

# SPECIAL REPORT ON SINGAPORE CHEMICALS, INGREDIENTS, AND MATERIALS

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# Singapore Chemicals, Ingredients, and Materials

*This report has been produced by Global Business Reports. Research conducted by Lorena Stancu, Maria Filippova and Germaine Aboud. For more information, please visit [gbreports.com](https://gbreports.com), or contact [info@gbreports.com](mailto:info@gbreports.com). Main cover photo courtesy of Shell. Other photos courtesy of Siemens, Henkel, and NewPort.*

## INTRODUCTION

### So long as demand holds up

If 2020 was about frozen production and 2021 about supply chains struggling to sustain a rushed recovery, 2022 can be (reductively) summarized to inflation - the sign of a complex playout of tight supply, strained logistics, and unpredictable demand. Singapore is an APAC outpost for almost 100 European, American, Japanese, Chinese, Korean, Malaysian, as well as local chemical companies with manufacturing, sales, or R&D - a sample of the world's chemical industry and one of the biggest refinery complexes, all in a 728 km<sup>2</sup> island off the Ecuador axis. Even if the country is far away from the crisis in Europe, its industry is directly caught in the whirlwind of global events, tied to the price of feedstocks as a direct relative of the oil and gas industry, in the open field of trade tensions, and at the whims of different consumer trends. "Demand is affected by persisting challenges, including geopolitical tensions, extended Covid lockdowns, and the volatility of feedstocks, all of which create

uncertainty and make forecasting difficult," said Sjoerd Bazen, managing director at Vopak.

For Singaporean-based producers and distributors of chemicals, the cost curve has become exponentially high. The cost of energy, in particular, already in the top 20 most expensive in the world and one of the biggest operational expenses for manufacturers on the island, is three times higher compared to last year. Singaporean players must also absorb other elements of cost volatility, including sustainability regulations pressuring the shipping industry, as well as expenses associated with acquiring and retaining talent in a highly competitive market. All these costs have, so far, been managed on the back of strong demand. Almost all companies we spoke to this year posted strong growth in the first quarter of 2022, and record-level growth in 2021, both despite - and sometimes because of - the pandemic. However, the outlook is murky, and it hinges on the ability of chemical companies to pass on costs to the next segment in the value chain, and eventually all the way down to the consumer.

"When the oil price goes down, the cost of chemical materials comes down too, but customers typically expect some 'savings' to be passed on to them. On the other hand, when the oil price goes up together with the costs of our raw materials we face stiff resistance from customers to passing on the higher costs," said John Hong, APAC sales director and Singapore director at Infineum.

"Fundamentally, demand for chemicals, gases, including LNG, remains strong, led by APAC, even as LNG trade flows are being redirected to circumvent Russia. Even if there is a current risk that price spikes could suppress demand, the long-term fundamentals are unlikely to be changed by these deviations caused by inflation," said Bas Verkooijen, CEO of Advantico.

Reading current demand is complicated by two factors: The first is the belief that much of the consumption that has fuelled economic growth over the last year is the result of build-ups from the pandemic period. The other is the impact of inflation on consumer behaviour.



Sjoerd Bazen, Managing Director, Vopak



John Hong, APAC Sales Director and Singapore Director, Infineum

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Lockdowns and disruptions in the semiconductor sector have given rise to pent-up demand, while a lot of manufacturers, fearing further disruptions, have built higher inventories. Both trends have sent a false positive signal to the market. For example, the construction sector is very active today, but most of the ongoing projects had been commissioned (and subsequently put on hold) before the pandemic: “In the short term, chemical companies supplying the construction industry will see growth, but the reality is that the construction industry is busy with projects approved before the pandemic and are buying ahead for whole projects rather than just in time deliveries, whereas the pipeline for new projects is quite empty,” explained Gina Fyffe, the CEO of Integra Petrochemicals.

On the consumer side, a phenomenon of “revenge spending” (making up for almost one to two years of being locked in the house with few spending options other than online shopping) has emerged, pushing up revenues in the retail, hospitality and travel sectors, and brushing off fears of inflation.

Moving forward, inflation is expected to weigh down spending, especially on discretionary expenses and large goods. The housing market and the car industry will be particularly interesting to observe, considering the rise in prices for building materials and steel will challenge constrained consumer purchasing power. On the other hand, consumption of basic necessities is broadly expected to remain unharmed. “During periods of heightened inflation, people tend to put off buying a car or a new house. However, spending on everyday goods goes on, simply because people still need to go about their normal lives and look after their hygiene,” explained Chan Chian Yeow, site director at Croda Singapore. ■

## SUSTAINABILITY

### Deeper-running transformation

Sustainability runs deep with Singapore, which, from its early days as a newly founded independent country, adopted the vision to become a “city in a garden.” Downtown, tall tropical trees compete with even taller skyscrapers, greens and greys mixing in what can be described as an urban jungle. Over the last year, two main high-level developments reinforced the country’s progressively more ambitious sustainability vision: The first is the higher-than-expected increase in the carbon tax from the current S\$5 per tonne (t) of CO<sub>2</sub> to S\$25/t in 2024, and up to S\$80/t by 2030. The second is the government’s newly expressed vision to transform Jurong Island, Singapore’s integrated petrochemical complex, into a sustainable energy and chemicals park.

The project is called “Sustainable Jurong Island,” a juxtaposition that daringly puts sustainability right next to the country’s biggest CO<sub>2</sub> emitter (Jurong Island produces 54% of Singapore’s CO<sub>2</sub> according to a recent paper by the National University of Singapore (NUS)). Ow Kai Onn, VP and head of chemicals and materials at the EDB, said: “The plan represents a recognition that the industry can and must become more compatible with Singapore’s long-term aspiration of achieving net-zero emissions by or around mid-century.”

If successful, the carbon-intensive industries on the island will quadruple the output of sustainable products and achieve more than 6 million t of carbon abatement per year by 2050. Big industry announcements suggest that the vision written on government paper fits well with the industry’s own plans, starting with the three refinery operators: ExxonMobil, operating the country’s largest refinery at Pulau Ayer Chawan; Shell, operating the Pulau Bukom refinery; and Chevron, which has a 50% JV in the Singapore Refining Company. All three players have embarked on sweeping restructurings. Shell has halved its crude processing capacity at Bukom, the country’s oldest refinery, repurposing the unit into polyols production. The company is also investing in what will be Asia’s largest pyrolysis oil upgrader, with a capacity to transform 50,000 t/y of waste-derived pyrolysis oil into circular chemicals, and is also planning to build a 550,000 t/y biofuel capacity to convert cooking oil, animal fat, and green hydrogen into bio-chemicals, sustainable aviation fuel (SAF), and renewable diesels.

The three energy giants are also defining new business units specifically dedicated to low carbon energies. Since April of this year, Exxon has divided itself across three business lines: upstream, product solutions (including chemical and downstream), and low carbon solutions – which will focus on carbon capture and storage (CCUS), hydrogen, and biofuels (including SAF). Similarly, Chevron has created a new business unit called Chevron New Energies (CNE), also focusing on CCUS, hydrogen, and renewable products.



Ow Kai Onn, Vice President and Head of Chemical and Materials, EDB

## MONEY AND MENTALITY

In the last few years, Singapore has attracted a few massive investments, all of which represent veritable flagships for a more sustainable chemical industry. Arkema’s 100% bio-based amino 11 plant will be the world’s largest integrated bio-factory dedicated to high-performance chemicals. The project has entered the final construction phase and is due to come onstream this year. Early next year, another world-class project will come live in Singapore when Neste completes the construction of its €1.3 billion bio-refinery. This will supply up to 1 million t/y of SAF and renewable raw materials for chemicals and polymers.

Beyond these headline developments, almost every player we spoke to in Singapore is either studying, planning, or seeing through initiatives to reduce their carbon footprint, sustainability weighing heavily on their mind. But we must ask, are these individual, often small-scale and early-stage projects, systemic enough to drive real change, and do they, together, put the industry on track to meet mid-century net carbon zero goals?

## ACCOUNTABILITY

One of the biggest issues that holds companies back is accountability, or who is, in fact, responsible for sustainability? Corporations answer to governments, to the financial community, and to the public at large, all three expecting sound climate strategies for 2050. By that point in time, the people leading chemical businesses today will be retired. This is the first obstacle to accountability. A Greek proverb says that ‘a society grows when old men plant trees in whose shade they shall never sit’, but even if the willingness is there, leading a sustainability strategy is not as simple as planting a tree. This complexity is a second obstacle to accountability. And finally, sustainability has not traditionally fallen under the deliverables expected of a CEO, and so it tends to be delegated to a department within the organization. CEOs not seeing sustainability as part of their job is the third obstacle to accountability.

Once sustainability is deeply ingrained at the top level, the next challenge for chemical MNCs is to translate it locally. Geri Liu, senior account manager at EcoVadis, has noted a maturity gap between sustainability initiatives at the HQ and at the regional level: “Our

clients start with a global strategy, which they roll over to their subsidiaries, but it is important that they understand the appetite for these initiatives at a local or regional level. What happens globally does not necessarily fit the purpose of the regional team, so there is a need for a bottom-up approach too.”

## THE LONG LAPSE OF TIME UNTIL 2050

The other big trap that chemical companies can fall into is to think that there is enough time – that 2050 is far away, that much can change by then, and that new technologies may become available and cheaper while others become redundant. So they wait. Marc Allen, the co-founder of Unravel Carbon, an enterprise-software solution to track GHG, thinks that this perception of time leads to inaction: “Beyond lots of talk around net-zero ambitions, the actual implementation is lagging. The next few years will be about operationalizing those net carbon targets.”

“By 2050” is not such a long time, and the strong language coming out of COP26 stressed that the next decade will be critical. More frequent checkpoints (2025, 2030, 2035, etc.) and short-term targets give chemical companies a better awareness of where they are, while breaking down the task of carbon neutrality into multiple interim targets gives them a more realistic grip of what is achievable. These strategies are becoming popular among players with well-defined sustainability roadmaps. And companies that imposed targets earlier can already tick boxes on their progress. Henkel, for example, has already achieved 68% renewable energy as part of its 2030 Sustainability Ambition Framework, and it has eight years to get to 100%.

Defying the old thinking that sustainability equals costs is probably the biggest mindset challenge the chemical industry is faced with. The financial sector has already helped introduce a new paradigm grounded in compliance – the idea that no sustainability equals more costs. Seeing climate change as a financial risk, banks will refuse loans without evidence of a convincing decarbonization strategy in place, while a strong ESG agenda has become a necessary condition for private and institutional investors. This “risk and compliance” paradigm is spreading through the chemical supply chain, vendors and suppliers sometimes having to demonstrate good sustainability practices to win, or even to participate in, tenders. The more this happens, a third paradigm takes root: that sustainability equals opportunities. ■

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## THE ENERGY TRANSITION

### Putting a price tag on carbon

With nobody bearing the costs of carbon emissions, these become “negative externalities.” But the world is moving to a stage where CO<sub>2</sub>, methane and nitrous oxide, the three main greenhouse gases, are measured, priced, and indirectly traded through carbon credits. Otherwise put, they are internalized. 23% of the world’s GHG emissions are currently priced via a carbon pricing mechanism, existent in more than 40 countries.

Singapore is one of the latest countries to have firmly reinforced its commitment to carbon taxation. After introducing the Carbon Pricing Act and setting a flat carbon tax rate of S\$5/t of CO<sub>2</sub>-e in 2018, early this year the government announced a fivefold tax increase by 2024-2025 and a dramatic increase of up to sixteen times by 2030. A carbon tax of up to S\$80/t in the next eight years is sending a strong message to the oil and chemical industries, but also to the energy sector, which contributes to about 40% of the country’s emissions, according to the Energy Market Authority (EMA). The industry can either pay for increasingly more expensive GHG or invest in lower-carbon solutions. The tax is designed to prompt carbon-intensive industries to fast-track their energy transition, but some worry it will fall short of its intended purpose, ending up disfranchising the manufacturing industry.

The biggest fear is that the tax will hurt Singapore’s attractiveness as a production hub and lead to offshoring. This might depend on whether other countries inevitably adopt similar policies, or, alternatively, do not, whereby emissions simply move elsewhere, defeating the purpose of the tax; Singapore alone becomes greener yet less competitive. To a large extent, the long-term success of Singapore’s carbon pricing will depend on the trajectory taken by other economies.

“It is important that the designed carbon tax framework encourages GHG reductions while also safeguarding the competitiveness of trade-exposed industries that are competing in a global marketplace with other industrial hubs that have either no, or a lower price on carbon domestically or on their exports,” said Geraldine Chin, chairman and managing director at ExxonMobil Asia Pacific.

Singapore is certainly not the first, the only, or the last country to introduce such a policy. The first carbon tax was first implemented by Finland in 1990, and today, all developed economies except for the United States and Australia have a nationwide carbon pricing mechanism. Last year, China joined this league by launching its own model of an emissions trading system (ETS). Even though some form of carbon pricing is becoming the norm around the developed world, Singapore is the first country in Southeast Asia to have taken this path, which may put it at a disadvantage to lower-cost neighbours.

Nevertheless, recent policy changes in the EU suggest that all countries will, eventually, be liable for the carbon emissions associated with their exports to the EU. Last year, the European Council approved the Carbon Border Adjustment Mechanism (CBAM) to avoid carbon leakage from non-EU exporters. From 2026 onwards, non-EU exporters of iron, steel, cement, fertilizer, aluminum, and electricity will pay a carbon border fee when goods arrive in Europe. This new regulation creates a positive framework for the Singaporean carbon tax.

While a global carbon tax is difficult to implement in the near future given the gaps in the level of maturity in different systems, more countries will seek to synergize their carbon markets. COP26 delivered an important milestone in this sense, reaching an agreement on the global carbon market mechanism (GCM) within Article 6 of the Paris Agreement that supports the transfer of emission reductions between countries. Meanwhile, more countries are looking at some form of carbon pricing. In ASEAN, Vietnam, Indonesia and Thailand are currently considering ETSs.

Carbon taxation has proven effective in other countries. GHG emissions in the UK have fallen to their lowest since 1890, according to Carbon Brief; at the same time, however, UK’s carbon tax meant the end of the country’s coal industry. Carbon taxation is challenging for carbon-intensive industries, which is why in countries like Canada provincial governments offer big exemptions to a number of sectors, including chemicals. The effectiveness of Singapore’s carbon tax begs two questions: Is it the right pricing mechanism and is it the right price?

**Is it the right mechanism?** Singapore opted for a carbon tax versus a cap-and-trade mechanism like the EU’s emission trading system (ETS). Unlike an ETS, which allows emitters to trade emission units established by the market, a carbon tax has a fixed price protected from external forces. But the feature that makes the Singaporean carbon price mechanism unique is that it also gives large emitters the flexibility to buy independently certified international credits to offset up to 5% of their taxable emissions. This hybrid model has been praised for giving eligible carbon emitters more flexibility, and for creating new opportunities for Singapore. Lee Pak Sing, assistant chief executive at Enterprise Singapore (ESG), sees Singapore as the ideal carbon hub in Asia: “Singapore has a growing carbon services ecosystem with over 70 carbon service companies. These include carbon advisory firms such as South Pole, and carbon marketplaces such as AirCarbon Exchange and Climate Impact X. The World Bank has also announced its collaboration with Singapore on the Climate Warehouse initiative to coordinate multiple carbon registries.”

**Is it the right price?** Governments choosing a carbon tax mechanism are always faced with the question of what is a fair price that will lead to meaningful change. Singapore started with a low carbon rate of S\$5/t to get the industry used to the new system and give it time to adjust. At the two extremes, Sweden levies the highest carbon tax at S\$119/t, while Poland has a tax rate under



Geraldine Chin, Asia Pacific Chairman and Managing Director, ExxonMobil



Ganapathy Swamy, Managing Director, Linde Singapore and Head of Onsite Accounts, Linde ASEAN

S\$1. According to the IMF, a carbon price floor at US\$75/ton for advanced economies, US\$50/t for higher-income emerging countries, and US\$25/t for lower-income emerging countries would help to bring emissions in line with 2030 goals. Singapore’s proposed price falls well within that range: “At a cost of US\$80/ton of emissions in 2030, many abatement or emission reduction projects become viable,” said Marc Allen, co-founder, Unravel Carbon.

Though it is only directly applicable to 50 taxable facilities in the country, according to Unravel Carbon, the tax will indirectly affect all businesses because of their consumption of electricity; the same source estimates that electricity costs will go up by 13% in 2030 at a carbon tax of S\$80/t. This should incentivize businesses in Singapore to invest in decarbonization technologies themselves, or buy carbon removal credits which go to finance the development of breakthrough technologies.

### TWO SCENARIOS FOR THE ENERGY TRANSITION

Achieving net-zero by or around mid-century won’t be easy for the island-state. 95% of Singapore’s energy comes from natural gas, according to the Energy Market Authority (EMA), and the options for developing more in-country renewables capacity are limited. To



Tat Win Law, Singapore Country Chairman, Chevron

realize the switch from fossil fuels Singapore will have two options, said Wei Chee Liew, country managing partner at Environmental Resources Management (ERM): “In a scenario of regional and global cooperation, Singapore would likely see a growth in energy imports. In a separate scenario, Singapore would have to invest more in domestic sources, including nuclear power, hydrogen or geothermal power.”

The import of low carbon energy is both the cheaper and readier option. Without any natural resources of its own, Singapore has always relied on natural gas from Indonesia and Malaysia, but it was only last year that the country decided to also import electricity. EMA issued the first request-for-proposal for energy imports in 2021, and the first pilot solar importation project is underway,

Pacific Light winning the license to import 670 MWp from Indonesia. Singapore plans to import up to 4 GWp of low-carbon electricity by 2035 – this will be the equivalent of about one-third of Singapore’s electricity supply.

The other two-thirds will have to come from within the country, as a mix of hard-to-replace natural gas, solar power, and potentially hydrogen, combined with carbon capture facilities. Solar power is the country’s only available source of renewable electricity, but it only represents a small fraction of the overall supply (630 MWp). Even with all of Singapore’s ingenuity in overcoming space concerns by using water bodies and any vacant space to install solar

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panels (last year Singapore inaugurated one of the world's largest floating solar farms), the maximum solar deployment by 2030 will be 2 GWp.

To satisfy the country's total 50 TWh plus total energy demand, Singapore will continue to rely on natural gas, and, when the technology becomes available, hydrogen. Hydrogen, as a low carbon energy and transportation fuel, is being enthusiastically explored. The EDB has awarded S\$55 million to 12 projects under its Low-Carbon Energy Research Funding initiative to support R&D in this space. The biggest challenge is to find economically viable ways to greenify hydrogen production (a process called electrolysis) by using renewable energy. Most hydrogen produced today comes from natural gas, but a greater body of research is looking at alternatives. Evonik, for instance, is developing an anion exchange membrane to make the electrolysis process cheaper.

All low-carbon alternatives explored, Singapore can also reconcile its natural gas dependency by focusing not just on energy sources with zero CO<sub>2</sub>, but also on ways to deal with unavoidable CO<sub>2</sub>. As a first step, increasing the energy efficiency of natural gas power plants could reduce CO<sub>2</sub> by up to 10%, according to EMA. Carbon capture and sequestration technologies could then do the rest.

In Singapore, one project to watch is Linde's collaboration with Singapore LNG Corporation (SLNG) to study the feasibility of a CO<sub>2</sub> liquefaction and storage facility to capture and liquefy CO<sub>2</sub> from the SLNG terminal. Ganapathy Swamy, managing director at Linde Singapore and head of onsite accounts at Linde ASEAN, thinks Singapore is the right place to apply this kind of technology, but not without partners coming together: "Linde has the technology to capture, compress and liquefy CO<sub>2</sub>, but the economics of this process is not straightforward. To eventually eliminate CO<sub>2</sub>, it has to be moved and stored either underground or under the sea. Such projects require a cluster approach whereby different elements – like a density of CO<sub>2</sub> streams, collection points, and storage options – all come together."

Globally, industrial gas company Air Products is driving multiple multi-billion-dollar projects in gasification, carbon capture, and hydrogen, including a gasification and power plant in Saudi Arabia, a net-zero hydrogen energy complex in Alberta and a coal-to-methanol plant in Indonesia: "No doubt, hydrogen is the fuel of the future. The technology is nascent and will require effort, but I expect improvements to happen rapidly in the next 10 years; the more hydrogen is applied, the more its sphere of applicability increases," commented Velu Ramani, president at Air Products Southeast Asia.

Current global events, headlined by high inflation and a forewarned energy crisis, have acted as cautionary reminders that the over-dependence on imports from one country, but also the over-dependence on fossil fuels, comes at a risk. It is hard to tell whether these events will be good or bad for the energy transition. Without other energy alternatives, more investment will go into gas infrastructure projects, keeping fossil fuels longer in the energy mix. At the same time, the price crisis may also boost investments in renewables, as the price of traditional energy has exceeded that of solar power in some parts of the world. According to a report by International Renewable Energy Agency (IRENA), renewables were the world's cheapest source of energy in 2020, but the rise in oil prices has also swelled the cost of renewables and bio-based fuels. The price of palm oil reached an all-time-high this year, a mark of green inflation. ■

## PETROCHEMICALS

### Bullish-(ish) markets

The tight supply and robust demand recently seen in the petrochemical industry are textbook fundamentals for a bullish market, but the theory becomes jittery in the current context of multiple uncertainties.

Geopolitics, the stabilization of supply chains still suffering from a pandemic hangover, and China's economic rebound will all influence the industry's outlook. Beyond current market fundamentals, the Singaporean industry is exposed to the exceptionally positive demographic fundamentals of Asia Pacific, the global epicentre of petrochemical demand. Nevertheless, war in Ukraine, the pressure on raw materials availability and prices, as well as China's economic recovery under a zero-Covid policy entail uncertainty for the Singaporean petrochemical industry. "The trajectory of oil and gas markets is unlikely to be a smooth one and will be dependent on what happens next globally," commented Zhang Xi, managing director for Singapore and VP for Southeast Asia at Air Liquide.

Judging from an industrial gas demand perspective, Xi noted that the trend of strong recovery characteristic of the last quarters of 2021 was slowed down by the impact of the war in Ukraine: "Oil and gas markets are volatile, but investments have continued, driven either by customers resuming their development projects or the commencement of new plants," concluded Xi.

Volatility is most pronounced upstream. Asian naphtha prices are currently trading at the greatest discount since 2008, according to Reuters, while earlier this year, prices rose to the highest since 2008. In the spring, Asian oil refiners were making record-high profits, with profit margins for Singaporean refineries tipping over US\$20/barrel in April, wrote Reuters. Two months later, the same source reported the Asian naphtha market struggling to sustain margins. In just a few months, the fundamentals took a new turn, demand loosening due to the lockdown in China and supply chocking with imports from the Middle East and India. In May, Asia received 28% more naphtha imports from the Middle East, and 20% more from India, compared to a year before.

Regardless of the fluctuations since the beginning of the year, the price for naphtha, which is the main petrochemical feedstock

in Singapore, remains at the highest since 2014 (US\$799.9/t at the time of writing) and is expected to stay high moving forward, continuing to pressure input costs for petrochemical producers. Global refinery outputs are constrained by Europe shunning Russian refineries and by China slashing refinery amid dried-out domestic demand.

At higher feedstock prices, the profitability of petrochemical producers is expected to drop in 2022 compared to 2021 when the top 100 global petrochemical companies experienced EBITDA average margins of 20%, 6% higher than pre-pandemic, according to McKinsey. The financial gains achieved in 2021 should protect petrochemical players from potential headwinds. So far, the earnings reported by Singapore's biggest players were higher in Q1 of 2022 compared to the last quarter of 2021, but summer revenue projections have been revised downward.

The bigger picture, however, is little affected by current market volatility. Research and Markets put the global petrochemical market at a 6.2% CAGR between 2022 and 2026, mentioning rising populations, high demand for plastics, and raw material availability as key growth drivers. Asia is

by far the biggest market for petrochemicals, APAC accounting for some 4.3 billion people – 60% of the globe's population. The most capacity additions are also announced here: By 2030, China has announced chemical capacity additions of 235.9 million t/y, India coming next with 151.5 million t/y, according to Global Data. Singapore is at the heart of this Asian-centric growth, with China and Southeast Asia representing the biggest export destinations for Singaporean producers.

In China, the re-opening of Shanghai after two months of lockdown is expected to lead to a gradual pick-up in petrochemical demand. Singaporean-based petrochemical players watched closely the situation in Shanghai, but most express optimism that the knock-on economic effects of the lockdown will be short-lived: "Long-term, China remains a very large market presenting significant opportunities for our industry, not only as a consumption market but also as a manufacturing hub," commented Allen Yu, VP for APAC at LyondellBasell, one of the world's largest polyolefin producers.

However, the pandemic has not been easy on Singapore's ASEAN neighbours.



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Paul Nai, managing director at Lubrizol Southeast Asia, thinks 2021 was worse than 2020 in this part of the world: “The Delta variant wreaked havoc in countries that had deflected those initial pandemic waves. Southeast Asian nations had to delay planned investments in higher-end manufacturing and pull back on their plans of quick recovery. As such, the much-anticipated recovery took place at a lower scale.”

Inflation, forecasted at 3.7% for ASEAN by the Asia Development Bank, is expected to hurt ASEAN economies by cutting into FDI inflows and real private consumption. Indonesia, Singapore, Laos and Thailand experienced the fastest increase in the inflation rate at the beginning of the year.

## AROMATICS

The aromatics market is poised for high growth both in the short and the long term. Applied as corrosion inhibitors in the O&G sector, aromatic hydrocarbons are in synch with the growth in the oil sector. As a result, the prices of aromatics like toluene have rallied in the past year. The biggest application

for aromatics is paints and coatings, an industry itself driven by the construction and the automotive sectors – both of which have suffered significant losses due to the pandemic, but which have been bouncing back since 2021. The global aromatics market is believed to rise at a CAGR of 5.7% by 2030, reaching a total value of US\$382.4 billion, according to Reports and Data.

## METHANOL

“Methanol seems to survive regardless of the noise that happens on the outside,” said Mark Berggren, founder and managing director of Methanol Market Services Asia (MMSA).

Even though ample supply from Saudi Arabia, Qatar and Oman is weighing on methanol prices, the high price of both natural gas and coal, the two feedstocks of methanol, are strong upside advantages for



Allen Yu, Vice President for APAC, LyondellBasell

the commodity. Methanol’s relation to coal, in particular, is significant to the performance of methanol markets: A marginal but necessary supply of methanol comes from Chinese coal, which has been subjected to tighter regulations as China aims to become carbon neutral by 2060: “When energy prices go up, as they have done lately, the price of coal is once again not pressured to come down. China’s transition away

from coal has kept supply in check and upheld prices high. Indeed, the rise in energy prices has made olefin prices rise, which makes methanol a very competitive olefins feedstock,” explained Berggren.

The methanol-to-olefins chain is driving the most demand, dominated by Chinese consumption.

## POLYOLEFINS AND POLYMERS

In 2021, LyondellBasell, the polyethylene (PE) and polypropylene (PP) global leader, produced over 1 million tons of PP and PE as part of a JV in China, and announced further capacity additions together across the region. “By most estimates, 60% of global growth will come from APAC,” noted Allen Yu, VP for APAC at LyondellBasell.

The polyolefins value chains, including PE and PP, the world’s most used plastics, but also PET, PS, and PVC, are very tied to China’s performance. China accounts for 37% of the total volume of PE consumption, associated mainly with packaging, an industry that has been on a steady growth trend, accelerated by the usage of plastics by the food and beverage sector. Similarly, polyethylene terephthalate (PET), used particularly in synthetic fibers and bottle production, is benefiting from the same upward trend in packaging. Both PE and PP are trading in line with pre-pandemic levels, PP trading at 8,413 CYN/t in June, and PE at 8,543 CYN/t. Polyvinyl chloride (PVC), the world’s third most widely used synthetic polymer, is experiencing high demand, driven by the healthcare sector, primarily. Mordor Intelligence expects the PVC market to grow at a 4% CAGR for the next five years. ■

## CIRCULARITY

### The reverse value chain of plastics

“How many pairs of shoes do you think Singaporeans buy every year?” – the question Paul Fong, the country director of chemical multinational Dow, asked during our conversation about Singapore’s waste problem. “For a small population of only 5.5 million people, a whopping 22 million pairs of shoes are sold every year. The majority of these end up incinerated as waste,” he elucidated.

Dow has created the first shoe recycling permanent ecosystem. By April this year, Dow had recycled 47 metric tons (t) of used shoes, enough to build 7.5 km of running track using recycled plastics.

According to the National Environmental Agency (NEA), out of the 982,000 t of plastic waste generated in 2021 in Singapore, 6% was recycled. Only textile waste did worse, with a recycling rate of 4%. The poor management of plastic waste has given plastics a bad name, said Vimala Arumugam, managing director and head of the Malaysia-Singapore area at BASF. BASF, together with other global companies like Chevron, Dow, Mitsubishi Chemical, ExxonMobil, and Shell, have founded the “The Alliance to End Plastic Waste” (AEPW), an NGO based in Singapore that includes a total of 70 member companies across the plastics value chain. Despite the high level of advocacy coming from plastics producers, 94% of plastics end up in a landfill. Why?

“Technology-wise, plastic producers have developed the right tools to bring plastic back into their production line, whereas industrial users are equally happy to buy recycled plastics. The challenge remains the downstream of the plastics value chain: waste,” commented Wei Chee Liew, country managing partner at Environmental Resources Management (ERM), a pure-play sustainability consultancy involved with different circularity projects in Southeast Asia.

Plastic waste is the product of two value chains, as the end-of-life product of the virgin plastics industry (the first value chain), and the raw material of recycled plastics (the reverse value chain). The main problem that players in the recycling value chain confront is the lack of available, suitable feedstocks, and this is because plastic is not adequately separated from other types of waste. Once in the landfill, mixed waste becomes incredibly difficult to segregate, and limited plastic can be recovered and recycled. This is why, even though brands are increasingly interested to offer products made of recycled products and consumers are equally taken with the idea, not a lot of plastics begin a new lifecycle. The chemical industry is investing heavily in recycling and a lot of research is devoted to developing recycling technologies: “An important pillar of Vision 2030 is to bolster Circular Economy (CE) initiatives. All of our businesses will be designed with a CE-oriented view, and we will roll out CE-compatible products by transitioning to low-carbon materials and fuels. Change is the only constant in business, and sustainability will be the main driver of change for the years to come,” said Takayuki Inagaki, managing director at Mitsui Chemicals Asia Pacific (MCAP).

While most plastic recycled today is obtained via a process of mechanical recycling (using mechanical force and heat), the new frontier is considered to be chemical recycling, which uses a process



Takayuki Inagaki, Managing Director, Mitsui Chemicals Asia Pacific (MCAP)

called pyrolysis to break down polymers to their molecular level and transform them back into a feedstock from which new plastics can be made (repolymerization). This process enables an endless loop, whereas the traditional mechanical route has limitations in terms of maintaining the quality of plastics after the first cycle. By 2023, Singapore will become home to Asia’s largest pyrolysis plant, with a capacity of 50,000 t/y of pyrolysis oil, which has been built by Shell. The unit will be Shell’s first such in the world.

The proprietary knowledge for recycling technologies is becoming a key-differentiating feature in the market. The trend across most large plastics producers is to gain a foothold in both mechanical and advanced recycling technologies, as well as investing in bio-based plastics, which has become

known as organic recycling. For example, Arkema, after working for two years with Agiplast as a recycling technology partner, acquired the Italian specialist in the regeneration of high-performance polymers to become the first fully-integrated high-performance polymer manufacturer with an offer of both recycled and bio-based materials.

Singapore’s rapid development over the past four decades has come with a seven-fold increase in waste. At this pace, Singapore’s only landfill, Semakau, will run out of space by 2035. Within the Zero Waste Masterplan designed by the government in 2019, Singapore aims to reduce the waste sent to Semakau by 30% by 2030 and increase the overall recycling rate to 70% by the same year. ■

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## SPECIALTY CHEMICALS

### Solid vectors of growth

Whereas bulk chemicals directly feel the sting of higher feedstock and energy prices, performance chemicals are in a better position not only to pass on costs, but cash in solid margins, and this is because specialist formulations have a well-established place in different end-markets. Bigger headaches have been brought on by the shortages in raw material supply combined with the continuous bottlenecks in logistics, which have derailed orders and led to long waiting lists for some products. The global chip shortage continues to affect electronics and car production, in turn slowing down electronic chemicals as well as specialty plastics and high-performance fuels that go into the automotive sector. “Supply chain and logistic challenges have given us no break in the last two years, and there are little signs of change,” said Vimala Arumugam, managing director and head of Malaysia-Singapore at BASF, the world’s largest producer of specialty chemicals.

BASF, like most of the industry, had a fantastic 2021, closing the year with €78.6 billion in sales, 33% higher compared to the previous year. If we look at the performance of the main chemical players in Singapore (and globally), many have registered more than 20% growth in FY21 (Evonik, 23%; Arkema, 25%; Lanxess 23%),

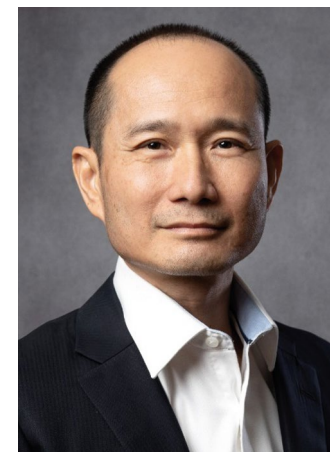


Henri Nejade, COO, Brenntag Specialties

which was either maintained or exceeded in the first quarter of FY22 (BASF, 19% growth compared to Q1 of FY21; Evonik 22%; Arkema, 30%; Lanxess, 43%). Specialty chemical companies did not just manage to sustain the momentum built in 2021, but also accelerated growth, helped by higher chemical prices and robust demand. Reflecting the performance of their principals, distributors of specialty chemicals and ingredients recorded similarly high growth and profitability. Azelis completed the third-largest IPO on Euronext Brussels in 2021, as well as growing its revenue by 27.2%. Its APAC CEO, Laurent Nataf, told GBR that “Azelis gained wider access to funding that will support our long-term growth. At the same time, the markets have been volatile, and we are now exposed to those trepidations.”

Brenntag, the world’s largest distributor of chemicals, generated a gross profit 19.6% higher than the previous year, with an EBITDA of 29.5%. Between specialty chemicals and commodities, the specialties business stood out: “Brenntag Specialties grew substantially faster than Brenntag Essentials. In 2021, we reported an operating gross profit 25% higher compared to last year and an EBITDA of 34.3%,” said Henri Nejade, COO at Brenntag Specialties, commenting on the excellent results.

Even though half-year results might tell a more accurate story about the sector’s resilience in 2022, most analysts forecast uninterrupted growth for this decade. By 2029, the global specialty chemi-



Danny Foong, General Manager, Arkema Southeast Asia



Vinod Agnihotri, Managing Director for ASEAN and Head of MPP in APAC, Lanxess

cals market is expected to reach a value of US\$827 billion, growing at 4.1% CAGR, compared to basic chemicals which are projected to a value of US\$650 billion by 2030 (a year later). In Singapore, the EDB identifies four key growth sub-segments that promise the most opportunities: nutrition and agrifood; hygiene and health; smart materials and mobility; and sustainability. It is in these four sectors earmarked by the EDB that investments have been ripe, both in terms of M&A, which shows more momentary, opportunistic trends, and in terms of capacity building and preparing for the long-term future.

### ACTIVE M&A IN THE CARE MARKETS

The “care” markets (home care, personal care, industrial care, and pharma) have been the most attractive for acquisitions. Already a leader in the market as the producer behind the popular Schwarzkopf brand, Henkel solidified its position in the professional hair market after acquiring the APAC Shiseido hair business. With China, India, Japan, South Korea and Southeast Asian countries at its doorstep, Singapore is spoilt with opportunities in the beauty sector. Global specialty chemicals player Lanxess created a new business unit, “Flavors and Fragrances”, to incorporate its newly acquired portfolio from Emerald Kalama Chemical with its heritage product basket from its Advanced Industrial Intermediates (AII) business unit. Lanxess completed other acquisitions in the consumer segment, buying two French companies (biocide specialist Intace and animal health and biosecurity specialist Theseo). Vinod Agnihotri, managing director for ASEAN and head of MPP in APAC at Lanxess, commented: “The company is pursuing a portfolio restructuring to stretch further away from unpredictable cyclical segments to more stable ones by creating a more robust consumer protection segment.”

Promising stability and robust fundamentals, the care markets have also lured distributors that have been more traditionally engaged with commodities further downstream. Surfactants provide this opportunity given their versatile applicability in soaps, detergents, lubricants, inks, adhesives, and fabric softeners, among others. With a footprint across all major APAC markets (China, Korea, India, Japan, and Southeast Asia), German distributor Helm is expanding its basic chemicals and derivatives portfolio of methanol, ethylene glycols, acetyls, and others, into the surfactants space. Daniel Loh, president at Helm Asia, looks at five key target sectors: automotive, electronics, construction, care, and bio-based materials – which he calls “an emerging but powerful growing segment.”

### DEFINING SUSTAINABLE PRODUCTS

Multinational American conglomerate 3M made a public commitment that all new products coming out of its pipeline will embed a “sustainability value commitment,” which means each product must demonstrate attributes like recyclability, reusability, waste reductions, water or energy savings, responsible sourcing, or the use of renewable materials, clarified Kevin McGuigan, VP at 3M Southeast Asia. 3M is not alone, as more companies are either innovating for sustainability, or are reviewing and reclassifying their portfolios to identify and qualify “greener” products, which can be found in every type of chemical, from surfactants to specialty polymers, construction chemicals (including paints and coatings and performance chemicals added to cements, concrete, etc.), electronic chemicals, water treatment chemicals, lubricants, paper and textile chemicals, and finally, agrochemicals and food additives.

The incentives to create more sustainable specialty chemicals are straightforward: The consumer demands it. GBR spoke to Stepan Company, a specialty chemicals producer operating a biodiesel and fractionated coconut methyl ester plant on Jurong Island. For the past few years, Stepan has been investing in the technology and production capabilities to produce bio-surfactants made from vegetable feedstocks. Asked about what is motivating these investments, David Ho, the general manager for APAC Surfactants business unit unhesitatingly pointed to consumer trends: “Within the consumer market, but also industrial institutions, we see a strong preference for everything natural and minimalist. People seek formulations that are biodegradable, plant-based, and gentle to the skin and to the environment.”



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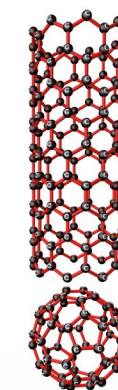
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Rather than looking at sustainability as another differentiating, added-value feature, specialty chemical producers have seen a much larger opportunity (and perhaps becoming a necessity) to re-brand many of their portfolio contents using this sustainability filter. Stepan dedicates 80% of its R&D budget to sustainable products and practices, using a bio-index to measure the carbon footprint of each product. BASF has branded sustainable products as “Accelerators,” and set a target to achieve €22 million in sales from Accelerator products by 2025.

BASF has already assessed 57,000 solutions to identify 16,000 Accelerator solutions, using a “Sustainable Solutions Steering method.” Similar sorting undertakings are also taking place among distributors. Nick Powell, SVP global ingredients & specialties and president for EMEA and APAC at Univar Solutions, said: “We are reviewing our entire portfolio of specialty ingredients, classifying them as natural and sustainable after referencing them against various technical criteria, and then condensing them into an offering that will help further enable our customer and suppliers’ relevant product initiatives and goals.”

Being classified as “sustainable” is already an important flex for corporates, and popular certifications like EcoVadis are helping the industry to both assess where they stand in their sustainability journey and showcase the badge of their positive developments. Azelis has earned the coveted platinum EcoVadis certification, while IMCD won the gold certificate, both companies climbing to the top percentile of assessed companies. The specialty chemical market will also require third-party audits and certifications to validate sustainable products against an external standard, or else the green label may be too loosely applied, and eventually lose credibility. “Green products have a decisive role in a company’s market share, but it is important to ensure these green labels are a mark of real, tangible actions, and not a mere greenwashing exercise,” said Andreas Hauser, the CEO of TÜV SÜD Digital Service in Singapore.

A special subcategory of sustainable products is bio-based products. These point to a radical change in the specialty chemicals industry, which is changing its fossil fuel roots for organic feedstocks, sharing the same upstream with the food industry. With this switch, the criteria for sustainability go beyond the carbon footprint of the product (which is necessarily lower compared to fossil fuels-derived alternatives), to considerations like the conditions for cultivating the (feedstock) crops and the transportation distances from the harvesting field to manufacturing units.

When Arkema doubles its capacity for bio-based polyamide 11 after the inauguration of its new plant in Singapore, it will require more feedstocks and greater vigilance around the sustainability of its provenance. Danny Foong, general manager at Arkema Southeast Asia said castor bean, the raw material for its product, is almost an intrinsically sustainable feedstock: “Compared to other plants, like palm oil or soya, castor grows in very marginal environments near deserts, which means its plantation does not require deforestation, nor does it compete for land with feed crops. Moreover, once the oil is extracted from the seed, the cake can be used as fertilizer in the castor field.”

With 80% of all castor oil coming from the Indian state of Gujarat, Arkema, BASF, Jayant Agro-Organics, and NGO Solidaridad launched the first sustainable castor program to support Gujarati small farm holders in applying the best practices in terms of resource management, the use of fertilizers, but also making a sound profit. ■

## NUTRITION

### More productivity, less chemistry

The food industry, one of the biggest sectors that the Singaporean chemical industry serves, has been at the center of an irreconcilable dialectic: At one pole is the need to produce more food for a growing global population; this need would require the use of more chemicals in the form of fertilizers, crop protection agrochemicals and soil improvers. At the opposite pole is the need to reduce the agricultural intensity and chemical use due to environmental and health concerns, with the agri-food industry accounting for up to 31% of GHG emissions globally (based on UN data). These two simultaneous pressures have propelled investments into sustainable agriculture practices and sustainable agrochemicals and bio-alternatives (bio-fertilizers, biopesticides, bio-fungicides, and bio-stimulants). Singapore is at the core of the effort to tackle the challenges of both food security and food sustainability, but the events of the past few years – first the pandemic, then the invasion of Ukraine – have increased the urgency. “What we see today - including climate change and the pandemic - form an almost perfect storm that is becoming even worse with the crisis in Ukraine, inflationary pressures, and the lockdowns in China,” said Saad Haroon, head of marketing for APAC at Syngenta, a leader in crop protection and seed technology.

The war in Ukraine has impacted the food industry in two ways: One, caused by choking essential exports of grain and vegetable oil from Ukraine, and the second caused by blocking fertilizer exports from the world’s biggest source, Russia. The fertilizer crisis exacerbates the food crisis because fertilizers play a big role in increasing productivity and yields – extremely necessary over periods of low supply. As a consequence of this double crisis, both food commodity prices and fertilizer prices have ballooned. The Food and Agriculture Organization’s (FAO) price index for the most globally traded food commodities reached its highest point since records began three decades ago, while the price for phosphates and potash rose by almost 30% since the start of the year, according to the World Bank.

Against the backdrop of these global dynamics, the Singaporean food and agrochemical sector is awash with opportunities. Singapore is a preferred HQ destination not only for chemical MNCs but also for global food ingredient companies and food technology start-ups - a buoyant sector that has earned Singapore the designation of



Saad Haroon, Head of Marketing for APAC, Syngenta



Murari Rakshit, CEO and founder, NutriSource

‘the Silicon Valley of food start-ups.’ Nutrition is one of the biggest segments and a principal investment priority for most chemical companies in the country, but the sector that has made the most out of the crossover between food and chemical opportunities on the island is the chemical distribution companies. Ongoing investments suggest that the agro-food sector is high on the agenda of most chemical distributors: Azelis recently opened a S\$1 million Regional Innovation Center for Food and Health in Singapore, while IMCD opened two pilot plants dedicated to food applications, one in Bangkok and one in Jakarta. Brenntag expanded its food and nutrition business with the acquisition of Zhongbai Xingye, a leading food ingredients distributor in China.

In the food ingredients space, competition is fierce, and the winners are those whose innovations come closest to what the consumer wants, especially when we speak about taste. In a diverse region like Southeast Asia, tastes differ, and they embed rich cultural flavors difficult to replicate in a lab. For this reason, IMCD is now building a network of chefs who can develop regional culinary expertise: “IMCD had developed local capabilities that tackle local expectations and trends. Chefs support in creating the unique sensorial experience with their culinary knowledge, completing the technical expertise of the IMCD teams,” said Emmanuel Colette, business group director for Food and Nutrition in APAC, at IMCD.

But beyond the traditional taste, texture, or color considerations, consumers come with new expectations; that food is healthier and more ethical. Andrew Taylor, president of growth markets at food and beverage solutions provider Tate and Lyle, identifies four chief consumer interests: sugar reduction, gut health, plant-based foods, and more label transparency. “More consumers read labels and are better educated about the ingredients that go into products,” he said.

These consumer trends are also influencing the agricultural space, where biological alternatives to chemicals are in high demand as part of a larger trend



Indonesian farmers walking in a rice field. Photo courtesy of Syngenta.





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of making agriculture more sustainable. More companies are bringing to the market biostimulants and biocontrols, and some of them have managed to create lucrative synergies for these products. For instance, Behn Meyer, a German-Singaporean distributor of specialty chemicals and food ingredients, came up with an organic soil improver that uses the frass from Singaporean and Malaysian insect larvae farms. The final product is sold to regional producers of mango, mangosteen and durian: "Through this project, we do not only help insect farming to become residue-free and turn their waste into value, but we also offer a much healthier, non-chemical way to improve fruit quality and yield," said Dirk Lorenz-Meyer, member of the board at Behn Meyer Group.

Another way to reduce the quantity of chemicals used is through precision agriculture technologies like drones, which can measure with exactitude how much fertilizer or pesticide is required for each plantation. Saad Haroon, head of marketing for APAC at Syngenta, reminds that, even though precision agriculture and other digital technologies are "the talk right now," the realities of Asian farmers are different. Because this is a fragmented market of farmers with small landholdings of one hectare each or less, small yield improvements obtained by spending less on fertilizers will have little impact on individual farmers.

The answer to these multiple pressures of increasing productivity in the food supply while also looking after the environment and increasing profitability for local farmers (who are often unaware of the global dynamics) is in a business model that combines products with sustainability and technology, at least this is what Murari Rakshit thought when founding NutriSource in 2020. Based out of Singapore, NutriSource has identified a market gap in supplying African countries with NPK (nitrogen, phosphorus, potassium) fertilizers: "While there is a strong global call for reduction of chemical fertilizer usage, Africa is in dire need of increased fertilizer consumption to ensure food security. To address these dual issues of increased and optimal nutrient management and availability along with a focus on reduction of GHG to promote sustainable agriculture, NutriSource is coming to the market with crop-specific, soil-specific, customized NPKs to help African farmers get the best nutrients for every dollar they spend," said Murari Rakshit, the CEO and founder of NutriSource. ■

## LOGISTICS

### From "just in time" to "just in case" supply chains

The invisible string of logistics and shipping companies, distributors, traders, shipbrokers and other intermediary players linking production markets with consumption markets became painfully visible in the last 24 months. When everything goes well, the functioning of this intricate chain goes unnoticed, but when issues appear, the supply chain becomes the biggest challenge for the chemical industry and its dependent downstream sectors. Pandemic aside, global supply chains have been cornered by multiple disruptions since 2020, including the blockage in the SUEZ canal, the Texas winter freeze, the isolation of Russia under sanctions, and the prolonged Chinese lockdowns. Massive imbalances resulting from these shocks have raised big concerns, not only over the costs of transporting chemicals, but also over the availability of shipping lines, ISO tanks

and containers, as well as storage facilities. Besides confounding the chemical industry for the present, these day-to-day challenges are also gradually producing longer-term alterations in the structure of the value chain.

Asked whether the imbalances in the supply chain will persist for the rest of the year, Boon Joon Chua, general manager at NewPort Tank Containers Southeast Asia, nods: "From where we stand today, I expect the next six months will be characterized by similar instability. The war in Ukraine has created further turbulence, and fluctuations in the oil markets are impacting buying and storing habits that run deep down into the whole supply chain."

This instability makes planning and forecasting almost impossible, said Chua, because the moment the tank container operator prepares for higher demand from one country by increasing inventory, it confronts limited shipping capacity or a sudden drop in demand caused by regulatory changes. Disruptions in vessel schedules are severely impacting the operational efficiencies of logistics companies. Don

Tang Fook Yuen, general manager of LTH Logistics, a subsidiary under the Singaporean group Vibrant, gives an example of how these disruptions play out on the ground: "In the last six to nine months, Singapore has seen more vessels carrying increasingly larger container quantities for handling compared to before. These high-capacity vessels calling at the port create a huge strain on resources and significantly increase the workload related to transporting the containers and unloading them at the warehouse. It is not surprising to find that activities that took place three times per week before the pandemic are now squeezed to twice a week, leading to intermittent periods of quiet followed by chaos."

The difficulty to plan inventories, deliveries and internal resources, but also the shortages in ISO tanks, vessels, and special carriers, have created a shift away from a "just in time" stock control system, whereby goods are delivered late enough as to minimize storage costs and early enough to make it on time, to a "just in case" supply chain management, which



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relies on creating large stocks to be prepared for any missed deliveries or delays. Alexander Donau, regional head for Leschaco APAC, reflects on this transition: “Over the past 12 to 18 months, both forwarders and our customers have become more aware of the sensitivity of supply chains. Though a major change in the design and organization of global supply chains does not happen overnight, we see a lot more caution in the medium-to-long-term planning.”

Within this trend, logistics companies are investing heavily in warehouse facilities. Leschaco, for example, has opened a new 120,000 ft<sup>2</sup> chemical and dangerous goods warehouse in Malaysia, already running at 70% capacity. SG Integrated, a logistics provider with Singaporean origins and specialized in dangerous and hazardous goods, has also begun the bidding process to acquire an additional site to serve as a container transit in Singapore: “The acquisition of the site will double our existing operational space, better equipping us to convey products in higher volumes and to navigate continuous disruptions like shipping delays or storage pressures driven by volatile market demand and supply shifts,” said Gary Lua, director of business development at SG Integrated.

The “just in case” trend goes beyond redesigning storage practices by forwarders and chemical companies, as it is complemented by a trend towards near-shoring and on-shoring; manufacturers are looking for options to produce more locally. Chemical Specialties Limited (CSL), a contract chemical manufacturer located in Singapore, finds itself in the sweet spot of this trend to localize production, as its MNC clients are increasingly adopting “in the region, for the region” production strategies: “As a toll manufacturer, we can offer a speed-to-market solution in our current facility to producers, many of which wish the localization to be done yesterday,” commented Johnson Lai, VP at CSL.

While Lai has observed this trend carried over from 2020 to 2021, he noted a slower pace of adoption in the last year because the localization of manufacturing entails the localization of supplies – which is difficult, either because raw materials or other specialized materials may not be available locally, or because the process of approving a new supplier is long. Nevertheless, the attractiveness of APAC as both the biggest consumption and the biggest production market for chemicals is poised to incentivize more investments in regional manufacturing capacity. Many Singaporean chemical players are already producing in Singapore for the region (either Southeast Asia or the extended region, APAC). More than 80% of the products sold by petroleum additives company Afton Chemical in Asia are also made in Asia, and the company plans to continue to increase this figure. Afton recently completed the phase 3 expansion of its chemical additive plant to add GPA blending facilities. This is Afton’s first GPA blending unit in APAC.

More than simply mitigating supply chain risks and reducing dependency on single countries, British specialty chemicals company Croda has adhered to an “in the region, for the region” philosophy to reduce GHG associated with long haul travel and to build a more decentralized know-how network. Other chemical companies have signalled similar motivations to not only localize their manufacturing footprint, but also their R&D. Evonik, for instance, has made Singapore into a regional innovation hub and has invested recently in new photopolymer and biolab expansions



Manoj Singhania, CEO, Tradeasia International Group



Alexander Donau, Regional Head, Leschaco APAC

to increase innovation capabilities. Shirley Qi, the company’s SEANZ president told GBR that Evonik wants to empower Asia to be the home of more local innovation.

The spotlight thrown over global supply chains in the past few years has openly exposed their structural weaknesses, which include a lack of supplier diversity and very long chains with multiple intermediaries, but it also made visible the backwardness in terms of digitalization. Rupesh Jain, managing director at Maersk Singapore, Thailand and Malaysia, thinks the lack of technology application across the value chain has implications across three dimensions: digitalization, integration, and decarbonization: “The movement of goods leaves behind a very long paper trail, but if this was turned into data, it would amount to huge volumes of information available at the click of a button. Secondly, the number of interacting nodes within the supply chain for a particular good is too high, from factory to customs clearance, to port, shipping/trucking, and then in reverse order to reach the store and final customer. Integrating these nodes would create simpler, streamlined supply chains, which is why we invested in warehousing, land distribution, and fulfilment centers to give customers a fully integrated offer. And finally, more customers pay attention not just to how goods are made, but also to how they are transported.”

Digitally integrated supply chains have proven the most robust during the pandemic and amid all the disruptions experienced over the past two years. Tradeasia International Group, a 20-years old chemical trader based out of Singapore, started off with a single digital portal and has since developed multiple B2B chemical marketplaces dedicated to different segments. Just in the last years, it has developed new verticals for the trading of polymers (Plastradeasia.com), fertilizer (Fertradeasia.com), rubbers (Rubbertradeasia.com) and the Circular Economy (Scraptradeasia.com). The country portals have helped Tradeasia to enter different markets both for sourcing and marketing, introducing the trader to suppliers and customers worldwide: “What we see today is really a second wave in the development of B2B Chemical Marketplaces. The chemical industry is getting more evolved in adopting digital marketplaces. While customers on these marketplaces may not have adopted digital payment methods, they certainly have started looking for distributor-led platforms wherein they can buy a whole range of their requirements in one location,” said Manoj Singhania, CEO at Tradeasia International Group. ■