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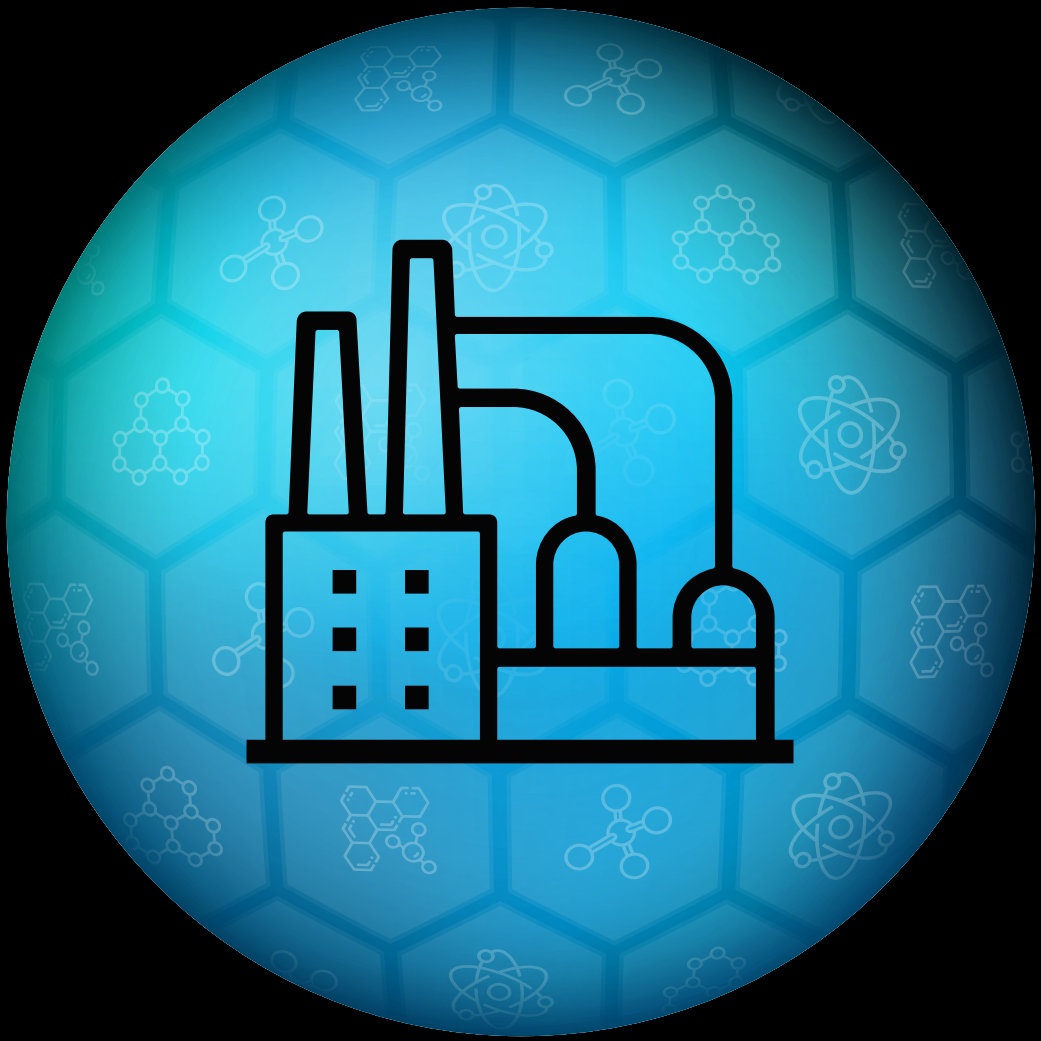


2021 chemical industry outlook

Entering a period of profound transition

The COVID-19 pandemic has had an unprecedented impact on the US economy and the chemical industry, which experienced a significant demand decline over the past eight months. While the industry was already facing cyclical pressures such as overcapacity, pricing pressures, and trade uncertainty before 2020, many postpandemic changes have a structural or disruptive character. But chemical companies in the United States have responded to the crisis by focusing on operational efficiency, asset optimization, and cost management.

As the industry moves into 2021, the changed economic, social, environmental, and political expectations are expected to play an even more important role in shaping its future. To succeed in this shifting industry landscape, chemical companies should consider implementing a series of targeted, strategic initiatives across major functional areas such as R&D and technology. But too much focus on the short term could mean that companies end up neglecting long-term opportunities, including investing in innovation, emerging applications, and adopting new business models that generate sustained growth.

A critical aspect of dealing with this disruption in 2021 could be understanding customer behaviors that are temporary versus permanent, as recovery will likely be uneven across end markets and geographies. Companies can address this uncertainty by revisiting their product portfolio and conducting robust scenario planning that includes the unknowns.

About the study: Deloitte postelection survey

To understand the outlook and perspectives of organizations across the energy, resources, and industrials industries, Deloitte fielded a survey of more than 350 US executives and other senior leaders in November 2020 following the 2020 US presidential election. The survey captured insights from respondents in five specific industry groups: chemicals and specialty materials, engineering and construction, industrial products, oil and gas, and power and utilities.

1

Industry growth

Focus shifting towards new value streams and applications that will drive industry recovery and future growth

A recovery in 2021 is expected in the US chemical industry, which has been hit hard by supply chain disruptions and a severe drop in demand in 2020 in major end markets such as automotive, manufacturing, and construction. Industry revenues are expected to grow about 8% in 2021, following an estimated 9% decline in 2020.[1] Similarly, the industry's operating income is likely to increase by close to 17% in 2021 after an expected 14% decline in 2020.[2] A Deloitte postelection poll (see "About the study") found that 96% of chemical executives expect their industry to experience a recovery in 2021. The recovery is expected to be stronger for those chemical companies that focus on specialty products and solutions.

Even as 2021 industry revenues will likely still be below 2019 levels by about 2%, a potential recovery in the broad US economy in 2021 with low inventories could bode well for the industry's growth and profitability.[3] Furthermore, China's rebound as the primary international growth market for many US chemical companies could be another significant tailwind for the US industry. There are already signs of a strong industrial demand uptick in China, with significantly improved business expectations.[4]

Between September 2019 and September 2020, the US chemical industry experienced 14,500 job cuts, representing 2% of the entire workforce.[5] During this period, the industry lost 32,100 production jobs, but added 17,600 nonproduction jobs, including researchers and scientists.[6] There is a growing demand for employees with R&D experience, such as scientists and engineers, and in areas that help drive sustainability. The share of jobs with analytical, information technology, and technical competencies is expected to continue to grow in 2021.[7]

Owing to end-market diversity and exposure to more resilient sectors, the impact of an economic recession on chemicals will likely be moderate in 2021 compared with other industries, such as automotive.[8] Therefore, in addition to cost optimization and capital discipline, industry players will likely respond to shifting demand by prioritizing growing end markets, such as health care and electronics. With changing end-market demand structure, chemical companies should enter value streams associated with future growth markets, such as materials for microelectronics, advanced materials for construction applications, recycling technologies, and new solvent cleaning technologies. A case in point is shifting consumer demand toward electric

vehicles, driving chemical companies to focus on battery coatings and advanced materials. Sixty-four percent of chemical executives surveyed in a Deloitte postelection poll indicated that advanced chemicals and materials for construction applications will likely drive most of the industry's growth in 2021. To capitalize on this trend, Momentive Performance Materials has invested $15 million for expanding electronic materials production in its New York facility.[9] This should boost Momentive's production, packaging, labeling, testing, and shipping capabilities and help the company cater to evolving industries such as electric and autonomous vehicles.

On the other hand, deal volume is expected to increase in 2021, as the industry could experience more opportunities from distressed companies, including the divestiture of noncore or underperforming assets to raise cash. Even as valuations remain high, with the industry average EV/EBITDA at 13.6[10] and EV/revenue at 3.0,[11] chemical companies with strong financial discipline can potentially leverage mergers and acquisitions to shape their long-term portfolio strategy.

2

Impact of policies

Policy proposals related to regulation, trade, and sustainability could have material impact

The deregulation push by the Trump administration has been instrumental in removing some challenges with domestic chemical projects and streamlining the process for permitting international cross-border projects. The administration eased the regulatory requirements on the construction of new chemical plants and disclosures. However, the continued tariffs on US-Chinese chemicals trade and downstream products such as high-density polyethylene (HDPE) and linear low-density polyethylene (LLDPE) have weighed down the industry despite the signing of the Phase 1 deal in early 2020.[12]

Eighty-four percent of chemical executives in a Deloitte postelection poll indicate that the industry can effectively navigate shifting trade policies by focusing on managing supply chain risks by diversifying their supply base. Moreover, 36% of chemical executives said they would collaborate with regional players to build the capabilities needed to shift target markets.

Under a new administration, these tariffs could be reviewed, and a resolution could be found to the trade dispute with China. This could boost US chemical exports and improve industry profitability through a potential revival in prices. However, the administration would face significant domestic pressures not to immediately lift tariffs due to high unemployment and a political need to be tough on China.

3

Global energy prices

Feedstock volatility unlikely to change the global export competitiveness of US chemical companies

The US feedstock advantage for export competitiveness is driven by having abundant, low-cost ethane feedstock to produce ethylene and polyethylene (PE), competing against global ethylene and PE manufacturers who have access only to higher-cost naphtha as feedstock. However, lower oil prices make heavier feedstocks, such as naphtha and liquified petroleum gas (LPG), more competitive than lighter feedstocks like ethane. The relative price of oil to natural gas is a proxy measure to assess US chemical companies' competitiveness, as the wider the spread, the more advantageous ethane should be. As a rule of thumb, when the oil-to-natural-gas price ratio is above seven, US chemicals with ethane as a feedstock are relatively advantaged, and when it is below seven, they are less advantaged.

As discussed in our *2021 oil and gas industry outlook*, global oil prices have remained rangebound between $40 and $50 in 2020.[13] And US Henry Hub prices remained comparatively low for most of 2020 and are forecast to average $3.14 per million Btu for 2021.[14] This can help maintain production economics in favor of ethane-based crackers, provide a feedstock advantage for US chemicals, and keep them competitive versus their European and Asian rivals over the next decade. Fifty-eight percent of chemical executives in a Deloitte postelection poll indicate that the feedstock cost advantage for export competitiveness will continue for more than three years for US chemical companies. However, the advantage could be temporarily disrupted by an unexpected and sustained surge in natural gas prices due to factors such as supply-demand imbalance or a significant and persistent decline in oil prices.

Even if the global ethylene cash cost curve flattens for a brief period, ethane will likely remain the most favored cracker feedstock due to two factors. First, ethane production costs are not sensitive to oil price levels, while naphtha-based producers need a lower oil price to remain competitive. And second, ethane-based production requires lower feedstock input levels than naphtha—slightly more than one ton of ethane is required to produce a ton of ethylene, while more than three tons of naphtha are needed to produce a ton of ethylene. In other words, ethane-based production is more efficient and requires less feedstock for the same level of output. And, in case ethane prices rise and naphtha gains the feedstock cost advantage, crackers with the flexibility to switch between the two and LPG could ease run-ups on ethane.

4

Acceleration of sustainability and decarbonization

Emerging opportunities amid growing concerns around plastics waste

Forty percent of chemical executives in a Deloitte postelection poll indicate that disposable masks, gloves, and other personal protective equipment (PPE) pose a more significant challenge than single-use plastic waste from a sustainability standpoint in 2021. While there has been a significant increase in medical waste[15] due to the COVID-19 pandemic, governments worldwide continue to restrict single-use plastics, such as plastic bags and straws, in the long term. Also, there appears to be a growing change in public perception and preference toward sustainable consumption. These factors will likely continue to drive chemical companies to develop new sustainable products and business models.

As a result, consumers could increasingly value sustainability and prioritize products based on circularity and carbon footprint, driving chemical companies to accelerate their decarbonization technologies, reexamine their existing assets, and begin to diversify away from hydrocarbons where possible. In 2021, many US chemical companies are expected to add mechanically recycled and renewable feedstock-based polymers to their product offerings and invest in chemical or advanced recycling to bring potentially game-changing recycling technologies to a commercial scale. These new recycling technologies could turn out to be a potential $120 billion market in the United States and Canada alone.[16] Chemical companies will likely invest and create new sustainable practices, including developing technologies such as closed-loop recycling. For instance, LyondellBasell is developing a proprietary chemical recycling technology and expanding the types of mechanically recycled resin it offers.[17] The company plans to produce and market 2 million metric tons of recycled and renewable-based polymers per year by 2030.[18] The short-term increase in investment is expected to be offset with long-term cost-efficiencies, as well as increased customer demand for sustainable products.

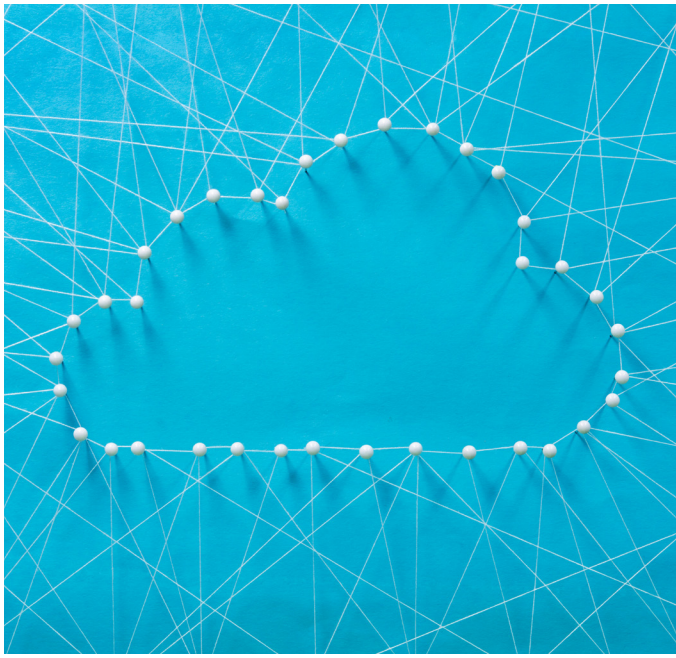
US chemical companies should continue to enjoy support from lawmakers on these efforts. The proposed Plastic Waste Reduction and Recycling Act intends to direct various federal agencies and offices to reduce plastic waste and bolster plastics recycling.[19] Also, the US Plastics Pact, a collaborative effort led by the Recycling Partnership and World Wildlife Fund, is working to unite diverse public-private stakeholders across the plastics value chain to rethink the way companies design, use, and reuse plastics and to create a path toward a circular economy for plastic in the United States.[20]

Therefore, through a coordinated effort across the value chain, US chemical companies are expected to make great strides in developing polymers that allow processors to consume less material while maintaining the quality of their products, whether it be strength or durability.

5

E-commerce

Chemical companies to increasingly leverage remote and digital sales channels



Unlike the recent downturns that were primarily cyclical in nature, chemical companies are now experiencing significant changes in how they operate and the way they serve customers. Companies are adjusting how to work remotely, how they sell products, and how they interact with customers. Chemical industry customers are expecting a simplified ordering process, especially in a contactless environment. Buyers expect better digital experiences and e-commerce solutions, such as live chat, that limit in-person interaction.

Even as the industry has been slow to move sales online, US chemical sales will likely gain a further foothold in e-commerce in 2021. Nearly 30% of chemical executives in a Deloitte postelection poll indicate that more than 20% of total US chemical sales will be driven by business-to-business (B2B) e-commerce in 2021. Many companies are increasingly using digital tools and offering self-service capabilities similar to leading consumer e-commerce platforms.

When placing online orders, most chemical buyers are conducting self-serve research online before purchasing; paying more for superior service; using social media content to help make purchasing decisions; and looking for assistance from line-of-business experts. To help succeed in e-commerce sales, companies should enable advanced customer services such as inventory reminders, logistics tracking, and product footprint tracking. They should also allow client complaints or feedback to be directly reported to relevant plants and functional departments. So, while digital tools can facilitate improved customer service, delivering an outstanding customer experience involves more than just using new technologies, making it important for companies to be well-prepared.

Preparing for the new opportunities

Chemical companies can use the COVID-19–driven economic crisis as an opportunity to build lasting business strength by making informed and deliberate strategic choices about which end markets they focus on. Furthermore, as companies focus on divestments of noncore or underperforming assets to raise cash during the economic downturn, industry players that are well-prepared and have robust balance sheets can look at making smart acquisitions that create greater long-term shareholder value. Companies can grow earnings in different operating environments if they build a product portfolio that can withstand changes in macroeconomic trends. The end of life for materials can often be the start of something new, and so chemical companies should collaborate with their stakeholders to find ways to create new value. In the coming year, chemical companies should keep an eye on these larger trends shaping consumer preferences and the end-market environment in order to focus on new growth opportunities and extract more value from current resources and assets.

Let’s talk

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