The Great Supply Chain Fiasco of 2021–2022:

The Immediate Danger is Past,

> "My concern, however, is that decision makers are too often caught in traditional, linear (and non-disruptive) thinking or [are] too absorbed by immediate concerns to think strategically about the forces of disruption and innovation shaping our future."
>
> — Klaus Schwab, The Fourth Industrial Revolution[i]

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I would *like* to begin this article by assuring all of *CoatingsTech's* readers that "all is well—the raw material supply chains have returned to normal," but I cannot. What I *can* say is that the statement is more like 85–90% true. There are still a few issues, typically with special materials that are not in broad general use, and also with certain alkyd and acrylic emulsion resins, but the majority of the bread-and-butter resins, solvents, pigments and additives of the U.S. paint and coatings industry are generally available, albeit with slightly longer lead times (at least as of early March, as this article is being written), and significantly higher selling prices than was the case three years ago. The supply chains are being helped, of course, by the fact that large portions of the paint and

but What Lies Ahead?

coatings industry, especially architectural, were seasonally down during Q4 2022, and because of the hoarding that had taken place between 2021 and Q3 2022, paint and coatings production during Q4 was largely made with the expensive raw materials that the industry collectively had in stock already.

Activity in January 2023 was nothing to write home about, but the de-stocking of raw materials held in the paint companies' warehouses continued well into January, with a certain amount of spillover into February. Things began picking up for raw material orders in February, and it is reasonable to assume that the overall industry, along with its supply chain partners, will exhibit solid, but certainly not outstanding, performance by the end of Q1. My personal crystal ball doesn't yield a lot of insight beyond Q1, although there seems to be a general consensus among both the raw material suppliers and the coatings producers in most segments that Q2-Q4 will give solid, although unexciting, performance. There is uncertainty, rather than fear, about the future among formulators. We are not seeing, at least as of early March, layoffs in paint, coatings, and inks manufacturers, although RPM announced in January that it was cutting production amid falling orders.[ii]

No one among the broad array of raw material suppliers, distributors, and coatings producers with whom I regularly have contact expects to see significant supply chain disruptions during 2023, but they tend to temper this feeling by adding one or more of the following qualifying phrases, "Assuming that:

- We do not have a recession."
- "Neither the Russians nor the Chinese do anything to disrupt the global supply chains."

- "We don't have additional devastating earthquakes like the ones that hit Türkiye and Japan."
- "Interest rates drop."

That is, of course, asking a lot, but it is probably as realistic as it is possible to be in early 2023. As is generally the case, people in the industry tend to be thinking tactically, and there is certainly nothing wrong with that . . . unless it keeps them from learning the most important lesson taught by COVID-19: tactics alone aren't sufficient as we move into the future. They must be accompanied by strategy, because the future is likely to be increasingly uncertain for global industry, and the only way in which we can be as prepared as possible to deal with future uncertainties is by putting strategic plans and systems in place that are able to anticipate future disruptions of various types, and create long-term plans for both avoiding such disruptions, and for dealing with them if they cannot be avoided.

In looking forward to 2023 and beyond, Klaus Schwab, distinguished founder and chairperson of the World Economic Forum, which met 16-20 January of this year in Davos, indicated to *Time* magazine's editor-in-chief, Edward Felsenthal, that "We are in a restructuring of the global economy. When you have a restructuring in a company, you write off the costs on your balance sheet, and shareholders are suffering and sometimes employees have to go. But when you have a restructuring of an economy, it bites into the purchasing power of the people. We should not look at the global economy with a crisis mindset and a short-term approach. We have to manage in a strategic transformation period, which may last three, four, five years and will be socially very painful."[iii]

If the past three-year period has taught the industrialized world one thing, it is that no manufacturing business can afford to keep all of its eggs in one basket—single-sourcing from raw material producers is dangerous; single-sourcing from individual countries is even more so; and failing to source at least some portion of as many raw materials as possible from the geographic region in which you are situated is akin to praying on bended knee for something bad to happen. If Dr. Schwab is correct in his prognosis, and the odds are running with him, then at the very least every manufacturing business should learn, and make part of their corporate DNA, some timeless lessons that were highlighted on a global basis during the past three years:

- JIT (Just in Time Delivery) is dead—or if not yet dead, at least in a state of dying. It worked wonderfully well for Toyota back in the 1980s and GM in the 1990s, but Toyota and GM production facilities were the only focus of JIT, because JIT can only work when one link in the chain is the focal point. It cannot work when multiple members of the supply chain all want JIT from their vendors. No one wants to hear this, but it is difficulty to deny.
- Every raw material used to make paint and coatings in the U.S. should have at least one reliable vendor in the U.S. that either makes the material in the U.S., or has significant stocking capability in the U.S. that it can keep the regional supply chain filled with material the next time that the global supply chain is thrown off kilter.
- Having a single source of any raw material is a bad idea, even if it is sometimes necessary, due to the absence of a second source. Every producer should have multiple suppliers whenever possible (at least 2-3) so that it has a purchasing record with companies other than its primary supplier.
- Certain high-profile manufacturing operations should be repatriated to the U.S., as should the ancillary suppliers to those industries.
- It is also a wise move to have alternate raw materials (and alternate suppliers) for every raw material that you use in routine production.
- It is important to have a low-profile but ongoing R&D effort to investigate potential raw material substitutions and have specifications, instructions for use, and product names readily available in the case of shortages. Finally, and most importantly, even during the darkest hours when all hands are on deck trying to put out fires, absolutely nothing should prevent at least a minimum amount of true R&D from taking place. Coatings

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Clearly, navigating the coming five years or so is not going to be a walk in the park—disruptions and discontinuities are inevitable. With luck, they will constitute, for the most part, short-term hardships, but what is going to happen if/when China invades Taiwan? I certainly don't know, and I'm quite certain that no one else does, either—but I am quite certain that global supply chains will be affected in a negative manner, and it will be important that all manufacturing sectors be prepared to weather whatever hardships arise from such an event.

Even should nothing dire occur in the coming few years, China has been shut down for COVID, and it hasn't been purchasing nearly the amount of raw materials that would have been the case if things hadn't been so hampered by closures. China will now begin drawing raw materials again, for internal use, and we need to be ready for that.

This is where strategy comes in—no one can plan for every conceivable eventuality in a complicated world, but it is certainly possible to plan for disruptive events that are at least *likely* to occur in the coming five to 10 years, whether such events involve war, recession, major weather events such as the "Big Freeze" in Texas in February 2021, crude oil manipulation by OPEC or other major oil producing nations, or the economic disruption that could occur as a result of the U.S. debt, to name just a few of the most obvious. This is in the future, however. . . .

. . . But where are things today, with respect to supply chain issues? Well, epoxies are now abundantly available, both from sources in APAC as well as domestic suppliers, as are the diamines necessary for 2K epoxy systems. Prices for epoxy resins have come down notably from their dizzying highs in 2021 through mid-2022. After some really distressing and long-term shortages of acrylic and modified acrylic emulsions, supply and demand seem to be in balance for most products. Alkyds are still somewhat difficult to get—two plant explosions and the exit from the commercial marketplace of a major producer of alkyds have conspired to limit the supply, and will continue to do so for the coming year, and possibly longer. Of course, alkyds only comprise approximately 5% of all U.S. paint and coatings production, but this percentage is holding its own, and may very well experience enhanced market share in the decade ahead, given the "bio component" of alkyds, and the work in both university and manufacturing laboratories to take advantage of the "green content" that alkyds offer.

While polyesters were never in the sort of shortage situation as other resins, isocyanates certainly were, but are now back in balance. Poly(vinylidene) difluoride (PVDF) resin was in critically short supply in 2021 and Q1-2 of 2022, and prices rose on the order of 200-300%, fueled largely by two fast-growing uses for this resin that do not fall within the coatings area: transfer tubing and containment for absolutely pure water, used in the production of semiconductor chips; and in the manufacturing of EV batteries, where the dielectric properties of PVDF are valuable in making membranes that permit the migration of lithium ions. Solvents are readily available, and pricing has been mitigated to a certain degree, but as of February, they are not down to pre-pandemic pricing. Inorganic chromatic pigments are now in balanced supply, as are the mined fillers, such as clays and talcs. Additives, which were profoundly afflicted with shortages during the past two years, are back in reasonable shape, although many coatings producers have indicated that there are still periodic problems obtaining certain additives.

Titanium dioxide is, of course, the heart and soul of multiple subsegments of the paint and coatings industry that are servicing the majority of market segments, and it tends to mirror paint usage. As a result, titanium dioxide sales were very strong during the first half of 2022, and then decreased dramatically during the second half of the year. This was for several reasons, principal among which was the weakening demand for paints and coatings, accompanied by destocking on a global basis, which should be ending in early-to-mid Q1 2023. Multinational producers (MNPs) are actively seeking price stability.[iv] Looking ahead, we shouldn't expect to see too much Chinese TiO_2 being imported into the U.S., as long as the tariff is in place, and until product consistency is improved. While prices are low at the moment, this is unlikely to last, and the price of Chinese titanium dioxide is likely to increase beginning in late Q1/early Q2 of 2023.

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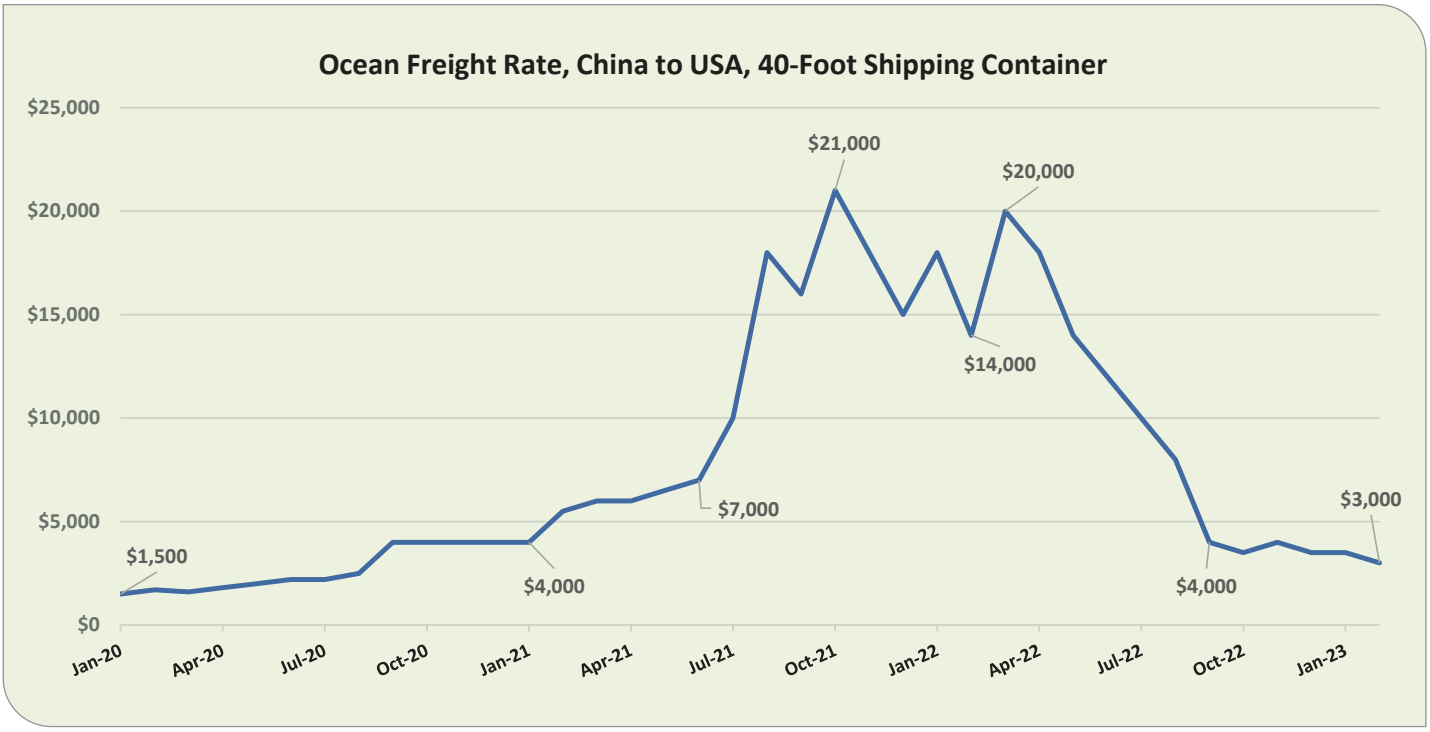
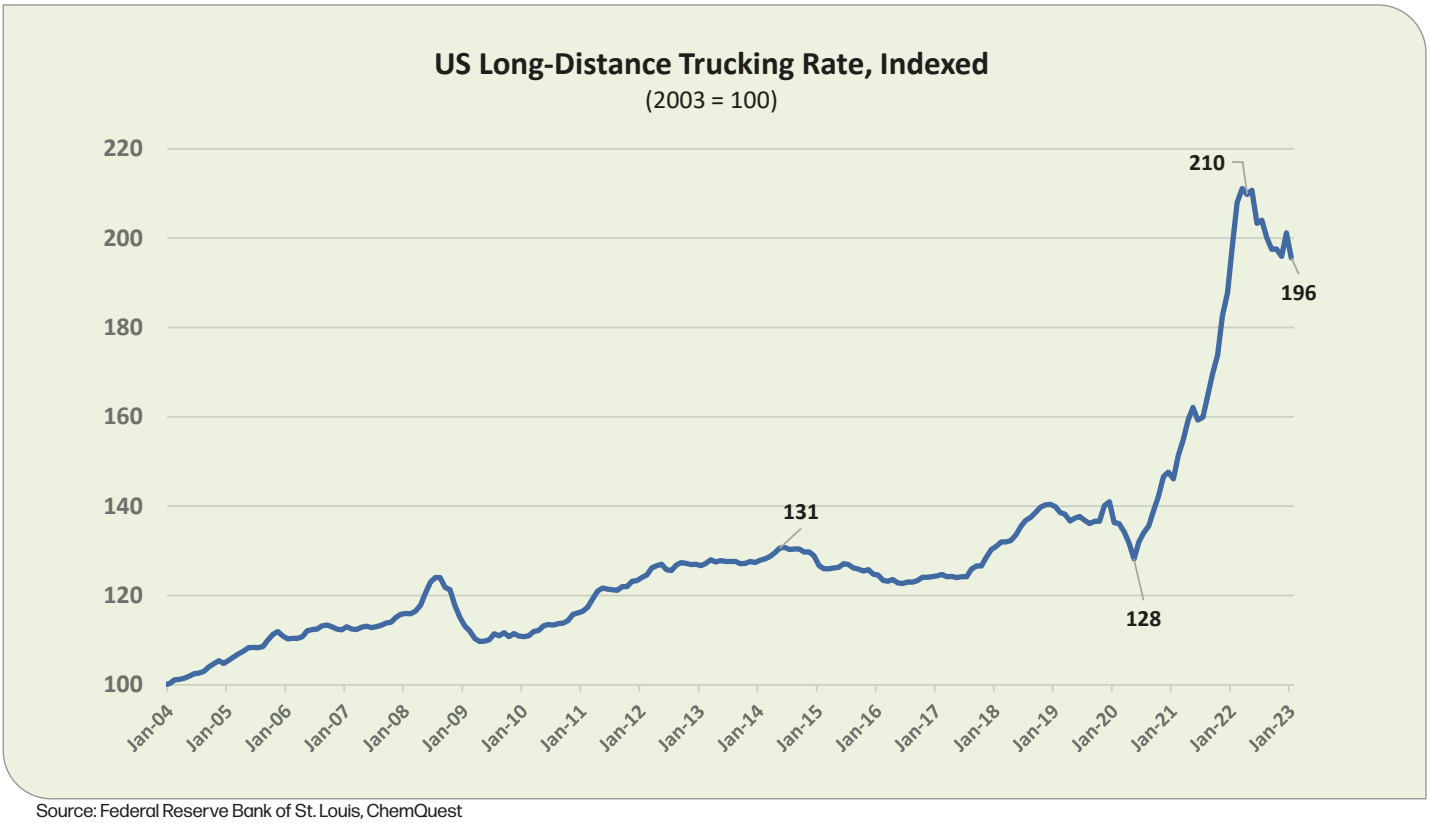
Beyond raw material availability at the producer, another major cause of shortages and steep price increases was the cost of transoceanic shipping containers, which rose dramatically from approximately $1,500-$2,500 for non-hazardous loads in late 2019 to as much as $20,000 to $30,000 by mid-2021. Cost for shipping from APAC is trending downward, although it is still roughly twice the pre-pandemic cost, but shipping from Europe is remaining stubbornly high, for reasons that the industry seems at a loss to explain. See **Figures 1–3**.

FIGURE 1
Ocean freight rates, China to USA, January 2020–January 2023.



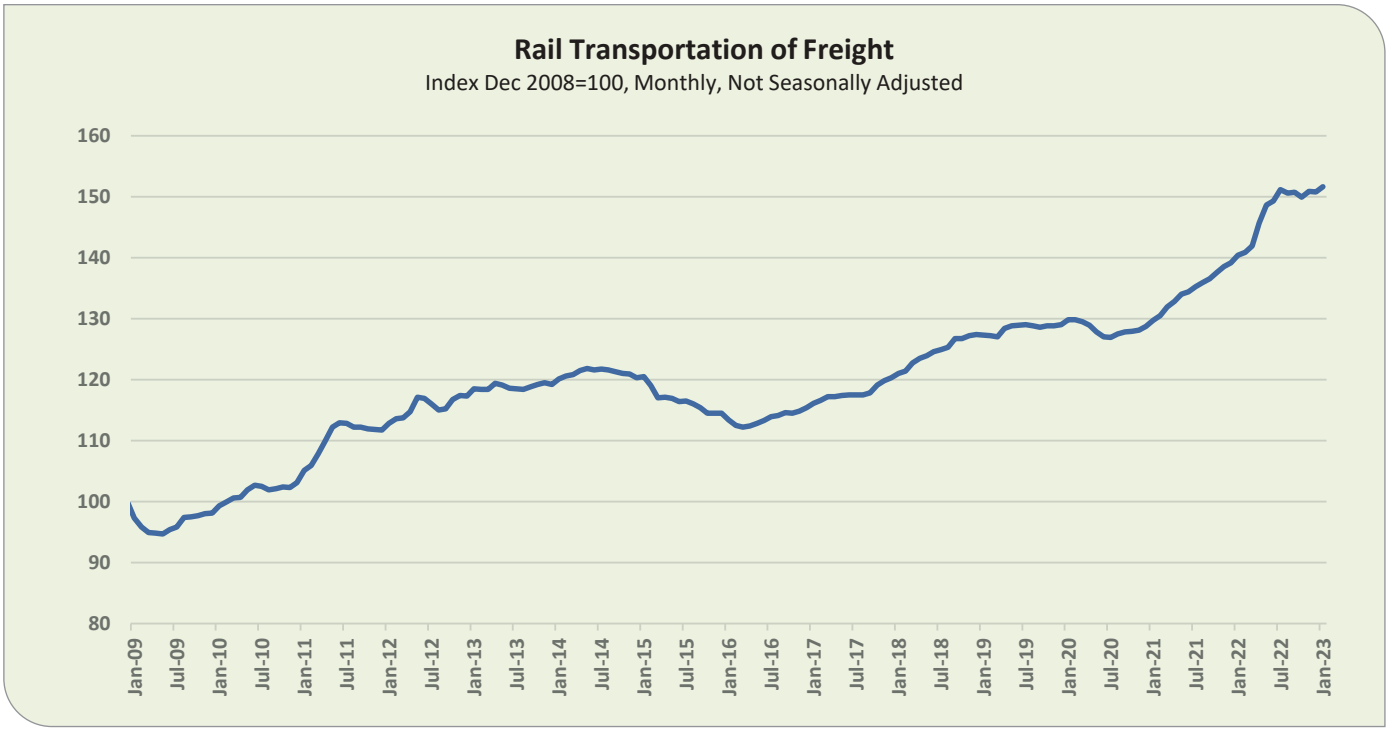
Source: ChemQuest, Freightos FBS, Statista

FIGURE 2
U.S. long-distance trucking rates, January 2004–January 2023—Index December 2003=100.



Source: Federal Reserve Bank of St. Louis, ChemQuest

FIGURE 3
Rail transportation, January 2009–January 2023—Index December 2008=100.



Source: Federal Reserve Bank of St. Louis, ChemQuest

U.S. ports were backed up, sometimes for weeks before incoming raw materials could be unloaded, and intermodal transfer to terminals, warehouses, and production facilities was seriously hampered by shortages of trucks and drivers, with concomitant rising prices. The "port" and "trucking" issues have largely been resolved in North America, certainly in part because of canceled orders in Q3-Q4 of 2022, as paint makers realized just how much material they had ordered and were in the process of destocking/inventory reduction. Reduced demand projected for the first half of 2023 is also causing formulators to order conservatively, thereby reducing the demand on the trucking industry.

Going forward, I turn once again to Klaus Schwab, who in his book, *COVID-19: The Great Reset*, had this to say: "History shows that epidemics have been the great resetter of countries' economy and social fabric. Why should it be different with COVID-19?"[v]

Is the U.S. Economy Going to be Reset?

There is little doubt that not just the U.S., but the entire global community, will be "reset" to one degree or another—and in one aspect or another. It's too early for all but the clairvoyant to know the form that these changes will take, but it is reasonable to look at one small part of the global social and economic network, the U.S. paint and coatings industry, and obtain at least a working hypothesis regarding "where have we been" and "where are we headed." It is reasonable to envision a continuum from 2021 through 2025 in high-level terms that nonetheless should have some degree of meaning for everyone in the U.S. paint and coatings industry with regard to overall market dynamics during this period of time:

1. **2021**—"The Supply Chain Train Wreck" was initiated by the February 2021 Great Freeze in the Permian Basin and exacerbated by the subsequent supercell storms, hurricane-force winds, baseball-sized hail, severe flooding, and large numbers of tornadoes in the region throughout the remainder of the year. This was further complicated by an explosion at a major resin supplier, believed to produce a very significant percentage of all alkyd resins in North America; a fire at a second major resin producer; and the withdrawal from the market of a number of resins by a third major producer.
2. **2022**—Some degree of recovery in Q3-Q4 with regard to lead times and availability, but significant inflation.
   - For the industry as a whole, it would appear that R/M cost increase for a basket of coatings raw materials between Q1 2020 and Q4 2022 was roughly +40%–50%. (See **Figure 4**.)
   - In Q4 2022/Q1 2023, this is becoming slightly mitigated, but only to the extent that 48–50% cumulative R/M increases in 2022 may have dropped to 44–46% by Q1 2023.

- Sales of existing homes took a nosedive during 2022—a drop that was even worse than that exhibited during the Great Recession of 2008–2009. (See **Figure 5**.)
- This bodes poorly for the sales of architectural paints and coatings and has tentacles that extend back to the raw materials and ahead to the sales of white goods, floor coatings, draperies, furniture, and other purchases that correlate with the sales of both existing homes and new construction.
- Some of the drop in sales of existing home sales will be made up by increasing construction of multifamily housing, but it is difficult, this early in 2023, to determine to what extent this will be true.

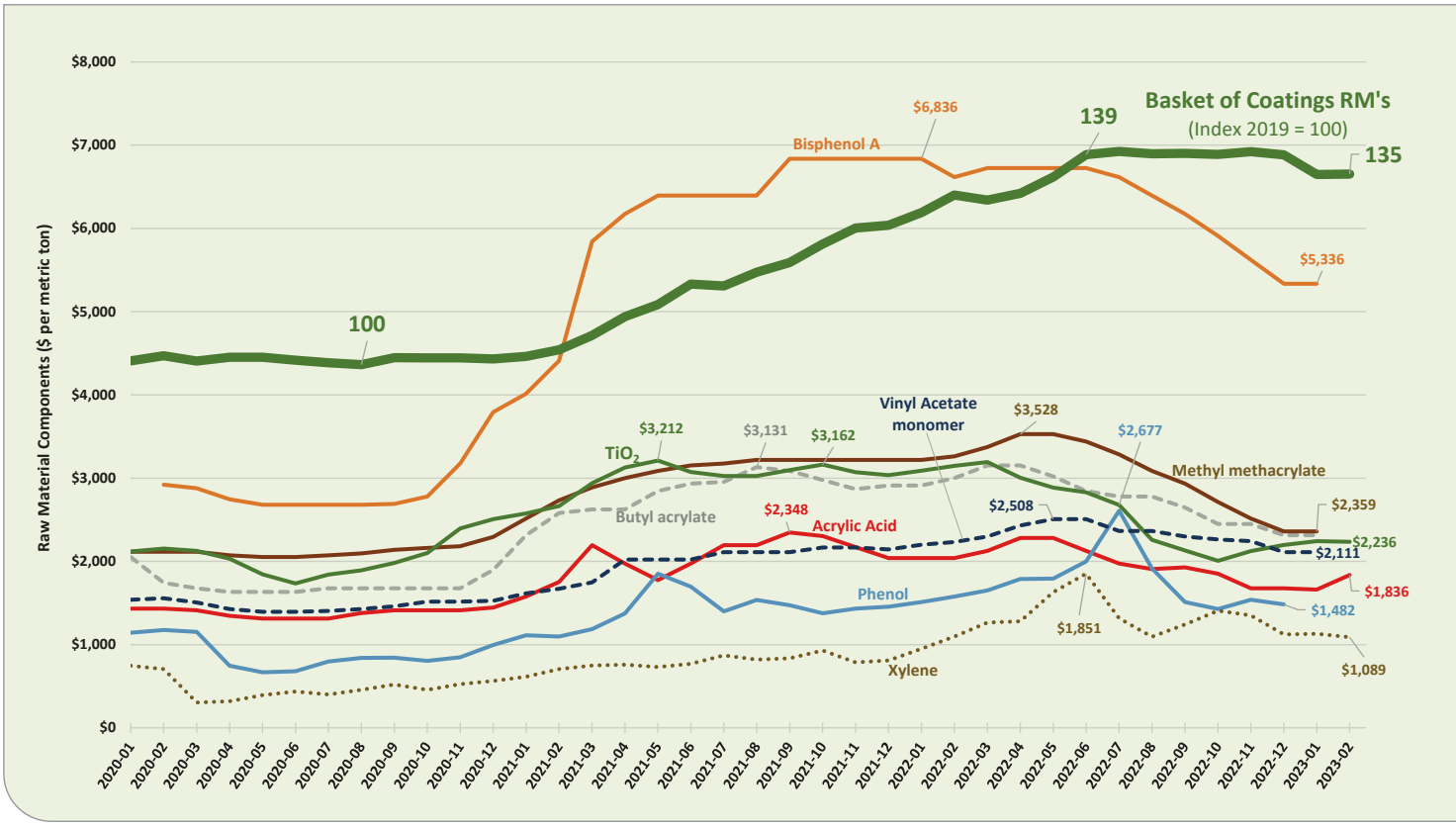
3. **2023**—This will be a year of the market trying to right itself; supplies and prices will begin to normalize gradually throughout the year.
   - Resins will continue to be the "problem child" area for the industry, and supply is not likely to settle down completely with regard to either availability or pricing, until Q3 at the earliest. In 2019, for example, average lead time for alkyds was 30 days; in February 2023, it was 60 days, minimum.
   - Coatings producers' R&D staffs spent the past two years chasing after raw material substitutions, at the expense of technology development/improvement, and are cautiously beginning to return to their traditional strategic duties, while still keeping a close eye on R/M availability, and are prepared to revert to "R/M Substitution mode" on a moment's notice, if necessary.
   - R/M pricing will begin its slow ride down, which should be relatively steady, but not likely to be stabilized until Q4 2024/Q1 2025.
   - Costs for cans, pails, and drums rose between 2019 and Q4 2022 by anywhere from 35% to 70%, and in certain specific cases as much as 200+%. Container manufacturers appear to have inventory, as of Q1 2023, so we should be cautiously optimistic that can and container manufacturers will not only be able to supply orders, but possibly drop prices, as well.
   - There was plenty of titanium available in Q4 2022—producers were struggling to get TiO_2 out the door and into the inventory of the paint and coatings producers. In January 2023, prices from most producers had come down approximately 10% and will either remain flat during the remainder of the year, or drop slightly, with falling demand.
   - Epoxy has fallen from the grand heights that it achieved in 2021–Q2 2022 but is still positioned closer to its highest price than its 2019 price.
   - Timing for containers from overseas has extended from four to five weeks [pre-COVID] to six to eight weeks per container in Q1 2023, at much higher cost.[vi]
   - 2023 will be a "year of reckoning" for knee-jerk procurement decisions made in Q2 2021–Q3 2022.
4. **2024**—Barring a major intervening global/economic event, most raw materials should be readily available, and pricing will continue its downward path.
5. **2025**—The "New Normal" will have been reached, with regard to the availability of raw materials and lower, stabilized pricing that is highly unlikely to reflect the pricing of 2019, but it will be significantly improved compared to full year 2021 through Q3 of 2022.

What is Going to Become of the R&D Efforts in the Coatings Industry, Which Have Spent Nearly Three Years Focused on Putting Out Fires Rather than Performing R&D?

Interestingly, while there wasn't a plethora of new products offered by the paint and coatings producers between 2019 and 2022 due to the need for "all hands on deck" to deal with both raw material substitutions and to assist with finding and approving new sources of raw materials, the raw material suppliers, which generally have longer pipelines than the coatings producers, were able to bring an impressive number of new products (most of which were started in 2019 or earlier) to market during 2022. Things seems to have caught up with them in 2023, however, with fewer new raw material introductions, almost certainly as a result of the COVID-19 chaos in 2020 and the severe supply chain issues in 2021–2022 that wrought havoc with starting new product development. There is no need to be concerned that there aren't any new raw materials around, however—the increasing move of the specialty chemical industries to ESG ("Environmental, Social, and Governance") as a part of strategic planning; the increasing interest of both businesses and the public in the environment; and the fact that sustainability is the subject of growing, and very serious, interest around the globe will guarantee a steady flow of new raw materials for all businesses that either make or use specialty chemicals.

Despite the chaotic nature of the past three years, there was R&D taking place at most of the raw material suppliers, just at a much lower level than usual—they, too, had to divert attention from performing R&D to dealing with raw materials that were either in short supply or simply unavailable. Nonetheless, a quick glance around during 2022 indicated many new raw material introductions that met the criteria that I have used in past years for inclusion in my articles: materials that have been introduced into general commerce within the past 18 months that their producers affirm are not just "tweaks" on existing products, but rather new materials that definitely hold the potential to create properties that do not currently exist, or significantly improve properties in materials that do. I see many such materials every year, and—without endorsing or recommending any of them, either on behalf of myself, the ChemQuest Group, the American Coatings Association or *CoatingsTech*—I am including them in the tables on the following pages because these products, while chosen both randomly and arbitrarily, are likely to make sense for paint and coatings formulators to evaluate, especially if the descriptions of the new materials (provided by their manufacturers) in the tables appear to address any properties that would be helpful in paint and coatings producers' current product development projects.[vii]

FIGURE 4
Basket of coatings R/Ms—Index 2019=100 vs. selected coatings R/M component prices.



Source: ChemQuest estimates, TraQr™

FIGURE 5
Sale of existing homes (United States) between 2005 and February 2023.

Source: The ChemQuest Group, Inc.; Trading Economics; National Association of Realtors

Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Use(s)	Email or "Contact Us" Form	URL
allnex GmbH	CRYLCOAT® 2406-2	Resin	Low-reactivity carboxyl-functional polyester resin for use with TGIC for powder coatings. Formulations based on CRYLCOAT® 2406-2 exhibit excellent flow, high gloss, and flexibility. The resin also shows excellent matting efficiency.	allnex.com/en/Contact-Us	allnex.com/en
allnex GmbH	SETACQUA® 6753	Resin	Self-crosslinking acrylic dispersion; satisfies IKEA R2 performance specification. Offers excellent hardness, fast drying, sandability, and exceptional chemical resistance. Due to its small particle size, varnishes based on SETAQUA® 6756 have in-can clarity and a solventborne-like appearance of the dry coating.	allnex.com/en/ Contact-Us	allnex.com/en
Archroma	Silgen® MIH	Additive	Eco-advanced wood protection technology developed together with the University of Goettingen, Germany. Silgen® MIH impregnated wood can be dried at < 80 °C. The energy consumption is thus similar to most aqueous biocidal wood preservative treatments.	.archroma.com/contact	archroma.com
Ascotec	ASCOTRAN®-H30	Additive	Ready-to-use, liquid flash-rust inhibitor for any waterborne coating; aqueous preparation made of organic acid salts and sodium nitrite.	ascotran.com/contact	ascotran.com
BRB International B.V.	Silanol® 533 ESO	Resin	Epoxy-functional silane oligomer containing gamma-glycidoxy groups and methoxy groups; provides less emission of methyl alcohol upon hydrolysis, when compared with other monomeric epoxy silanes.	brb-internatio-nal.com/silicones/contact	brb-international.com/
BYK-Chemie GmbH	CERAFLOUR 1050, 1051, and 1052	Additive	CERAFLOUR provides comparable mechanical properties to PTFE waxes in terms of scratch and abrasion resistance and of surface slip, in aqueous, solventborne, solvent-free, and UV curing systems.	byk.com/en/ contact?topic=technical	byk.com
BYK-Chemie GmbH	RHEOBYK-7650, RHEO-BYK-7670, and RHEOBYK-7690	Additive	Solid associative thickeners based on HEUR technology, supplied as flakes, which prevents dust formation and can be incorporated directly or via a pre-gel.	byk.com/en/ contact?topic=technical	byk.com
Cardolite Corporation	Cardolite® LITE 3070	Curing agent	Epoxy curing agent based on phenalkamide technology; can be formulated in zero- and low-VOC epoxy systems due to its low viscosity.	cardo-lite.com/contact/ inquiry	cardolite.com
Cardolite Corporation	Cardolite® NX-8502	Curing agent	Epoxy curing agent; fast cure, hardness, and excellent corrosion resistance, while delivering long pot life.	cardo-lite.com/contact/ inquiry	cardolite.com
Eastman Chemical Company	Eastek™ 4500	Resin	High-performance polyester resin for polyurethane hot melt adhesive applications; designed to reduce viscosity, increase T_g, application consistency, and provide long term durability of the bonded structure.	east-man.com/en/ contact-us/product-inquiry	eastman.com/en
Eastman Chemical Company	Tetrashield™ PW5100	Resin	High-performance powder coating resin, designed to meet AAMA 2605 requirements; non-PFAS-based resin.	east-man.com/en/ contact-us/product-inquiry	eastman.com/en

Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Use(s)	Email or "Contact Us" Form	URL
Evonik In-dustries AG	TEGO® Airex 923	Additive	Silicone-free deaerator concentrate for non-aqueous formulations; particularly suited for radiation-cured wood and furniture coatings.	corpo-rate.evonik.com/en/products-and-solutions/search-our-products	corporate.evonik.com/en
Evonik In-dustries AG	TEGO® Therm HPG 4000, HPG 6806, L 300	Additive	High-performance granules that provide heat resistance and insulative properties at temperature up to 250 °C; significantly reduce the temperature of surfaces (safe touch).	corpo-rate.evonik.com/en/products-and-solutions/search-our-products	corporate.evonik.com/en
Evonik Industries AG	POLYVEST® eCO	Resin	Liquid polybutadiene products compliant with the sustainability criteria laid down by the ISCC.	adhesive-resins.evonik.com/en/contact	corporate.evonik.com/en
Honeywell International Inc.	NduroMatt™ 200 & 300	Additive	Multifunctional additive; provide matting, along with resistance to burnishing, scratching, and staining.	industrial.honeywell.com/us/en/contact-us	industrial.honeywell.com/us/en
Honeywell International Inc.	Cohesa® 3055 & X3060	Additive	Oil-in-water emulsion of ethylene acrylic acid copolymer; suitable for use in inks, coatings, adhesives, and pressure-sensitive adhesives.	industrial.honeywell.com/us/en/contact-us	industrial.honeywell.com/us/en
Lamberti S.p.A.	Esajet 4518	Resin	Polyurethane in aqueous dispersion designed for aqueous pigmented ink for inkjet applications.	lamberti.com/form/info.html	coatings.lamberti.com
Lamberti S.p.A.	ESACOTE® PU 4045	Resin	Low-VOC anionic W/B dispersion of an aliphatic polyurethane for clear and pigmented coatings.	lamberti.com/form/info.html	coatings.lamberti.com
Lamberti S.p.A.	ESACOTE® BIO BC 25	Resin	Polysaccharide-acrylic copolymer water emulsion; provides barrier properties against oil and grease.	lamberti.com/form/info.html	coatings.lamberti.com
Lamberti S.p.A.	CHIMIPAL BIO EC	Additive	Disodium alkylpolyglucose citrate water solution, designed for the manufacture of home care and industrial and institutional products.	lamberti.com/form/info.html	coatings.lamberti.com
Micro Powders, Inc.	NatureMatte® C44	Additive	Fine cellulose powder for superior gloss reduction and burnish resistance; natural, sustainable, and renewable.	info@micropowders.com	micropowders.com
Micro Powders, Inc.	PolyTuf 1229	Additive	Highly engineered LDPE/ceramic/nanoceramic composite for abrasion resistance and surface durability.	info@micropowders.com	micropowders.com
Micro Powders, Inc.	NatureTex Series	Additive	Micronized naturally derived cellulose acetate for reducing gloss and adding consistent surface texture and structure to a wide variety of paints and coatings.	info@micropowders.com	micropowders.com
Micro Powders, Inc.	MP-28AL	Additive	Value engineered synthetic wax/aluminum oxide nano-composite for scratch and scuff resistance.	info@micropowders.com	micropowders.com
Shark Solutions ApS	Shark Dispersion SR2TM	Resin	PVB binder with improved wet scrub resistance.	shark-solutions.com/contact	shark-solutions.com
Stahl Holdings BV	Relca® PD-805	Matting resin	Water-based and additive-free matting resin.	stahl.com/global-contacts	stahl.com/polymers
The Shepherd Color Company	Dynamix® Yellow 30C133	Pigment	C.I. Pigment Yellow 184 Bismuth Vanadate; greenish-yellow shade, easily dispersed grade, exceptional color strength.	mryan@shepherdcolor.com	Shepherdcolor.com

What Lies Ahead?

The most important thing to keep in mind is that we are still reeling from three very stressful years in which more than just raw material shortages, late deliveries, and skyrocketing prices were the problem, although they were certainly enough. The greatest toll was one that is not measurable, but is very real and very damaging, nonetheless: the loss of key personnel, especially in the technology and supply chain functions, who either burned out and left the industry or who simply couldn't stand the stress and retired much earlier than they had planned, will be felt by the paint and coatings industry for many years to come. Experience must be developed over time, often over decades—it cannot be created or duplicated in the short term.

At ChemQuest, we are already seeing the effects of the loss of experience in the coatings industry, both pre-COVID and especially as a result of the post-Supply Chain Disaster. Both raw material suppliers and paint producers are looking to universities, independent third-party technology institutions, and third-part testing laboratories to supply them with the experience that was once "in house" but has now disappeared and cannot be backfilled with other personnel who lack appropriate experience. Although both poor management as well as a period of global crisis caused the situations that precipitated the loss of experience, it also gave birth to a golden opportunity to explore the experience and creativity of highly experienced, independent paint and coatings experts who bring a wealth of technical knowledge and operational know-how to bear upon the challenges and opportunities of the paint and coatings producers who seek their help to solve a universe of diverse issues in an efficient, cost-effective manner.

Not bad, as "silver linings" go! ❊

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