Group, Inc. and Fermium Research LLC

Special Purpose coatings serve far fewer **end markets** than those served by industrial OEM coatings, but they typically carry higher margins. Major end markets for Special Purpose coatings include automotive refinish, industrial maintenance, and traffic-marking paints. The segment is due to benefit from an increase in oil & gas as well as infrastructure. Additionally, *Auto Refinish* is expected to continue outperforming all other segments. Aerosol and marine paints are the remaining end markets, with the latter seeing particularly subdued demand in recent years due to the decline in shipbuilding activity, as *Clarksons* estimates 2022 global newbuild

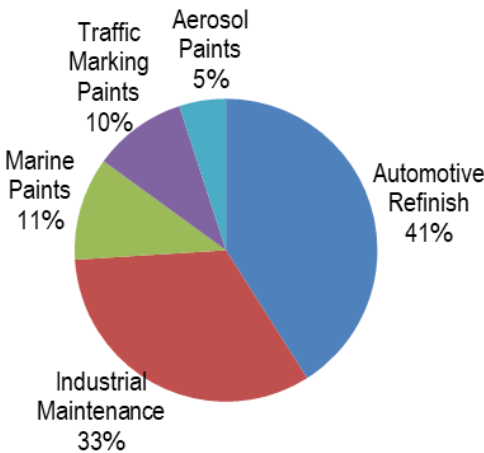
order volumes fell 20% yr/yr, though shipbuilding activity started to recover in 2023. Further on the plus side, 2024 saw “the most active newbuild market since 2007.”

Figure 40. Special Purpose Coatings Sales by Geography



Source: SHW and Fermium Research LLC

Figure 41. Special Purpose Coatings Sales by End-Market

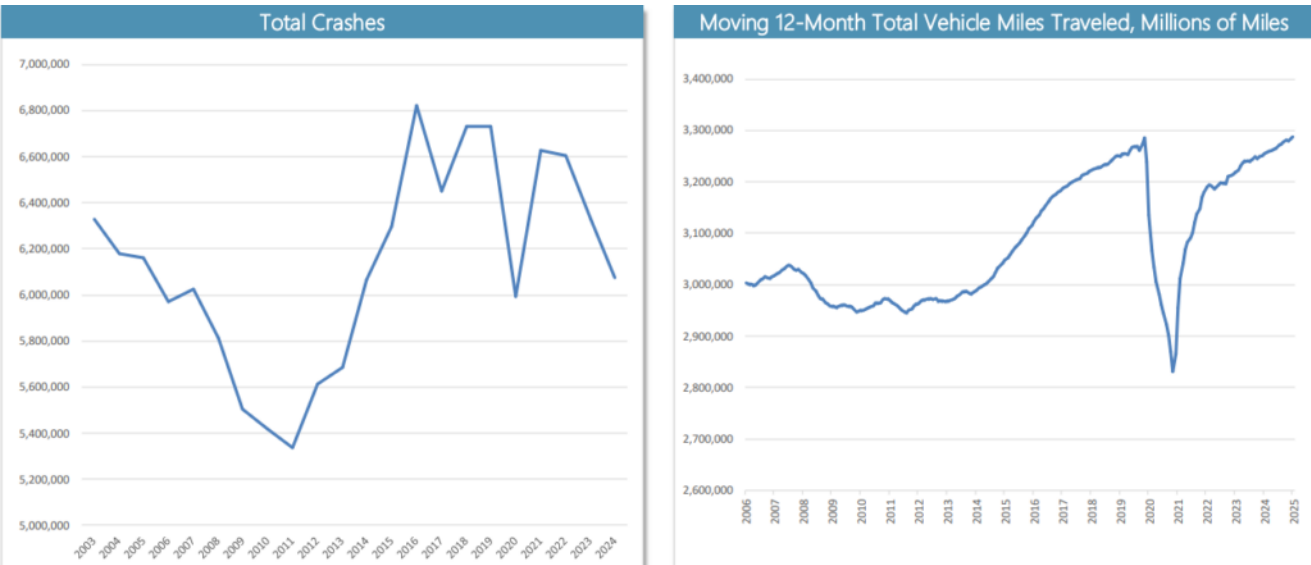


Source: The ChemQuest Group, Inc. and Fermium Research LLC

VMT is an important metric for auto refinish, as repair/refinish activity picks up with increased driving (which unfortunately means more accidents). VMT typically slows in the early months of the year, as cold weather curbs travel, partially offset by icy conditions increasing accidents. March 2020 saw the beginning of the sequential declines as Covid kept many of us at home, but 2021 and 2022 increases allowed VMT to surpass pre-Covid levels in 2023, with 2024 and 2025 following with further increases.

Auto refinish volumes continue to be threatened by both the increase in autonomous driving and collision avoidance systems (forecasted to reduce accidents by 30% over the next 5 years), as well as continued increases in both ride sharing and car sharing. This has been partly offset by a rise in oil demand as well as distracted driving trends. These negative factors are expected to continue to impact the industry longer-term. Aging U.S. infrastructure continues to be an area of opportunity with 2025 expected to see a significant increase in building projects, coupled with growing needs for water and wastewater management as the population increases.

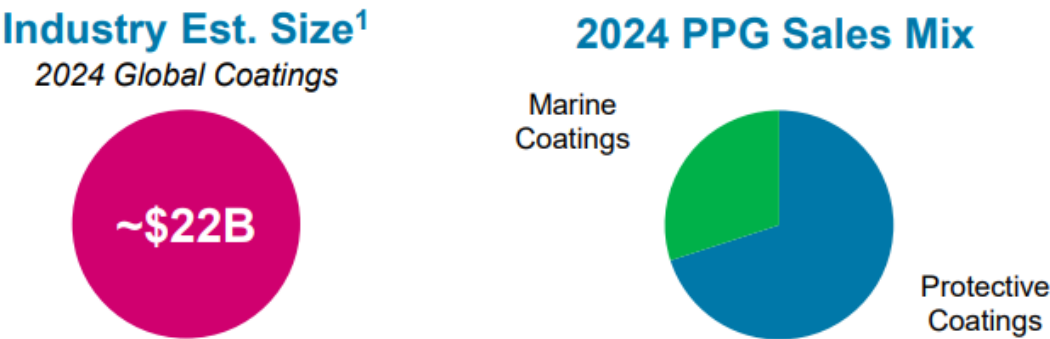
Figure 42. Refinish Coatings Indicators



Source: Federal Reserve Economic Data

Focusing on the protective and marine market, PPG estimates the following breakdowns for the ~\$22B global business and provided the following breakdown of its own P&MC sales.

Figure 43. PPG P&MC Sales Mix and Key End-Markets



Source: PPG

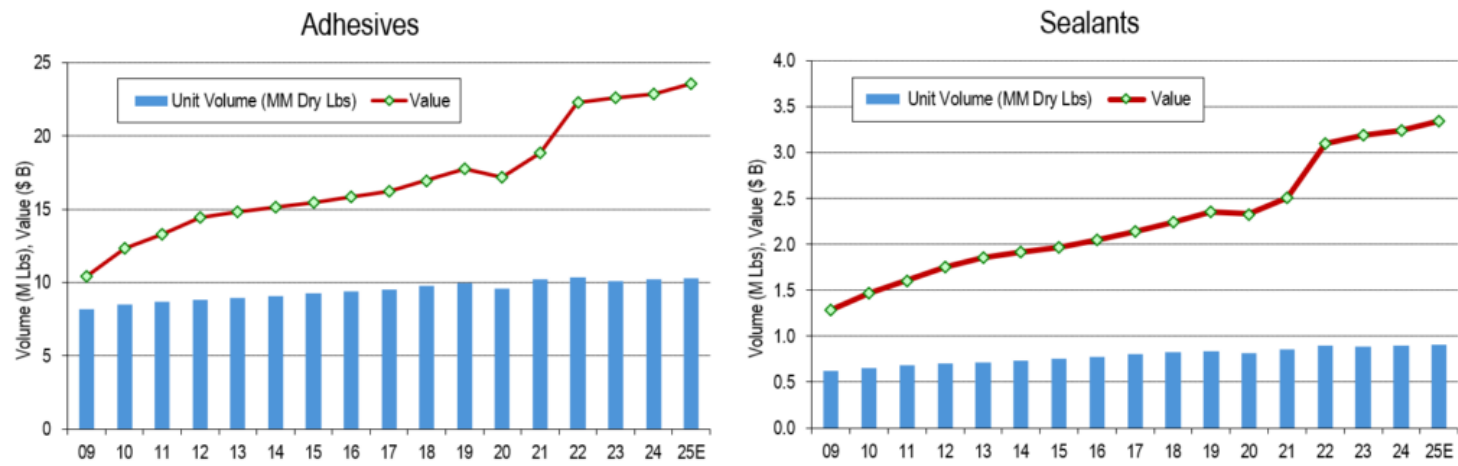
Defining the global aerospace coatings market is a relatively difficult task with various third parties, including sealants or a variety of resins, base coats, clear coats, etc., but CQ believes the U.S. market to be roughly \$250MM. This market is equally split between aftermarket and OEM sales, with aftermarket referring to refinishing or maintenance on existing planes. For PPG (pre-COVID), the split has been 50/50 OEM/aftermarket and 70/30 military/commercial. Airline consolidation was a nice positive driver in years gone by with other industry trends including the recovery of international travel, single-aisle aircraft demand driving near-term growth, robust military demand, and faster manufacturing cycle times and sustainable products.

Adhesives and Sealants

Market Overview

The global *Adhesives and Sealants* market is estimated to reach \$74B and 43B lbs by 2026. In NA, 2025 volumes are expected to increase only ~1% with a ~2% increase in price, which may not be enough to offset rising SG&A and overall costs. Counter to coatings, adhesives are facing more raw material pressures due to tariffs as tackifying resins mainly originate in Asia. Near-shoring is evident with added production in South America. Globally, paperboard dominates adhesives volume demand tied to internet shopping and fast-moving consumer goods with sealants predominately tied to construction and transportation

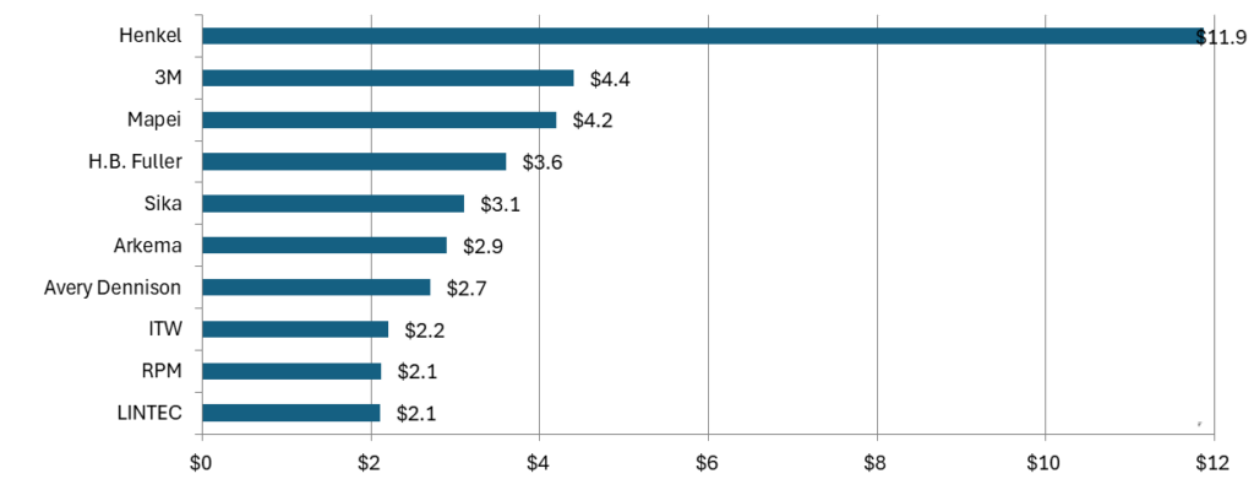
Figure 44. U.S. Adhesives and Sealants Industry, 2009 – 2025



Source: The ChemQuest Group, Inc. and Fermium Research LLC

While **Henkel** is the dominant supplier (almost 3x the size of #2 player MMM, followed by Mapei), we expect to revisit consolidation. This competitive landscape stands in stark contrast to the coatings market, where the top players have similar market shares.

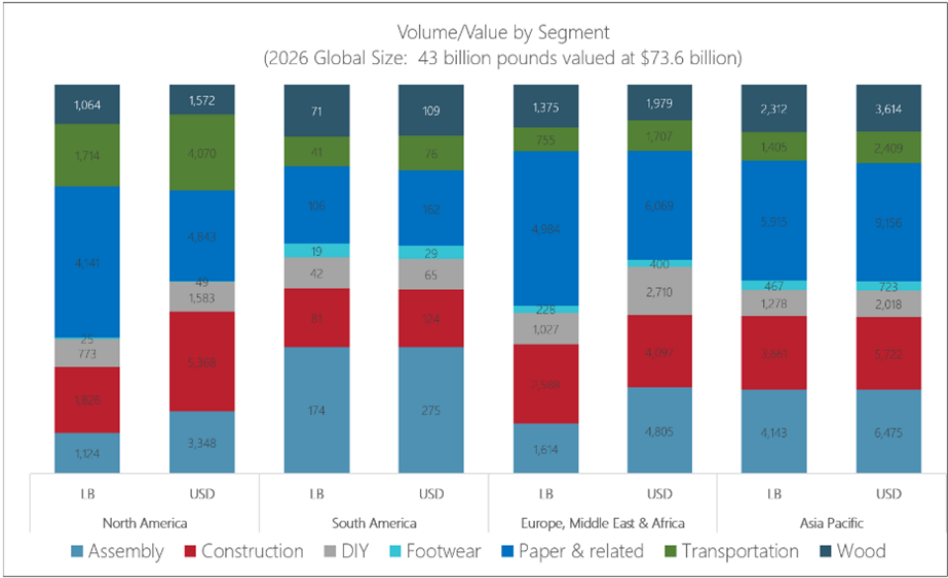
Figure 45. Top Adhesives & Sealants Companies, 2024 (\$B)



Source: The ChemQuest Group, Inc. and Fermium Research LLC

Building/construction accounts for the largest end market by value at ~30% in N.A., followed by transportation and packaging each at 20%.

Figure 46. Global Adhesives & Sealants End-Market Breakdown



Source: The ChemQuest Group, Inc.

Industry Margin

Raw materials are the largest component of costs, representing 51-61% of cost of goods sold in 2024, compared to 41-52% in the coatings industry. Adhesives typically use higher molecular weight products, which generally include dependence on crude oil input. Similar to coatings producers, adhesives producers had been facing raw material price increases and worked to offset with their own increases. In addition, producers have rationalized and shed less strategic customers, which midsize players have picked up.

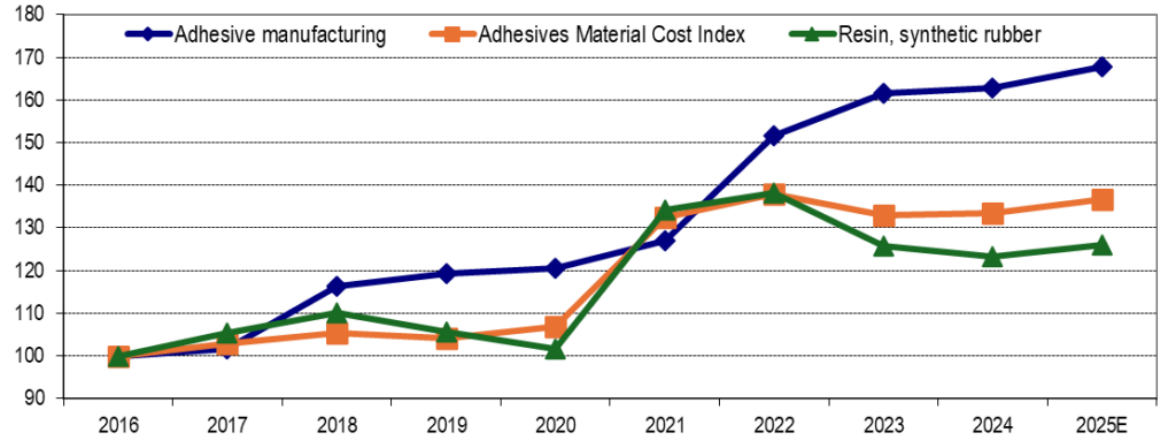
Figure 47. Average U.S. Adhesive Company's Cost Structure, 2024

	2005	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Sales	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Goods Sold																
Raw Materials	53-59%	52-60%	53-63%	53-63%	53-63%	53-63%	53-63%	51-61%	54-64%	53-63%	55-65%	55-65%	55-65%	56-66%	53-63%	51-61%
Packaging	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Labor	5-7%	2-3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%
Energy	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Overhead, Taxes, Ins., Dep., Pkg.	5%	5-7%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Total	67-75%	62-72%	63-73%	63-73%	63-73%	63-73%	63-73%	61-71%	64-74%	63-73%	65-75%	65-75%	65-75%	66-76%	64-74%	62-72%
Gross Margin	25-33%	28-38%	27-37%	27-37%	27-37%	27-37%	27-37%	29-39%	26-36%	27-37%	25-35%	25-35%	25-35%	24-34%	26-36%	28-38%
SG&A	19-25%	15-21%	15-21%	15-21%	15-21%	15-21%	15-21%	16-22%	15-21%	15-21%	13-19%	13-19%	15-21%	15-21%	16-22%	16-22%
EBIT	6-14%	7-23%	6-22%	6-22%	6-22%	6-22%	6-22%	6-22%	5-21%	6-22%	6-22%	6-22%	4-20%	5-21%	4-20%	6-22%

Source: The ChemQuest Group, Inc. and Fermium Research LLC

Adhesives pricing in N.A. increased steadily until 2014 and then remained flattish to up ~3% through 2021, but 2022 then increased ~17%, 2023 increased ~4%, and 2024 remained flattish. Through 2024, pricing is expected to increase ~2%. Resin PPI has typically tracked the adhesives material cost index, especially the decline in 2023 though it has remained lower in recent years.

Figure 48. Adhesives PPI, Resin PPI, and Cost Index (Indexed to 2016)

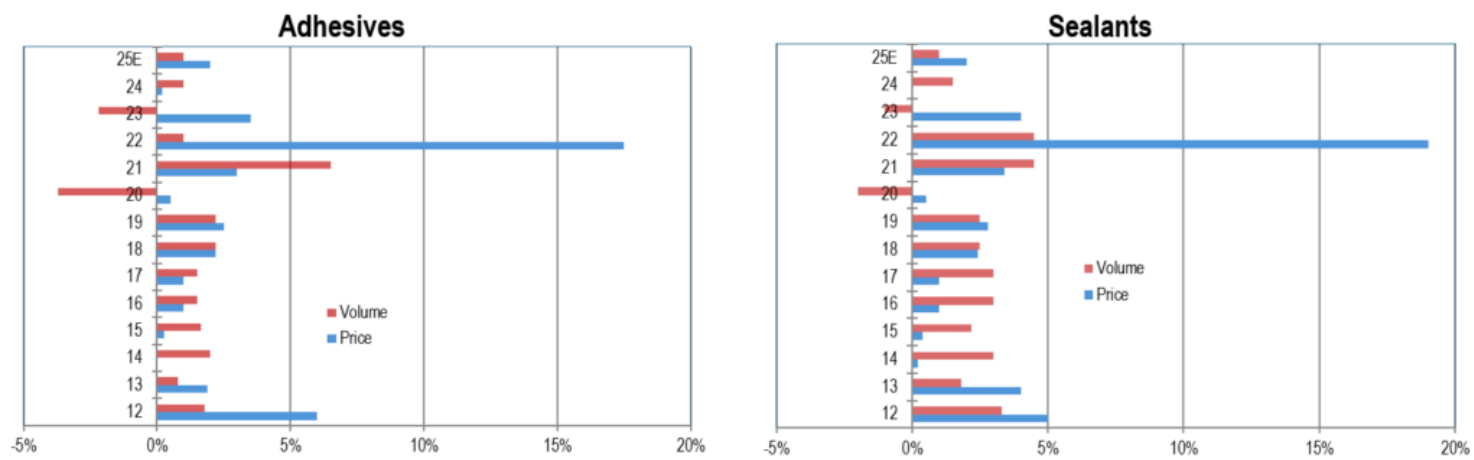


Source: The ChemQuest Group, Inc.

In **construction**, improved building standards are among the demand drivers. Adhesives in general have been gaining at the expense of metal fasteners, due in part to the lightweighting trend. This is especially true in the automotive manufacturing segment. Also, Adhesives offer desired traits such as flexibility, ease of repair, and strength.

Through 2025, CQ expects major themes tied to Adhesives and Sealants to include a continued slowdown in new residential construction (contraction in single-family starts but double-digit growth in multifamily after dismal 2024), auto/light trucking still troubled with added tariff noise, and consumer spending awaiting a recovery. Boeing production will also be a factor as it's not expected to increase monthly output until 2026. Gross margins are expected to be under pressure with SG&A and direct labor costs up low-single-digits. New uses for sealants include a focus on the bonding of dissimilar materials along with shielding dissimilar metal substrates from each other during transportation, construction, and assembly in order to prevent galvanic corrosion. Beyond 2025, CQ forecasts a longer-term run of **2.5%** annual growth for the global market.

Figure 49. U.S. Adhesives and Sealants Volume and Price Growth, 2012 – 2025

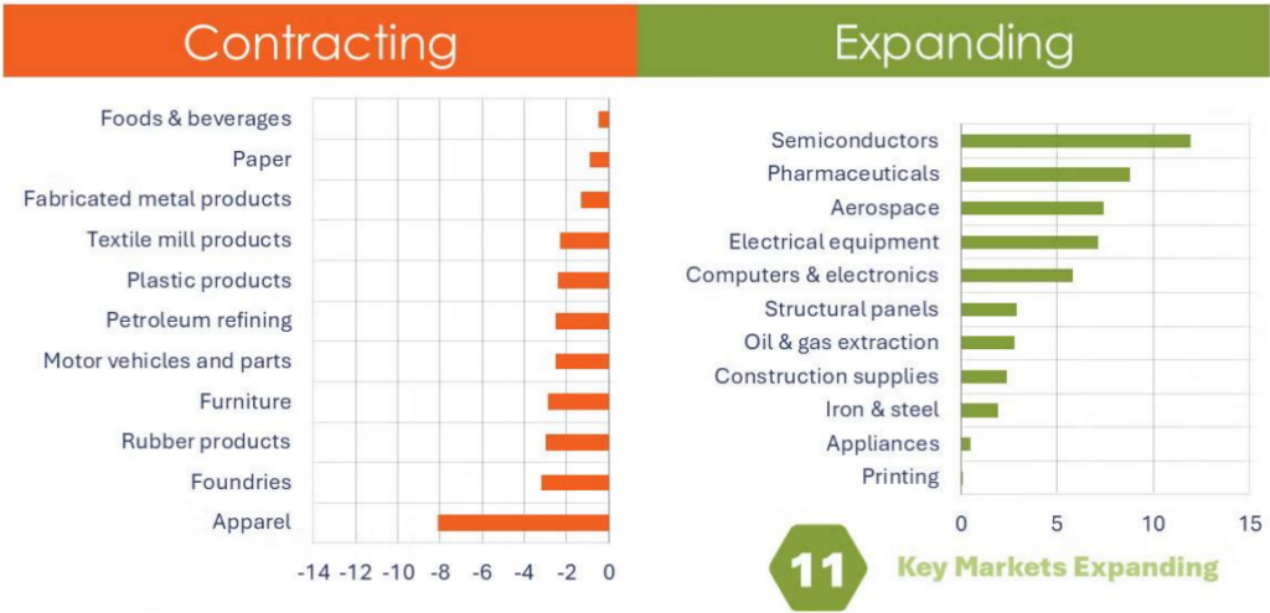


Source: The ChemQuest Group, Inc.

Macroeconomic Backdrop

2025 global GDP is forecast up 2.9% yr/yr, with emerging markets at 3.7% (excluding China). CQ estimates the U.S. coatings volumes to increase 1.1% in 2025, with pricing up 2.8%. As far as the expected end-market winners for 2025, the list features semiconductors, pharmaceuticals, and **aerospace**.

Figure 50. Outlook for Key End-Use Markets, % Change Y/Y (3MMA, July 2025)



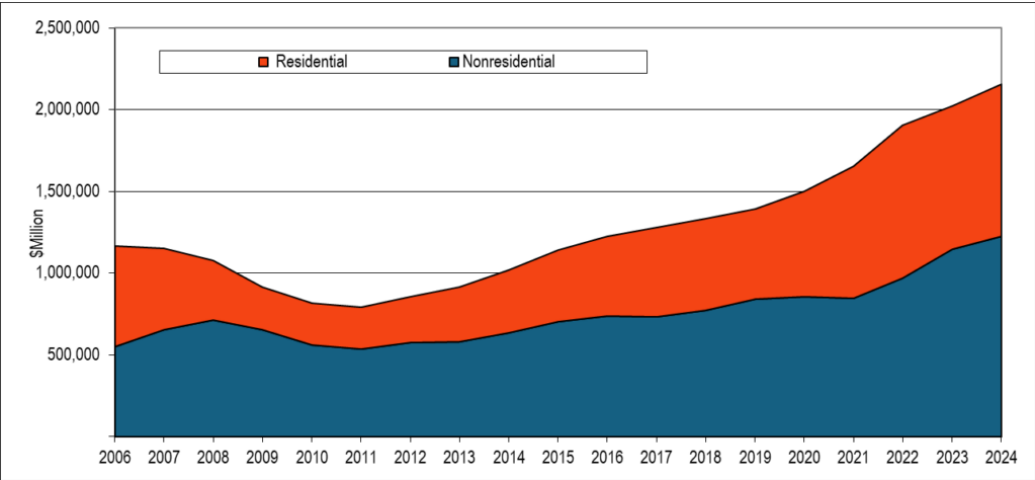
Source: Federal Reserve

Major End Markets

Construction

Within the U.S., construction continues to surpass peak 2006 conditions, benefiting Architectural Coatings. Total construction spending has been on the rebound since 2011, including yr/yr growth of 8% in 2020, 10% in 2021, 15% in 2022, and 6% in 2023 and 2024, reaching approximately \$2.16T. This continued string of increases follows five years of declines that drove activity down almost 32% from the 2006 peak of about \$1.17T.

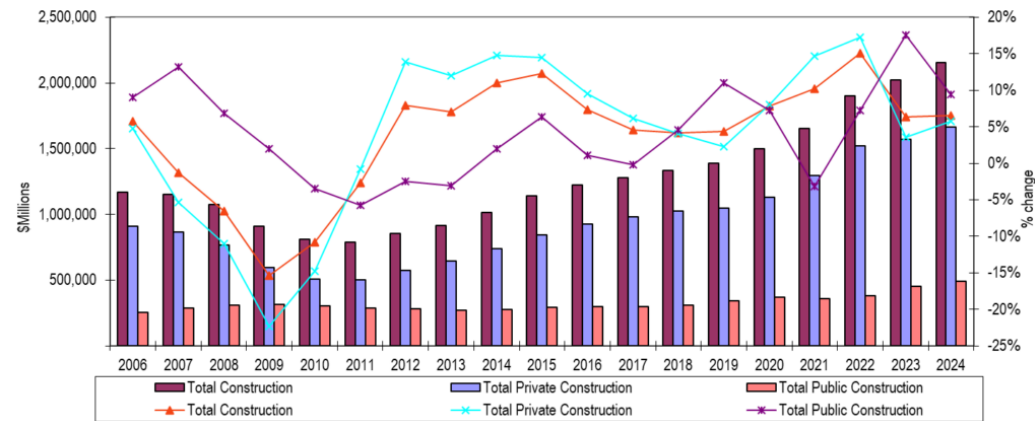
Figure 51. U.S. Private Construction Spending, 2006 – 2024



Source: The ChemQuest Group, Inc., US Census, and Fermium Research LLC

Public spending reversed its 2017 decline with 2018, 2019, and 2020 increasing 5%, 11%, 7%, respectively, but 2021 declined 3%, though still exceeded the 2009 peak by 10%, and then returned to 7% growth in 2022, 18% in 2023, and 9% in 2024. Private spending’s more pronounced growth (2012-2017 timeframe) was muted with 2018, 2019, and 2020 up 4%, 2%, and 8%, respectively, though 2021 shot back up to 15% and there was another 17% gain in 2022, with 2023 lowering to 4% growth and 2024 at 6%.

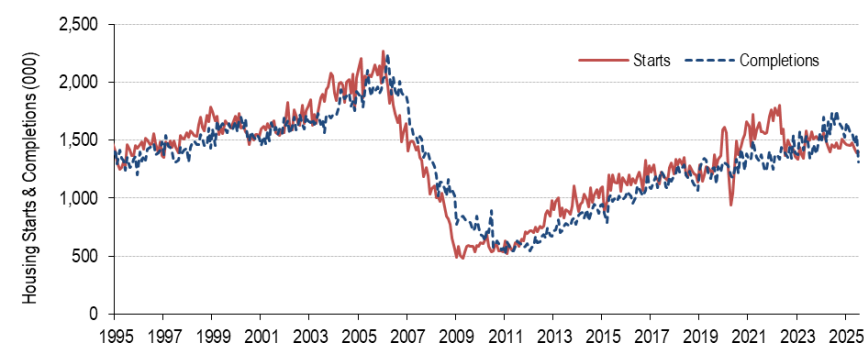
Figure 52. Yr/Yr Change in Construction Spending, 2006 – 2024



Source: The ChemQuest Group, Inc., US Census, and Fermium Research LLC

2021 housing starts reached 1.77MM units (according to the Census Bureau), with elevated levels through 1H22 but have lingered within 1.3-1.6MM units since. 2024 and 2025 YTD estimated monthly readings are still far from the 2.27MM unit peak number in 2006. The SAAR of housing starts for July 2025 rang in at 1.397MM, down 4% from a revised July 2024 figure of 1.461MM units.

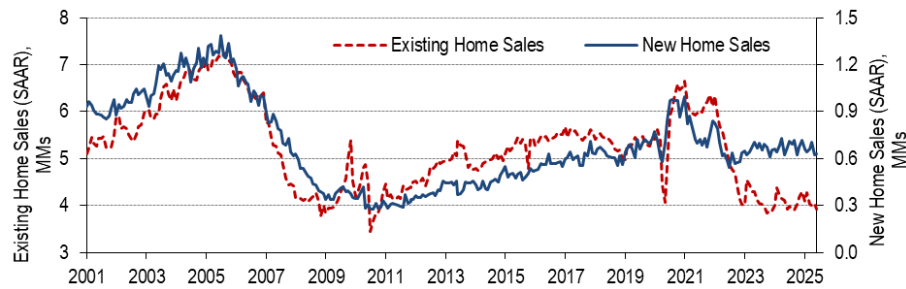
Figure 53. Housing Starts and Completions, 1995 – Present



Source: U.S. Census Bureau and Fermium Research LLC

Compared to housing starts, existing home sales are a more relevant indicator and driver of coatings demand; 75-80% of coatings are tied to existing home sales and remodeling, with the balance being new homes. For June 2025 YTD, both existing home sales and new home sales were *down* ~2% yr/yr compared to the same period in 2024.

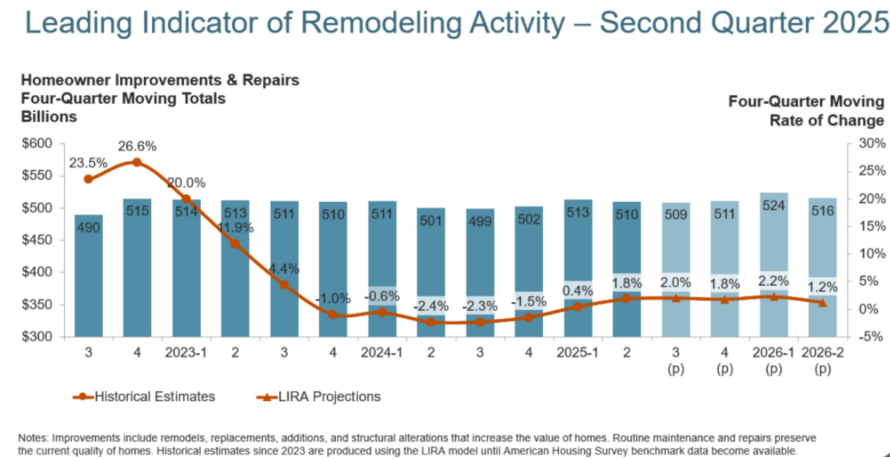
Figure 54. Existing Home Sales and New Home Sales, 2001 – Present



Source: U.S. Census Bureau and Fermium Research LLC

The latest LIRA report (*Leading Indicator of Remodeling Activity*) pointed to a downturn through 2024 with home renovations modestly rebounding in 2025. The sharp decline can be attributed to economic uncertainty, continued weakness in home sales, and the sale of building materials putting a lid on residential remodeling, coupled with DIY volume declining past pre-pandemic levels as we returned to more “normal” life. Following a share shift to the DIY market during 2006-09, professional contractor share has continued its upswing among boomers in general, while beginning to shift more toward DIY among millennials. This gradual shift to contractor-applied paint benefited **SHW** more than **PPG**.

Figure 55. Homeowner Improvements, 2021 – 2026E

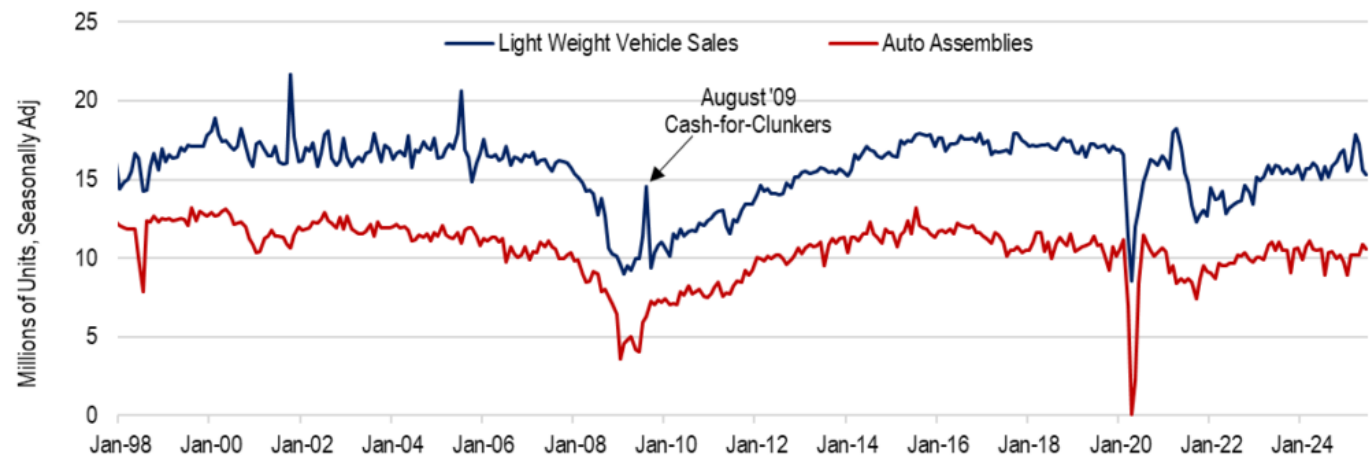


Source: Harvard Joint Center on Housing Studies

Transportation

Infrastructure spending and auto-related trends are important drivers for both the *OEM* and *Special Purpose Coatings* segments. For the latter, automotive refinish accounts for 41% of the end market segment share. Monthly auto and light truck sales have continued to recover from troughs in early 2009 and 2020 of about 9MM and 8.6MM units, respectively, and have since recovered to 15.3MM as of June 2025.

Figure 56. Light Vehicle Sales vs. Auto Production, 1998 – Present

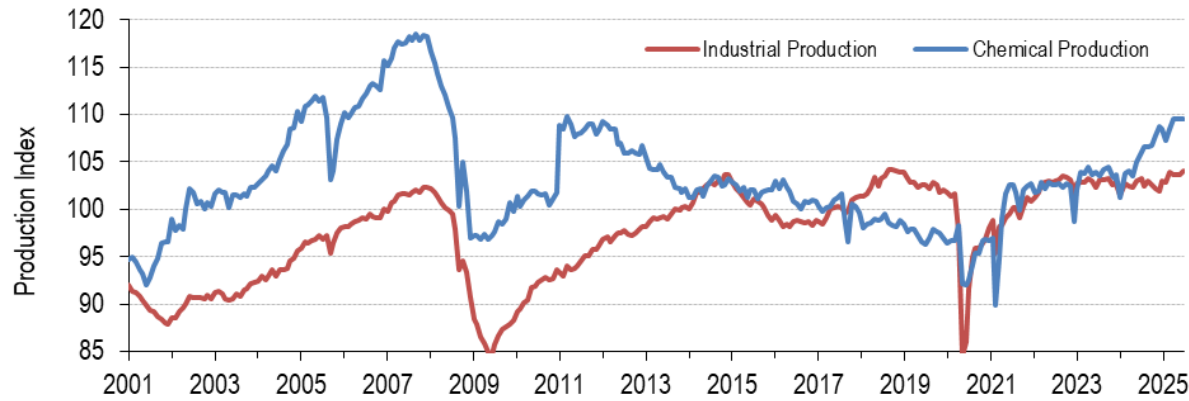


Source: Federal Reserve Economic Data

Industrial

IP growth in the U.S. faltered following a peak in December 2018 and plunged during the pandemic. It has since gradually recovered following several months of contraction. Continued growth in this area would bode well for Industrial OEM coatings, which benefits from strength in U.S. manufacturing.

Figure 57. Industrial Production and Capacity Utilization, 2001 – Present



Source: U.S. Census Bureau and Fermium Research LLC

Today, it feels like raw materials have largely stabilized but the main missing piece for a revamped industry is tied to more tepid global economic growth and domestic construction activity. Price increases are also moderating from the most recent double-digit increase levels.

Current Rating Distribution

Coverage Universe	Percent
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Hold	50
Sell	0

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