# Important Market Trends

## Impact the Industry in 2016


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The good news of 2015 is that the overall global paint and coatings market continues to remain healthy, and at least in many regions of the world, growth is continuing at a modest pace. Members of the paint and coatings supply chain do face some uncertainties, however—the slowdown of key emerging economies, fluctuating value of the U.S. dollar, both the positive and negative impacts of lower oil prices, the tenuousness of the recovery in Europe, the rates of growth of the automotive and construction industries in the United States, and regional regulatory developments. While many of these factors are beyond the control of formulators and raw material suppliers, the industry's ability to rapidly respond to changing market conditions with innovative technologies and processes helps mitigate any potential negative impacts and maximize the opportunities they create.

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### EMERGING MARKET DYNAMICS

Regionally, there have been significant differences in the performance of the coatings industry, and the outlook is expected to remain

variable into 2016. China's growth rate has slowed, but remains positive. Brazil's economy has also softened, affecting all segments of the coatings market, and a return to growth is not expected in the near future, according to Michael T. Venturini, global marketing manager for Coatings with Sun Chemical Performance Pigments. In particular, there has been a significant reduction in new vehicle demand in both Brazil and Russia in 2015, and the outlook continues to remain uncertain in the near to medium term, according to Rajeev Rao, vice president of strategy and planning for Axalta Coating Systems. "The health of the economies in Brazil and China impact the demand for both raw materials and finished products, and the current situation in these two countries has created a level of uncertainty that impacts the demand for product and ultimately the share price of stocks publically traded on the world stock exchanges," notes Jeff Cayce, a global market segment leader for Eastman.

While most analysts are not expecting a complete implosion in China, what has and continues to take place there is more than a traditional market adjustment, and a major slowdown of growth will impact commodity markets, according to Michael D. Brown, president of specialty chemicals consulting firm StrategyMark. He does expect a greater impact on domestic Chinese manufacturers, but that also includes larger multinational firms with investments in the country.

One such company is BASF, which invests in local production facilities in order to support its customers and meet their demands for high quality products, according to Markus Kamieth, president, BASF Coatings. "Despite the overall slowdown of the Chinese economy, the automotive industry continues to grow there, and BASF's coatings business benefits from its support of its growing OEM customers in the region," he observes. At the same time, BASF continues to monitor market developments and economic conditions in all regions, because they directly influence consumer behavior. "In South America, for example, buying power is decreasing, which not only affects the automotive industry, but the decorative paints market as well. Therefore, it is getting increasingly important to react quickly, be flexible, and provide innovative solutions," Kamieth adds.

It should also be noted that although the United States does not export significant quantities of paint to the rest of the world, and most of what it does goes to Mexico and Canada, the ~$900 million in sales to China may be affected by the economic slowdown there, according to Steven Nerlfi, a partner with market research firm Kusumgar, Nerlfi, & Growney (KNG).

With respect to raw material prices, Brown adds that non-oil-based chemicals should be affected less than petrochemical-derived products, which are also being buffeted by falling oil prices.

## CURRENCY FLUCTUATIONS

The majority of global commodities are priced based on the U.S. dollar, which means that countries that have seen their currencies weaken against the dollar over the last year have experienced significant cost impacts for globally priced feedstocks and raw materials. "The Euro zone, which experienced a 20% change in currency value versus June of last year, is probably the most important region that has been impacted," says Venturini. He adds that while it is selectively possible to increase local sourcing to avoid some currency impact, the scope of commodities and raw materials that are priced in U.S. dollars is so pervasive to the chemical supply chain that radically new purchasing strategies are difficult to develop.

The volatility of currency exchange rates and raw materials prices, combined with uncertainties in various regions such as Russia, can influence the global economy, according to Kamieth. "These factors make it more challenging to forecast the market than in the past," he comments. Given such a high degree of volatility in the global economy, Sun Chemical Performance Pigments is monitoring the key raw material indexes, focusing its manufacturing team on process and raw material productivity, and leveraging the flexibility and stability afforded by its collaborative sourcing and supply personnel at facilities around the world to minimize the impact of raw material increases, according to Venturini.

## LOWER OIL PRICES

The recent significant decrease in the cost of crude oil has both positive and negative consequences for the paint and coatings industry. "The price of oil hit lows in 2015 not seen since 2008, and before that 2004. The resulting decrease in raw material prices derived from crude oil have been beneficial, but the reduction in orders for coatings associated with pipelines and all other equipment associated with the fracking process had a negative impact," explains George Pilcher, a vice president with market research firm The ChemQuest Group.

Not everyone agrees on the level of impact that lower oil prices have had on raw materials, however. It has been muted compared to expectations, according to Brown. "Solvent prices did decline somewhat, but not as much as expected, and the pass through to specialty chemicals has been limited, with only single-digit decreases. It is possible

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that further declines will occur later in 2015 or 2016, but the impact as of early September 2015 has been minimal," he states.

On the other hand, there is general agreement that the supply/demand volatility created by the oversupply of oil that led to these price declines is a source of uncertainty when it comes to both the pricing and availability of many oil-derived products. "Such uncertainty may create a misalignment of supply, demand, and price expectations throughout the value chain," asserts Cayce. He also notes that the collapse of crude prices continues to apply negative pressure on some economies across the globe, with contractions in demand observed for industrial coatings used in the automotive, mining, and construction industries. "The volatility and rapid declines have even led several automakers to lower production and cease sales in these regions. If this commodity remains weak into 2016, further reductions to capacity could result and create a trickle-down effect to parts suppliers across many industries," Cayce remarks.

## RECOVERY IN EUROPE?

One positive trend in 2015 has been the growing numbers of indicators suggesting that the European economy has begun to improve. "It looks like the European economy is finally turning around. The growth rates are minimal, but still significant because they mean that the economy is moving in the right direction," Brown observes. Kamieth also notes that Europe is performing better than was expected earlier in the year. The most notable change is the improvement taking place in the automotive sector, which has had a positive impact on the coatings industry. Venturini is cautious, though, given that the overall market in Europe remains very fluid due to continuing currency shifts.

## UNPREDICTABLE WEATHER

Erratic and poor weather conditions in the United States in the spring of 2015 significantly impacted the paint and coatings industry. In particular, Sylvia Insogna, North America Marketing Director for Dow Coating Materials, notes that heavy rains and flooding in the Midwest and substantial snowfall in the Northeast led to significant delays in exterior painting projects, as well as transportation issues for paint manufacturers. "While home and building owners may have subsequently completed paint projects in late spring and early summer, it is unlikely that the 2015 paint season will be able to fully recover from these weather events," she states.

## GROWTH OF THE U.S. CONSTRUCTION AND AUTOMOTIVE MARKETS

The largest drivers impacting the coatings industry overall are the rising needs in the construction and automotive sectors, according to Julie O. Vaughn, vice president of marketing and business development for Emerald Performance Materials. In particular, she points to growth in residential and nonresidential construction as driving increased demand for architectural coatings across the globe. "For instance, we are seeing an increase in repainting in China as owners seek to properly maintain buildings that were constructed during the last decade," she notes.

In the United States, growth of the construction market is crucial, because the architectural segment accounts for 50–55% of the paint and coatings market. The automotive sector is the next largest consumer. "Unfortunately, while new home starts are up somewhat, they still lag significantly behind the level needed for strong growth of the U.S. housing market. Significant, additional growth will therefore be needed to maintain a healthy architectural coatings market into 2016 and

beyond," Nerlfi asserts. He is more bullish on the automotive sector, where he in fact expects to see increased production and strong demand for coatings. "There is still a large pent-up demand for cars because many consumers postponed purchases since the recession in 2008/2009. The average age of cars on the road is higher than it has been at any other time, and there will be a real need to replace these older vehicles in the coming years," says Nerlfi.

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There is concern, however, regarding the impact of a possible increase in interest rates. "Financial and general industry experts are closely monitoring the United States Federal Reserve to see if it will raise interest rates. If they are raised in Q4 2015 as expected, the impact could be a slowdown in both the housing and automotive markets, which in turn could negatively impact the demand for paint and coatings in the United States," explains Murray Hemsley, a global market segment leader for Eastman. He also notes that a rise in interest rates could take the U.S. dollar to even higher levels against other major world currencies and thus impact global trade flows.

Economic instability has also been a challenge in 2015, according to Insogna. "In times of economic instability, consumer confidence and spending, including spending on home remodeling and painting projects, tend to decrease. Greece's looming debt default and, more recently, China's economic slowdown will likely continue to have an impact on the U.S. economy in the last quarter of 2015 and into 2016. Such shifts in the global economy and stock markets can lead to hesitancy among home and building owners to engage in improvement programs, including painting projects," she observes.

It is worth noting that some industrial and specialty purpose segments are also doing well and contributing to growth of the paint and coatings market. The demand for marine coatings is increasing due to increased commercial shipping activity and new technologies that maximize specific performance features, such as high-performance epoxy resins and polymers tailored for the formulation of coatings with the ability to resist corrosion, even under extreme temperatures and pressures and when exposed to chemicals and impacts, according to Vaughn. "Such coatings are important on tanker ships and for marine cables, but they also have application as protective coatings in industrial settings. She notes that specialty coatings with antimicrobial and soundproofing properties are also experiencing greater demand.

## REGIONAL REGULATORY ACTIVITY

Regulations have a significant impact on the coatings industry. "Potential changes in regulations always create a level of uncertainty throughout the entire value chain, and throughout the world today, raw material producers, formulators, channel partners, and ultimately end users can be affected by different regulatory changes occurring in different geographic regions," states Hemsley.

In China, concerns about smog and outdoor air quality are driving the development of more stringent regulations on the emissions and VOC content in industrial coatings. Manufacturers are now subject to a 5% tax for VOCs in excess of approximately 400 g/l, according to Vaughn. "Such regulations

are expected to lead to a tremendous shift in technologies from low-solids, solvent-based coatings to high-solids solventborne and waterborne technologies and result in increased capital costs for equipment upgrades and ultimately higher-cost coatings," Cayce remarks. On the positive side, the switch to waterborne technology has created exciting innovation opportunities for manufacturers of resins, additives, and pigments. For instance, Sun Chemical is focusing its research and development efforts on expanding its metallic pigments and other products for sustainable coating applications, according to Venturini.

China is also finalizing VOC standards for architectural paints based on the boiling points of ingredients (similar to European regulations) and indoor air quality standards, according to Vaughn. "These regulations and taxes will provide incentive for coatings manufacturers to reduce VOCs and improve air quality, however, it will take time

for the industry to adapt and implement change," she says. While understandable in the context of the need to address macro environmental concerns, Rao is concerned that the recently imposed environmental regulations in China are coming at a difficult moment when costs will be hard to assimilate.

In Europe, the "Paint-directive" (2014/312/EU), which was published in 2014, established criteria for the award of the EU Eco label for indoor and outdoor paints and varnishes, as well as indoor air quality standards (e.g., AgBB in Germany and ANSES in France) and an overall desire in the market for low-odor coatings are influencing product development efforts. "Major manufacturers are developing alternative recipes to address these standards and the desire for ever greener products," Vaughn observes.

There were two key regulatory developments in the U.S. in 2015, according to Pilcher. First was OSHA *Implementation* of the *Globally Harmonized System* (GHS) for hazard communication (classification and labeling). "This new system requires the first major 'safety data system' change for the coatings industry since the advent of the MSDS, roughly 30 years ago. Unfortunately, for all but the largest paint and coatings companies, the need to implement GHS has meant that cut-backs on money-making activities have occurred," he states.

Second was the regulatory requirement in southern California calling for new, essentially VOC-free tinting bases for use in architectural base colors. "Compliance requires new equipment, new grinding vehicles, new ways of incorporation, new expectations of the final paint properties, and new just about everything else, and in 2015 everyone seemed to be scrambling to install the new dispensers that could deal with the new, faster-drying low/no-VOC colorants for architectural paints," Pilcher asserts. Although this regulation only applies to paint sold in southern California, ChemQuest feels that it is an important event for 2015 because implementation occurred along with a barrage of consumer advertising promoting the benefits of "truly" VOC-free paint. "As importantly," stresses Pilcher, "the technology has been proven viable so those fighting against broader implementation of such restrictions are on the losing end of the battle. Companies that do not sell into Southern California have now had the chance to observe what's going on and to come to the realization that in order to continue to compete with national players, they will need to offer zero-VOC colorants. Therefore, 2015 is a 'keep up or fall behind' moment."

Biocides have been impacted significantly by recent regulatory developments in both Europe and the United States. As part of the EU's implementation of GHS (as the CLP regulation), the new "allergen" label phrase (EU H208) was introduced. This phrase indicates that a chemical mixture (including formulated products, such as coatings) may cause sensitization via skin contact. Notably, according to Craig Waldron, manager of global marketing for Building Products with Lonza, the trigger concentration for the EU H208 phrase was deliberately set lower than previous hazard communication thresholds in order to protect the percentage of the European population that is already sensitized to a substance. "The lower trigger concentration for sensitizer hazard communication is causing a major shift in biocide use patterns in the EU, particularly for paints containing the preservative CMIT (5-chloro-2-methylisothiazolinone), and recently MIT (2-methyl 3-isothiazolinone) preservative systems have been coming under pressure as well," he says.

In addition, Paul Kappock, a senior consulting scientist at Lonza, notes that biocide usage in the EU will be affected by Article 95 of the Biocidal Product Regulation (BPR), which took effect September 1, 2015. "Biocidal products consisting of, containing, or generating a relevant substance cannot be made available on the EU market if the substance supplier or product supplier is not included in the Article 95 list for the product type(s) to which the product belongs, except existing stocks of products not on the list, which can be used until exhausted," he explains. There is no guarantee that products on the list will stay on the market, however. A determination of inclusion will be made for each, and those with negative deci-

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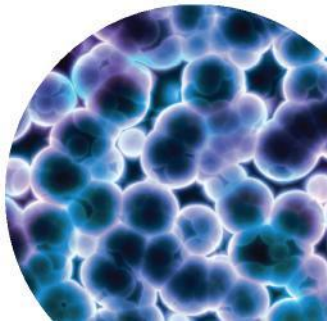

sions will no longer be approved for sale. Those with positive decisions will be subjected to guidelines and restrictions for their use.

In the United States, EPA re-registration eligibility decisions (RED) have re-districted the use of certain biocides as preservatives in paint that function via formaldehyde-based mechanisms, and there is concern about others that are coming up for review in the near future, according to Waldron. Paint formulators are thus challenged to replace these biocides with new chemistries.

Globally, Waldron adds that the trend toward VOC-free coatings is creating the need for improved biocidal protection systems, particularly wet-state biocides, because reduction of the amount of coalescents used in water-based coatings reduces their ability to control bacterial growth. This results in the formation of softer coatings, which are more susceptible to dirt pickup and airborne organisms, such as fungi and algae. He also notes that there is an increased demand for dry-film preservatives in low-VOC, exterior coatings.

"We believe that as a major consequence of these trends, there will be fewer options for preservatives and greater use of preservatives with more than one active agent and, as a result, the overall cost to preserve paints and coatings will likely increase," Waldron concludes.

## SUPPLIER DIVESTMENTS

Another interesting trend noted by both Nerlfi and Brown relates to the divestiture activity of major global chemical companies. Several have spun off operations supplying the coatings industry as independent businesses. In news just released at press time, Dow and DuPont announced plans to combine is a "merger of equals." The combined company will be named DowDuPont, and will be subsequently spun off into three independent, publically traded companies through tax-free spin-offs.

DuPont, having already divested its coatings business (now Axalta) in 2014, completed the separation of its Performance Chemicals segment, including its titanium technologies, fluoroproducts, and chemical solutions businesses, through the spin-off of The Chemours Company effective July 1, 2015. Bayer MaterialScience began operating as the independent company Covestro on September 1, 2015. In March 2015, Dow announced that it is separating its U.S. Gulf Coast Chlor-Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses in order to merge them with Olin Corporation. That deal is expected to close by the end of the year. BASF is also making a move. In July 2015, the company announced that it will separate its pigments activities into a new global


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business unit (GBU) effective January 2016 and then spin off the GBU in the second half of 2016 as a separate legal entity. In May 2015, Ashland announced that it would sell its industrial biocides assets within Ashland Specialty Ingredients to Troy Corporation. The company then announced in September 2015 that it will split into two separate, publicly traded companies—Valvoline and Ashland (currently Ashland's Chemicals Group, comprising Ashland Specialty Ingredients and Ashland Performance Materials). Also in September, Air Products announced that it will fully separate its Materials Technologies business via a tax-free spin-off to its shareholders before September 2016. The business will now be known as Versum.

What is behind all of this activity? Largely a desire to focus on core technologies, and, in many cases, the life science, energy, and transportation industries, which are seen as offering the greatest potential for growth in the future. What will the impact be on the coatings industry—likely very little. Most of the newly formed companies were operating as fairly independent business units within larger corporations. Customers are, in fact, likely to benefit; the much leaner organizations will not have the support of business operations in other unrelated sectors to balance out their performance, and therefore will need to be highly innovative and responsive to customer needs.

## IMPACT OF THE GREEN MOVEMENT

Sustainability continues to be a major trend in the paint and coatings industry. Consequently, companies like BASF continue to strengthen their

research and development activities to provide their customers with sustainable products and ways to save energy by introducing new processes. In the transportation sector, there is movement towards higher solids and water-based coatings, the reduction of energy consumption, and the use of renewable raw materials, according to Cayce. In the architectural market, Hemsley notes that the collection of unused paint and the availability of precise electronic calculators to estimate the accurate amount of paint needed for a particular project help reduce paint disposal issues. Many paint companies are also providing paint with lower odor and lower emissions in response to the focus on indoor air quality attributes.

"While government regulations will continue to play a role, self-accountability and consumer preferences have become more significant drivers for rapid change. The increasing adherence to internationally recognized standards and third-party certifications is allowing customers to verify the real benefits that paint and coatings offer throughout the entire manufacturing process from basic chemical to painted parts," Venturini asserts. Aside from meeting VOC regulations, the shift to greener chemicals is occurring at a "slow and steady" pace, however, according to Vaughn. "Most major paint and coating formulators are working on alternative recipes that eschew conventional high-VOC coalescents and other additives (if not all of them), but meantime, she observes that both formulators and suppliers are working to maximize the quality and value of architectural coatings, delivering products with the more desirable features sought by consumers, such as scrub resistance, low dirt pickup, stain resistance, etc.

## MULTIFUNCTIONAL SOLUTIONS

One way in which many players in the coatings industry are responding to the challenges and opportunities presented in 2015 is to develop new innovations and technologies that afford coatings with increased functionality. A few examples include industrial coatings that can reduce heat transfer in industrial process applications, effectively replacing other insulation materials, industrial coatings that are easier to apply because they have extended pot lives yet are quick curing, and additives that optimize the sag flow balance in architectural applications. "This trend toward offering coatings that do more than beautify and protect is expected to continue into 2016 and beyond," Insogna comments. Rao agrees that suppliers who continue to invest in the development of new and alternative solutions for their customers during the current uncertain environment are going to emerge as winners longer term. He notes that Axalta just announced the construction of its flagship Global Innovation Center at The Navy Yard in Philadelphia

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