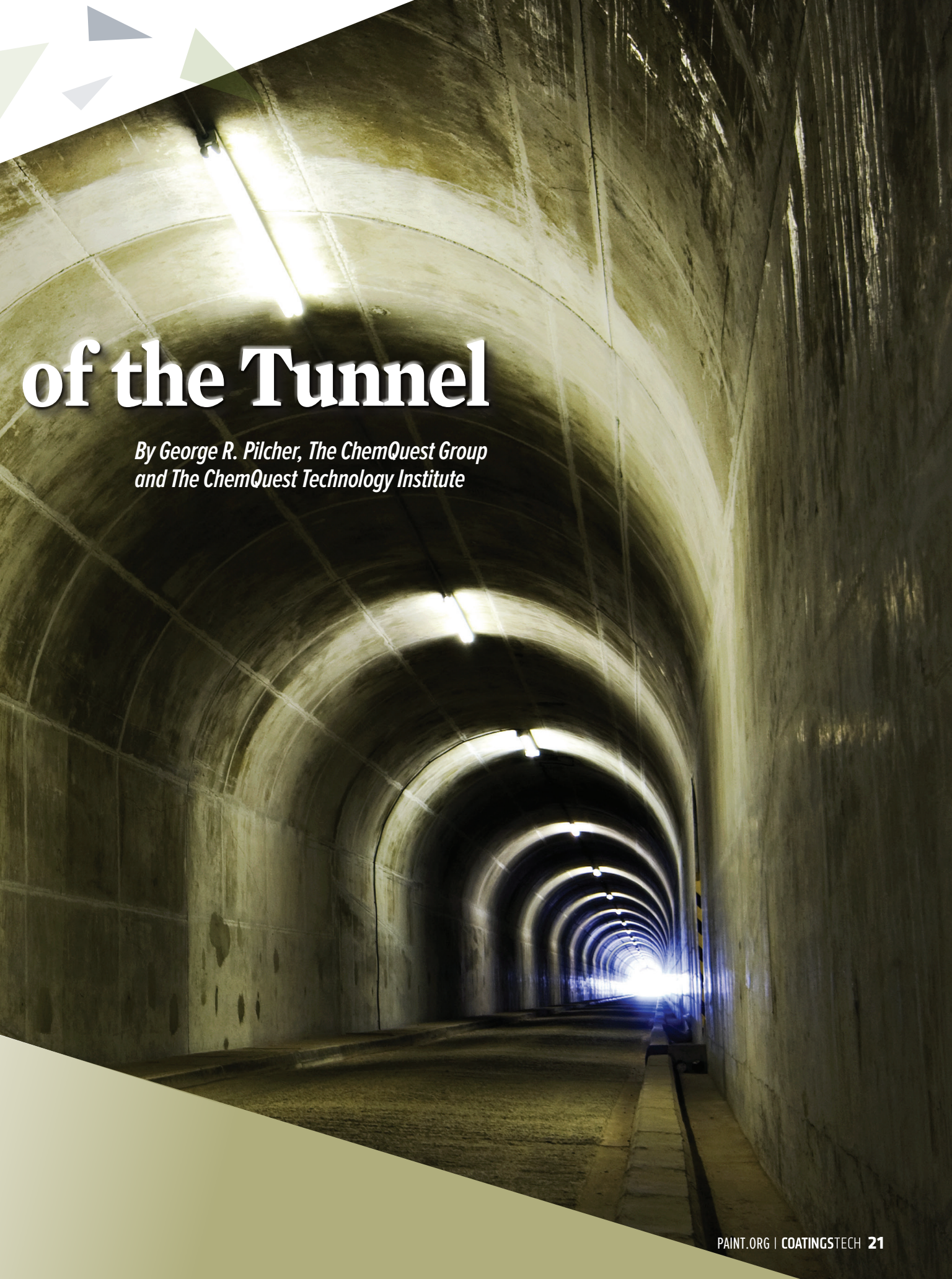


Raw Materials 2022: Ongoing Difficulties But Faint Light— And Exciting New Raw Materials—At the End

Where to start? First and foremost, this article is not about the large, global paint and coatings companies, because we learn everything we need to know about their struggles with supply chain issues from public reports. What we don't typically hear about are the struggles of small and medium enterprise (SME) distributors and coatings producers and how they are dealing with the ongoing supply chain issues. Nor have we been hearing about raw material suppliers, both large and small, that despite the chaos surrounding them have nonetheless been able to continue, albeit at a slower pace, the R&D efforts that resulted in the introduction of new raw materials during the past 24-month period, that are of potential value to the paint and coatings formulators.

In a day and age when we are constantly bombarded with news, nothing ends up being actual news because we are inured to the whole concept. Similarly, in a paint and coatings industry where we are living with daily shortages, substitutions, price increases, transportation issues, allocations, force majeure, and lead times that can go beyond six months for certain types of raw materials, paint and coatings raw material suppliers, paint producers and paint and coatings users are basically becoming numb from the unending onslaught that made life so stressful in 2021 and is continuing into 2022.

About the best news I can offer, and it is qualified good news, as of the time of this writing in early March 2022, is that we appear to be seeing some stabilization in the overall situation, insofar as pricing increases seem likely to moderate, although pricing decreases do not appear to be on the horizon, with perhaps some isolated instances.



of the Tunnel

*By George R. Pilcher, The ChemQuest Group
and The ChemQuest Technology Institute*



“In 2022, many of the same forces that acted on 2021 are still in place, but now it seems that the most powerful driver is less the ability to make the desired chemicals, and more the labor shortages that are preventing sufficient amounts of these chemicals from being produced and shipped.”

The cost of transpacific container shipments originating in the Asia Pacific region (APAC—excluding India) has been mitigated to some degree, but only to the extent that “outrageous” has come down to the “unbelievably high.” Comments from a range of raw material producers, SME distributors, and SME paint producers are in agreement that containers from Asia are now down to \$10,000 to \$15,000, from as high as \$20,000 to \$30,000.

Lead times are improving, and containers are still a problem, but they are easier to get than in mid-2021, and there is greater vessel availability. It appears that shipments from India, however, which did not increase in cost in 2021 to the same degree as those from APAC, may not have peaked yet—early 2022 increases have taken the cost to ship a container to roughly eight to 12 times the cost for shipments pre-2020.

Shipping from major ports in Europe, such as Antwerp and Rotterdam, are expected, as of the date of this writing (early March), to increase in April 2022 from April 2021 multiples of three to four times pre-2020 to four to five times, with the potential for future increases later in 2022. Domestic transportation seems to be plateauing—the equipment issue is in better shape and beginning in Q2-Q3 of 2021 drivers were becoming more available. Cost is still roughly two to three times pre-2020, however, and not likely to decrease while fuel costs increase during 2022.

January 2022 saw essentially across-the-board raw material increases in the range of 15%-25%, with a bucket of additives as high as +50%, depending upon the specific products in the bucket. This on top of total increases for a bucket of all paint components that totaled 20%-30% in 2021 has created a scenario that is unprecedented within the U.S. paint and coatings industry.

In 2021, resins, especially epoxies, acrylics, and diamines seemed to be the hardest hit with a combination of price increases, force majeure declarations, strictly controlled allocations and long lead times; alkyds are extremely difficult to get, have increased in price by roughly 50%, and manufacturers of alkyd paints are being forced to reformulate, depending upon which alkyds are available and which are not. One major producer of alkyd resins is down for an extended period of time for repairs, and another has indicated that it is exiting the commercial marketplace. This is not a good situation.

Pigments, at least for the first two quarters of 2021, were relatively stable with low single-digit increases. But they have been reported to increase roughly 10% during Q3-Q4 on a basket of both colored inorganics and organics, driven more by the organics, some of which received Q1 2022 increases on the order of 20%. NOTE: Titanium dioxide was excluded from the basket—its price has been rising steadily over the course of the COVID-19 pandemic, ending up at the end of 2021 roughly 10% higher than in 2020, and it is expected to increase by an additional 7%-10% during 2022. With the current tariffs in place, Chinese TiO₂ is not really a current factor in the U.S. market for paints and coatings.

Additives, regardless of type, from catalysts to flow additives, have probably caused more problems than any other category of raw materials, insofar as they are of critical importance to the performance of the final paints and coatings in which they are incorporated, and are among the most difficult components for which acceptable substitutes can be identified.

Entering 2022, availability is becoming a bit less tight entering 2022 for certain additives, but others are becoming even more difficult to obtain. Various PET

additives, for example—and especially Fischer-Tropsch waxes—are in extremely short supply, with reports of lead times in excess of six months from multiple areas of the paint and coatings industry.

As supply chain issues improve, and paint makers go from lacking five or six raw materials to make any given batch of paint to perhaps only a single missing raw material, there is a tendency to breathe a sigh of relief. If that single raw material cannot be substituted, however, things really haven't gotten any better. U.S. paint and coatings companies across the board have more orders than they can fill—this was true for all of 2021 and will continue to be true in 2022. The lack of a pound or two of a critical additive becomes even more of an issue under these circumstances.

Mining is highly dependent upon energy costs, and there doesn't appear to be any end in sight as the cost of crude continues to rise: Brent Crude hit \$128/barrel on March 8 before settling down to \$111/barrel on March 9—and West Texas Intermediate (WTI) peaked at nearly \$124/barrel on March 8, then dropped \$15/barrel by the next day. Volatility on this scale clearly reflected increasing global anxiety as the situation in Ukraine and Russia escalated into a full-scale invasion while a desperately worried world looked on. As a result, mined filler pigments, such as clays, talcs, carbonates, et al., rose 20%-25% in 2021, and it is reasonable to expect further increases in 2022, not only for mined pigments, but also for all raw materials used in the paint and coatings industry that are affected by the price of oil.

Not just raw material and transportation cost and availability have been affected. The cost of containers, whether steel or high-density polyethylene, five-gallon pails, drums, or tote tanks, have doubled, tripled, and even quadrupled in

price, and are subject to spotty availability—when they become available, anyone who needs them jumps on the opportunity to purchase, regardless of price.

There seems to be no doubt that raw material suppliers are in the process of jettisoning certain individual products and product lines so that they can allocate financial and personnel resources to the products that are the most in need and very likely the most profitable, as well. While some of these products may be restored to production following the end of the current supply situation, the general feeling among the raw material suppliers and formulators is that these will be handled on a case-by-case basis and will not be extensive.

Fortunately, quality issues with raw materials appear to have been few and far between, at least with regard to anything that can be picked up during the raw material testing and manufacturing process. Many formulators have pointed out, however, that they are concerned that there may be hidden problems that might not manifest themselves for at least six months or more, either as a result of substitutions that they are making or because of substitutions that their raw material suppliers are making. At least one formulator has been shut down making a major product line, due to a raw material quality issue, and it is reasonable to assume that this is not an isolated case.

The burden that all of the supply chain problems are placing on coatings laboratories throughout the world is onerous in the extreme. Laboratories that hitherto spent approximately 50%-70% of their time developing new and improved products have found that that they are now only able to spend 15%-35% of their time on R&D, and for some organizations, it is even lower.

Ironically, after years of benign neglect by the U.S. paint and coatings community, a lot more talk about “sustainability” has arisen during the chaos of the past 12-18 months, but only minimal work has been done in this area by laboratories that are overwhelmed with seeking, testing, and approving alternate raw materials in significantly more attenuated timeframes than would have been the case in the past.

At a time when “sustainability” is attracting more serious attention than ever before, the loss of a significant

portion of R&D activity is doubly discouraging. Nonetheless, we should expect to see a significantly greater amount of emphasis placed on sustainability in formulation, production, packaging, and application as we move out of the current situation and can begin to concentrate on the way forward from here. In the past, “sustainability” has been largely a form of “green washing,” but the tide is turning, and the U.S. paint and coatings industry is beginning to become serious about this topic.

In characterizing 2021 and 2022, the temptation might be to simply indicate that 2022 looks like “more of 2021,” but with some improvements over the course of the year. This would not be a completely accurate picture, however. The shortages, price increases, long lead times, etc., that we experienced in 2021 had multiple causes, but a major one was the failure of the chemical industry to recover in a timely fashion from the freeze in the Permian Basin.

In 2022, many of the same forces that acted on 2021 are still in place, but now it seems that the most powerful driver is less the ability to make the desired chemicals, and more the labor shortages that are preventing sufficient amounts of these chemicals from being produced and shipped. As 2022 continues to unfold, it is very likely to be labor shortages, rather than raw material shortages, per se, that will be responsible for longer lead times, higher prices, ongoing allocations/closely controlled releases, etc. These factors began in 2019, were exacerbated in 2020, became crippling during 2021, and, all things being equal, will continue through 2022 and into Q1 of 2023, albeit likely at a less ferocious and less damaging pace as in 2021 and Q1 2022. Much, of course, depends upon the Russia/Ukraine situation, and especially upon China’s reaction to economic sanctions imposed on Russia by the West, but predicting the effects of a war requires a crystal ball that none of us possesses.

NEW AND EXCITING RAW MATERIALS

Not all of the news is bad news, and there is some very good news to report during this otherwise frustrating and chaotic period of time. I have often, in the past, included in my articles,

regardless of topic, an appendix listing new raw materials that have been introduced into the market within the past 24 months, and that have struck me as being particularly interesting.

Because R&D for raw material suppliers has also been dramatically reduced, just as it has for paint and coatings suppliers, I have noticed fewer new raw material introductions during the past two-year period than during similar periods of time during the past two decades. Nonetheless, there has still been a significant level of activity by producers of component materials for paints and coatings, and given that, even during the pre-COVID era, I heard almost continual complaints from formulators that the “Raw material suppliers don’t have anything that’s new,” it makes sense to highlight some of the new products that have come to my attention.

The products that I have chosen to include in this article are raw materials that their producers claim are not just “me too” products or “tweaks” of existing products, but new materials that truly have the potential to “make a difference” to the coatings formulator who needs to create properties that do not currently exist, or significantly improve properties that do. I see such materials every year, and—without endorsing or recommending any of them on behalf of myself, ChemQuest, *CoatingsTech*, or the American Coatings Association—I am including them in the table on the following pages because I understand that the products in this random and arbitrary selection of raw materials have all been introduced within the past 24 months, and it makes sense for paint formulators to take a look at them, especially if they appear to address any properties that would be helpful in their current product development projects.

Because it is often difficult to persuade paint makers to look at new raw materials, suppliers of new materials should also give serious consideration to having their new products tested and validated in a variety of coatings technologies by independent, third-party laboratories that can provide unbiased results that can then be presented to the paint formulators as “proof of concept” documentation.

Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Uses	Email or "Contact Us" Form	URL
Allnex	SETAQUA® 6534	Additive	Acrylic polyol emulsion; 2K waterborne (W/B) urethane for concrete sealers; ultra-low VOC and odor; outstanding chemical and hot-tire pick-up resistance.	tim.kittler@allnex.com	www.allnex.com
Allnex	ADDITOL® dry CF Series	Additive	Cobalt-free paint driers. Low discoloration; compatible with W/B and solventborne (S/B) coatings. Early hardness development; little surface wrinkling. Improved corrosion resistance. CF103 offers the lowest VOC, reduced odor; improved performance in bio-based and long-oil based coatings.	tim.kittler@allnex.com	www.allnex.com
Borchers, a Milliken Brand	Borchj® Dragon	Additive	Cobalt-free drier for low-VOC formulations that utilize high-solids, long-oil alkyd resins. REACH compliant. Reduces the need for through driers; more sustainable option to decrease dry times.	molly.mauer@milliken.com	www.borchers.com
BYK Additives	BYK-1789	Additive	Solvent-free silicone defoamer for aqueous, high-build, and fast-drying coatings systems. Reduces microform and macrofoam and delivers outstanding internal air-release effect.	www.byk.com/en/contact	www.byk.com
BYK Additives	CERAFLOUR 999	Additive	Wax additive with a very fine, even particle distribution that is designed to increase the scratch and abrasion resistance of coatings.	www.byk.com/en/contact	www.byk.com
Dow Inc.	DOWSIL® 211S	Additive	Low-cyclic, ultra-high molecular weight silicone. For W/B systems. Enhanced mar resistance, slip, and block resistance. Recommended for wood coatings and acrylic, styrene acrylic, and VAE emulsion wall paints.	www.dow.com/en-us/contact-us.html	www.dow.com/coatings
Dow Inc.	DOWSIL® 402LS	Additive	Silicone additive to reduce COF of wood coatings, and to overcome blocking.	www.dow.com/en-us/contact-us.html	www.dow.com/coatings
DURA Chemicals	DriCAT CV 120	Additive	Cobalt 12% replacement; falls below threshold of EU carcinogen and reprotoxic labeling requirements; provide white films that yellow less when compared to conventional cobalt driers.	www.durachem.com/contactus.php	www.durachem.com
Evonik Industries	Surfynol® 104Z	Additive	Strikes a balance between dynamic wetting and molecular defoaming. Near 0 VOC. FDA approved.	www.coatino.com/en/contact	www.coatino.com/en/product/surfynol-104z
Evonik Industries	TEGO® Foamex 811	Additive	Solvent-free defoamer. Suitable for food packaging.	www.coatino.com/en/contact	www.coatino.com
Micro Powders, Inc.	AquaBead R331E	Additive	High-solids, nonionic, rice bran wax emulsion, providing water repellency and lubricity with excellent rub and abrasion resistance.	info@micropowders.com	www.micropowders.com
Micro Powders, Inc.	GraphShield 777	Additive	Dry graphene oxide composite powder, soluble in both solvent- and alkaline water-based systems for easy incorporation into most coatings. Can improve corrosion resistance, mechanical durability, and electrostatic dissipation properties.	info@micropowders.com	www.micropowders.com

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Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Uses	Email or "Contact Us" Form	URL
Micro Powders, Inc.	PolyGlide 1226Xf	Additive	High-density polyethylene composite, reinforced with hard, inert ceramic microspheres and nanoceramic platelets. Offers improved Taber abrasion resistance, slip and lubricity, compared to PE/PTFE additives.	info@micropowders.com	www.micropowders.com
Nouryon B.V.	Arquad GS	Additive	Antimicrobial agent for robust and tintable anti-viral paint.	www.nouryon.com/contact/	www.nouryon.com
BYK Additives	DYK-3938 P	Matting agent	Matting agent for powder coatings, which may be added to a finished powder coating.	www.byk.com/en/contact	www.byk.com
Evonik Industries	SPHERILEX® DP-0115	Matting agent	Precipitated silica for matting of powder coatings. Improves hardness and flexibility. Works across various powder coating chemistries. Main applications are for super-durable polyesters and clear acrylics.	www.coatino.com/en/contact	www.coatino.com/en/product/spherilex-dp-0115
Evonik Industries	EXP 8018-1	Matting agent	Wax-treated, precipitated silica matting agent. Designed for applications using super-fine surface haptics, combined with high transparency. For wood and plastic applications. Part of the ACEMATT® product line.	thomas.lange2@evonik.com	www.coating-additives.com
Evonik Industries	ACEMATT® OK 390, HK 390, HK 520	Matting agent	Efficient, ultra-deep matting, high transparency, and extremely fine surface haptics. For use in S/B and W/B formulations. Shows little influence on viscosity of formulae and have excellent dispersion behavior.	www.productcenter.coating-additives.com/	www.coatings-additives.com
Lamberti S.p.A.	DECOSPHAERA®	Matting agent	Aliphatic polyurethane beads designed for low- to ultra-matt coatings. Imparts matt finish with haptic properties, as well as texturizing effect. Use in UV, W/B, S/B coatings; clear or pigmented low- to ultra-matt coatings. Free of formaldehyde, phthalates, tin, and silica. Designed for thin-film systems. DECOSPHAERA® BIO 8TR based on renewable content.	yasmin.sayed-sweet@lamberti.com	www.lamberti.com
Michelman, Inc.	Michem® 200 and 201	Matting agent	Designed to provide superior matting and abrasion resistance, for use in urethane/acrylic floor coatings.	www.michelman.com/contact/	www.michelman.com
W. R. Grace and Company	Syloid® AQ 800 & AQ 880	Matting agent	Silica matting agents for W/B low-gloss wood coatings; eliminates water spots and stains. Can be used alone or blended.	https://marketing.grace.com/syloidaq	www.Grace.com
W. R. Grace and Company	Syloid® CAT 11	Matting agent	Untreated silica matting agent; developed for high-performance polyurethane coil and general industrial coatings. Developed to reduce catalyst absorption.	https://marketing.grace.com/syloidaq	www.Grace.com
Zschimmer & Schwarz Interpolymer	SYNPRINT® AC 2910	Matting agent	Liquid matting agent based on acrylic chemistry. Offers improved coating clarity, adhesion, and resistance properties, compared with conventional silica matting agents.	d.charron@zschimmer-schwarz.com	www.zschimmer-schwarz.com/en/paints-coatings
Shepherd Color Company	Red 10K333	Pigment	Bipyramidal crystal structure; Yttrium, Indium, Cobalt. Magenta color chemically inert; non-bleeding. Used in coatings and plastics. Not yet TSCA listed but is available in the EU/REACH area.	www.shepherdcolor.com/customer-service/contact/	www.shepherd.com

Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Uses	Email or "Contact Us" Form	URL
Shepherd Color Company	Blue 20G599	Pigment	Designed to be a radically improved cobalt aluminate blue. Highest chromaticity and tint strength, compared to other Co-Al blue pigments.	www.shepherdcolor.com/customer-service/contact/	www.shepherd.com
Hallstar	RX-14860	Plasticizer	Designed to be 50% more efficient at lowering the glass transition temperature of VAE resins, compared with the dibenzoate ester control. Can achieve -18° C temperature grades, at half the plasticizer loading (compared to the dibenzoate control), which leads to improved durability.	bpentzien@hallstar.com	www.hallstar.com
Hallstar	Plasthall® 114	Plasticizer	Aliphatic ester plasticizer used to modify high-polarity adhesives and sealants. This plasticizer has an extremely high efficiency in a variety of vinyl-acetate ethylene (VAE) and acrylic polymer systems compared with traditional dibenzoate plasticizers.	sneuenfeldt@hallstar.com	www.hallstar.com
Alberdingk Boley	AC 2305	Resin	Self-crosslinking, multiphase acrylic dispersion designed to have adhesion to varied substrates, for both interior and exterior applications. Enhances stain- and scrub-resistance.	info@alberdingkusa.com	www.alberdingkusa.com
Allnex	PHENODUR® PR 616/65B	Resin	Low free-formaldehyde (<0.1%) phenolic resin. May be used in combination with high molecular weight polyester or epoxy resins for rigid and flexible packaging, and drum lining.	tim.kittler@allnex.com	www.allnex.com
Allnex	Acure AQ 620-100	Resin	A malonate and acrylate functional non-ionic polyurethane dispersion resin with an optimized ratio of Michael Donor and Acceptor groups, for use as sole binder resin in water-based ACURE AQ systems. Fast curing, nonionic water-based resin for non-isocyanate systems. High-build capabilities without the risk of blistering; excellent early hardness development.	tim.kittler@allnex.com	www.allnex.com
Allnex	SETALUX® XCS 1518 BA-45	Resin	Modified acrylic polyol developed specifically for adhesion to polypropylene substrates. Targeted at replacing traditional chlorinated polyolefins-modified adhesion promoters for adhesion.	tim.kittler@allnex.com	www.allnex.com
Allnex	SETAQUA® 6722	Resin	Self-crosslinking, surfactant-free acrylic copolymer emulsion that offers exceptional clarity, excellent hardness, fast drying and good sandability. Highly durable and has excellent chemical resistance. Excellent flow and leveling properties, approaching that of a S/B product.	tim.kittler@allnex.com	www.allnex.com
Allnex	RESYDROL® SF 8002 50WA	Resin	Aqueous oil-modified, multi-domain acrylic dispersion, especially suitable as a sole binder for decorative gloss enamels. Excellent tanning blocking in industrial wood applications, without the use of stain blocking pigments.	tim.kittler@allnex.com	www.allnex.com

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Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Uses	Email or "Contact Us" Form	URL
Arkema	ENCOR® Flex 192	Resin	Ambient crosslinking modified acrylic latex designed for elastomeric roof and wall coatings requiring adhesion to difficult substrates.	www.brenntag.com/en-us/contact.html	www.brenntag.com
Cardolite Corporation	Cardolite® NX-8402	Resin	Epoxy curing agent based on cashew nutshell liquid technology. Supplied in water and provides excellent performance to epoxy primer and coatings for metal and concrete.	marketing@cardolite.com	www.cardolite.com/contact/inquiry
Cardolite Corporation	Cardolite® NX-9212	Resin	Low viscosity and light-colored polyether diol based on cashew nutshell liquid technology. Excellent hydrolytic stability, reduced moisture sensitivity and excellent compatibility with various diols and polyols. Suitable in prepolymer synthesis for use in 1K polyurethanes, TPU, PUD, and other applications.	marketing@cardolite.com	www.cardolite.com/contact/inquiry
Cardolite Corporation	Cardolite® NX-9018	Resin	Low-viscosity, branched polyether polyol suitable for 2K polyurethane coatings, adhesives, and composites. Provides improved color stability, excellent mechanical strengths, and excellent bond strength on steel and aluminum.	marketing@cardolite.com	www.cardolite.com/contact/inquiry
Eastman Chemical Company	Tetrashield™ MP2104	Resin	High-performance BPA-NI resin provides formulators leading chemical resistance latitude without sacrificing performance in adhesion or reactivity.	tetrashield@eastman.com	www.eastman.com/Brands/Tetrashield/Metal-Packaging/Pages/Metal-Packaging.aspx
Hexion Inc.	AQUAREOUS™ System	Resin	High-performance, solid epoxy dispersion (EPI-REZ™ Resin 7720-W-50) with either EPIKURE™ Curing Agent 6870-W-50 or EK 8530-W-75; meets <50 g/L VOC limits. Superior corrosion and chemical resistance on metal and concrete substrates. Used to replace S/B epoxy/polyamides in a variety of applications.	dan.weinmann@hexion.com	www.hexion.com/en-us/brand/aquareous-systems
Hexion Inc.	INFINIUM™ System	Resin	Lower-yellow epoxy performance; EPON LY™ Resin 1810 and EPIKURE LY™ Curing Agent 3801. Designed for concrete or wood coatings. INFINIUM™ System was developed to help formulators significantly improve yellowing resistance.	dan.weinmann@hexion.com	www.hexion.com
Shark Solutions ApS	Shark Dispersions™ SX2™, FX2™ and FX6™	Resin	W/B made of 100% post-consumer recycled Polyvinyl Butyral in various grades. Homogeneous stable dispersions; meets industry requirements for Sustainability and Circular Economy. Forms a homogeneous film when dried at ambient temperature, without the need for additional film forming additives or coalescing agents.	andrew.zudans@shark-solutions.com	www.shark-solutions.com
StanChem Inc.	StanChem SC 6908	Resin	Acrylic emulsion binder for architectural applications. Outstanding tannin and stain blocking properties. Unique polymerization method.	csullivan@stanchem-inc.com	www.stanchem-inc.com

Supplier	Product Name	Raw Material Type	Manufacturer's Suggested Uses	Email or "Contact Us" Form	URL
Vencorex	Tolonate™ X F 450	Resin	Solvent-free, low-viscosity polyisocyanate based on HDI. Provides elasticity while maintaining high hardness. Especially suitable for fast-drying formulations such as aliphatic polyureas and polyaspartics.	www.vencorex.com/contact-us/	www.vencorex.com
Evonik Industries	HDK® H21	Rheology modifier	Hydrophobic pyrogenic silica for use in highly polar systems. Easy to disperse, with excellent rheology control and prolonged storage stability.	www.brenntag.com/en-us/contact.html	www.brenntag.com
King Industries	K-STAY® 560	Rheology modifier	Zero-VOC; based on unique sulfonate technology. Designed to be highly efficient at low-dosage levels. Improves sag control and pigment suspension, flow and leveling without the hassle of other rheology modifiers.	coatings@kingindustries.com	www.kingindustries.com/k-stay-560/

CONCLUSIONS

Value Purchasing is Important—

I have definitely come to be under the impression that “A” customers have been much better taken care of with regard to more generous allocations and shorter lead times than “B” and “C” customers, which should probably surprise no one. The days are past when purchasing on the lowest possible price makes sense. The future will be built on value purchasing, not on the lowest price, or just-in-time (JIT) supply chains, which have crumbled—and were destined to crumble—when the kind of pressure seen during the past two years was applied to them. All industries, not just paints and coatings, are in the process of learning this necessary lesson. I cannot emphasize how important this is, because—while the future may or may not hold another pandemic in store—pressure on global supply chains will be with us for decades to come, and the time to adjust to a new, more appropriate way of surviving and flourishing in the face of such pressures is now.

Price Increases Will Continue—

Overall, my sense is that the industry is in for “more of the same” during 2022. Pricing *increases*, overall, are likely to be moderated, but it would be premature to expect too many actual decreases. Quarterly pricing contracts and/or annual volume contracts with quarterly escalator clauses will continue to be the norm throughout 2022, and into at least Q1-Q2 of 2023. Lead times are beginning to shorten for many raw materials in Q1

“The days are past when purchasing on the lowest possible price makes sense. The future will be built on value purchasing, not on the lowest price, or just-in-time (JIT) supply chains”

2022, as are delivery times, although the cost to ship will continue to fluctuate, depending upon the part of the world from which the shipments are coming, the price of oil, availability of shipping containers, and access to labor. The wild card is, of course, the situation in Ukraine: as of this writing, Russia has invaded, and the major governments of the West are on high alert and contemplating a variety of punitive options. Adding to the potential disruptions is the fact that China appears to be supporting Russia, at least with moral support, but this could all change if sanctions or military intervention from NATO are invoked against Russia, some combination of which is certainly within the realm of possibility. A conflict of this magnitude has the potential to inflict severe damage on all of the global supply chains. The reader will be in a much better position to judge what

the “situation in Ukraine” means when reading this article in April than I am, while writing it in February and March.

Continued R&D is Critical—Despite COVID-19, despite devastating supply issues, and despite the fact that paint and coatings companies have been forced for nearly two years to divert their R&D resources from product improvement and product development to survival mode, in which the daily emphasis was on identifying and approving raw material substitutions, the raw material producers soldiered on ahead, whenever possible, to provide a stream of new and improved products. Many of these have received scant attention from coatings formulators, who simply have not had the time or resources to evaluate new raw materials, unless they had the potential to become substitutes for existing materials that were in short supply. When the current situation finally abates, and things return to yet one more “New Normal,” the paint and coatings producers who are the first out of the gate with new and/or improved products will have a distinct advantage over their competitors, and the raw material suppliers have given them the products to enable them to do so. This is good news in an otherwise chaotic and uncertain time. Now is the time to proactively take this good news, and these new raw materials, and—either on your own, or with the expert assistance of a third-party formulating expert—turn them into future race-winning products. ❄

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