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SINGAPORE CHEMICALS 2026

Jurong Island - Petrochemicals - Refining - SAF
Specialty Chemicals - Distribution - Supply Chain - AI

Dear Readers,

According to historian Adam Tooze, we are in the age of polycrisis, an era of simultaneous economic, political and climate crises that interact with and feed off each other. 2025's political and economic turmoil and conflicts across the planet are hallmarks of our unstable era. In 2026, global energy markets imploded, with severe implications for Southeast Asia and the global chemicals sector. Fuel shortages, price spikes and geopolitical tensions have left the region scrambling for cover. Planning for all eventualities has never been more important than today.

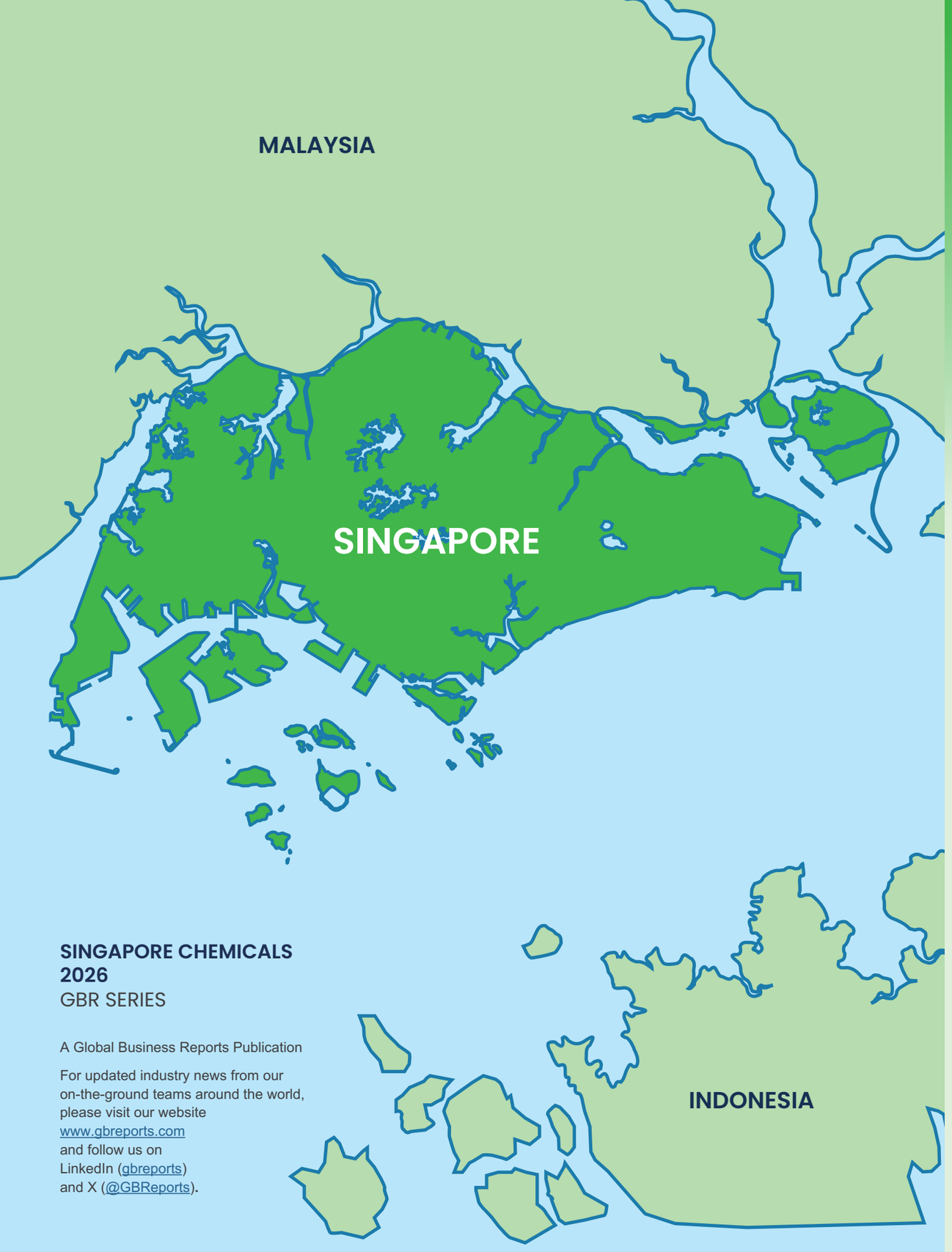
Amidst this sea of crises, Singapore stands apart; policy predictability, economic growth and 'future ready' planning make the city-state a pillar of stability in a relatively stable region, in a very unstable world. Singapore celebrated its 60th anniversary as an independent country in 2025. The Lion City also celebrated the 25th anniversary of Jurong Island, one of the world's top integrated energy and chemicals complexes, and a testament to the enduring legacy of the world's premier industrial planning superpower.

The global chemical industry, meanwhile, is facing its own particular crisis: oversupply, trade frictions and softening economic growth are leading to depressed demand for household and industrial consumption. As a result, Singapore's government intends that the chemical industry change direction, promoting sustainable, bio-based and specialty chemicals more than before.

Singapore is eager to attract more specialty chemicals companies to the country and cement its position as an R&D hub. At the end of 2025, the government unveiled the Research, Innovation and Enterprise (RIE) 2030 plan, its rolling five-year R&D strategy. RIE 2030 makes it clear that sharpening Singapore's AI capabilities is paramount. The government unveiled a S$37 billion spending package to be deployed over the next five years, beginning in April 2026.

Coming at a pivotal moment, GBR is pleased to release its latest report on Singapore's chemical industry. Our research includes interviews with industry executives across Singapore's critical chemical sector, including PCR, specialty chemical, supply chain and technology providers. We would like to especially thank Singapore's forward-looking government agencies, including the EDB and JTC, and we hope you enjoy the read.

Alfonso Tejerina
Director and General Manager
GLOBAL BUSINESS REPORTS



SINGAPORE CHEMICALS 2026
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Introduction to Singapore

Petrochemicals and Refining

Specialty Chemicals

Supply Chain

Technology and Innovation

INTRODUCTION TO SINGAPORE

"In 2025, we celebrated the 25th anniversary of Jurong Island, one of the world's top integrated energy and chemicals complexes, and home to over 100 global energy and chemicals companies."

Kelly Lai
Vice President and Head, Chemicals and Materials
SINGAPORE ECONOMIC DEVELOPMENT BOARD (EDB)

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Image by Maylat at Adobe Stock

Singapore at 60

A city state apart

We are in the age of polycrisis, according to historian Adam Tooze, defining an era of simultaneous economic, political and climate crises that are interacting with and feeding off each other. 2025's political and economic turmoil, and conflicts across the planet are hallmarks of our unstable era. Amidst this sea of crises, Singapore stands apart; policy predictability, economic growth and 'future ready' planning make the city-state a pillar of stability, in a relatively stable region, in a very unstable world. Singapore celebrated its 60th anniversary as an independent country in 2025.

The global chemical industry, meanwhile, is facing its own particular crisis: oversupply, trade frictions and softening economic growth are leading to depressed demand for household and industrial consumption. As a result, Singapore's government has worked with the chemical industry to evolve and respond to new trends, so that companies can capture growth opportunities in sustainable, bio-based, and specialty chemicals.

Willi Muenninghoff
Regional Director, Health Sciences, APAC and India
RAMBOLL

> *"Regulators across the region are making progress in overhauling their individual hazard based regulations into chemical management frameworks which include hazard and risk concerns."*

In Southeast Asia, economic growth in 2025 was mixed. Indonesia recorded over 5% growth in the first nine months of 2025, according to World Bank data. Malaysia grew by 5.1%, according to the IMF, but Thailand's growth was sluggish at 2.1%. Despite trade disputes, armed conflicts and uneven growth, Asia remains at the heart of global economic growth. Kelly Lai, VP and head of chemicals and materials at Singapore Economic Development Board (EDB), said: "We experienced solid economic growth in 2025, with GDP growing by 5.0%; in 2024 it was 4.4%, underscoring the fact that we are situated in the middle of a dynamic, growing region."

Singapore's Ministry of Trade and Industry (MTI) has upgraded its 2026 forecast based on 2025 performance, from 1.0 to 3.0%, to 2.0 to 4.0%. However, this was done before the Middle East conflict broke out and MTI recently said it expects the conflict may weigh on economic forecasts. Evidently, Singapore expects the coming year to be more challenging from a growth perspective, yet it is still uniquely placed to weather the storm. The real advantage lies in Singapore's location and ability to reach large domestic markets in Southeast Asia, as well as key transit routes for trade across Asia and the rest of the world. The MTI reported that GDP growth was driven by manufacturing, wholesale trade, and finance & insurance. The electronics cluster had a healthy year, according to the MTI, driven by strong demand for AI-related electronics.

In particular, the electronics cluster of the manufacturing sector and the machinery, equipment & supplies segment of the wholesale trade sector grew robustly on account of strong AI-related electronics demand. Singapore's government is actively promoting this sector, which is relevant for the specialty chemicals segment. Lai continued: "Electronic chemicals are certainly a key growth area. In recent years, we have seen strong interest and new investments. For example, US-based company Mac-Dermid Alpha has expanded its semiconductor materials manufacturing in Singapore. Hoya, a market leader headquartered in Japan, is producing photomask blanks here. Heraeus Electronics, a German company, has also set up its global centre of excellence for advanced packaging in Singapore."

R&D, sustainably

Singapore wants to attract more specialty chemicals companies to the country and cement its position as an R&D hub. At the end of 2025, the government unveiled the Research, Innovation and Enterprise (RIE) 2030 plan, its rolling five-year R&D strategy. RIE 2030 makes it clear that sharpening Singapore's AI capabilities is paramount. The government unveiled a S$37 billion spending package to be deployed over the next five years, beginning in April 2026. Building on RIE 2025's accomplishments in augmenting business R&D spend, deepening the tech ecosystem, and promoting entrepreneurship, a new initiative of the RIE 2030 plan will launch two RIE Flagships and two RIE Grand Challenges.

Its Semiconductor RIE Flagship wants to position Singapore as a strategically important R&D node, and the first RIE Grand Challenge is in maximising healthy and successful longevity. Both have relevant implications for the chemical industry, across electronic chemicals, ingredients, home and personal care. R&D engagement is crucial for the city-state's planners. The Low-Carbon Energy Research (LCER) program - a joint initiative by A*STAR, EDB and EMA - supports early-stage research in low-carbon technologies. To date, it has funded 28 projects, totalling over S$180 million (US$142 million). The EDB said that this program would scale further in the next round of RIE funding. Another initiative, spearheaded by A*STAR, is the Low-Carbon Technology Translational Testbed (LCT3), a modular facility for rapid testing of low-carbon technologies, which will start construction on Jurong Island in 2026.

Sustainability, then, is clearly at the core of Singapore's R&D priorities. The RIE 2030 plan outlines how direct R&D investment will support emerging sectors that could become key to the Singaporean economy, including the space and bioeconomy sectors. The government's announcement included a statement on how Singapore will leverage its existing energy & chemicals infrastructure to 'anchor new high value industrial activities in the energy & chemicals sector', including the development of alternative feedstocks and bioprocessing capabilities.

On Jurong Island, this transformation is underway. The JTC and Keppel are collaborating on the development of a low-carbon data centre park, with a potential capacity of up to 700 MW. Carbon capture and storage (CCS) progress will be key to its change. Air Liquide, the global industrial gases supplier, has made several inroads on CCS locally, including signing an MOU with Aster to collaborate on an Autothermal Reformer unit integrated with CCS technology, and collaborating with YTLPowerSeraya, a major Singaporean utility, for pre- and post-combustion carbon capture on its upcoming 600MW Hydrogen Ready Combined Cycle Gas Turbine.

Tina Loke, CEO of Air Liquide Singapore, said: "We see Autothermal Reforming (ATR) based low-carbon hydrogen - integrated with CCS - as one of the viable path-ways for Singapore. The scalability of the solution lies in the ability to leverage existing oxygen pipelines to feed the ATR process, while distributing hydrogen to end-users through our strategic network of interconnected existing pipelines, or new pipelines and oxygen production plants that can be integrated into the network."

In the private sector, sustainability principles are incorporated and responsive to consumer demands, but Southeast Asian governments have been lagging in making these requirements statutory, leaving Singapore as an outlier. Willi Muenninghoff, regional director of health sciences for APAC and India at Ramboll, said: "Many sustainability principles are still not incorporated into existing regulatory frameworks. Nevertheless, sustainability requirements are passed down from major lenders and clients, so companies have to go beyond what regulators require.

Singapore is lucky, however, as change is natural for the country; Gina Fyffe, CEO of Integra Petrochemicals, a global trading player, said, "In my opinion, Singapore excels at thinking outside the box. The transformation of the Jurong Island chemical hub is a great example of this."

Malaysia

Across the straits of Johor, Malaysia is capturing a windfall of Singaporean activity relocating into lower-cost jurisdictions. In January 2025, Malaysia and Singapore agreed to create the Johor-Singapore Special Economic Zone (SEZ), a historic collaboration that underlines the integration of both economies. The SEZ encompasses tourism, manufacturing, logistics & services, and downstream chemical activity. Included in the SEZ is the Pengerang Integrated Petroleum Complex (PIPC), Petronas' most significant downstream investment, a US$27 billion investment and an integrated petrochemical complex. Within the

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Kelly Lai

Vice President and Head, Chemicals and Materials

SINGAPORE ECONOMIC DEVELOPMENT BOARD (EDB)

> *We want Jurong Island to become a global innovation hub, where new technologies can be tested and scaled.*

Can you update us on the energy and chemicals sector's relevance to Singapore and the EDB's work?
The energy and chemicals sector accounts for about 2 to 3% of our GDP and approximately 20% of our manufacturing output, making it the second-largest manufacturing sector after electronics. We experienced solid economic growth in 2025, with GDP growing by 5.0%; in 2024 it was 4.4%, underscoring the fact that we are situated in the middle of a dynamic, growing region.

In 2025, we celebrated the 25th anniversary of Jurong Island, one of the world's top integrated energy and chemicals complexes, and home to over 100 global energy and chemicals companies such as ExxonMobil, BASF, Chevron Oronite, Mitsui Chemicals, and Sumitomo in Singapore. We also announced a new direction for Jurong Island, focusing on developing specialty chemicals and sustainable materials, as well as low-carbon innovation. We want Jurong Island to become a global innovation hub, where new technologies can be tested and scaled.

Specialty chemicals is a growth area within the broader chemical sector and aligns with megatrends driven by Asian consumer demand for more sophisticated, diverse products. Singapore's specialty chemicals sector is diverse, and we have strong positions in flavor and fragrances, lubricant additives, and more. Electronic chemicals are certainly a key growth area. In recent years, we have seen strong interest and new investments. For example, US-based company MacDermid Alpha has expanded its semiconductor materials manufacturing in Singapore. Hoya, a market leader headquartered in Japan, is producing photomask blanks here. Heraeus Electronics, a German company, has also set up its global centre of excellence for advanced packaging in Singapore.

How is EDB encouraging the specialty chemicals pivot in Singapore?
EDB's priority is to forge and facilitate connections between industries and create platforms for them to interact. That includes R&D collaboration, which often happens at the pre-competitive level. Singapore's Agency for Science, Technology and Research (A*STAR) has consortia across different markets to encourage collaboration, including CHIPLETS, which focuses on semiconductor materials. At the national level, Singapore recently published its Research, Innovation and Enterprise 2030 (RIE2030) plan, our upcoming five-year R&D plan that was launched in April 2026. We announced a funding envelope of S$37 billion (US$29 billion), a 30% increase on the previous cycle. Under RIE2030, we will fund areas such as semiconductor R&D, preventative health and longevity, and the bioeconomy (i.e. bio-based production pathways).

EDB also partners directly with companies, providing a suite of incentive programs that can support their activities. A recent addition to EDB's incentive toolkit includes the Refundable Investment Credit (RIC), which is a refundable tax credit awarded to companies that make significant new investments that contribute to Singapore.

How does EDB promote workforce development and AI adoption in the sector?
In Singapore, approximately two out of five graduates from institutes of higher learning pursue STEM disciplines. We actively work with industry and educational institutions to profile the manufacturing sector to these young graduates. We also work directly with companies on training and capability-building programs.

As a small country, Singapore's local workforce is limited, so AI is an enabler for us. We have partnered companies to set up over 70 AI Centres of Excellence across industries since 2024. In the chemical industry, EDB has seen good adoption of AI, and we continue to support companies' efforts in their manufacturing automation and digitalization efforts.

Can you discuss EDB's decarbonization strategy for industry?
EDB partners closely with companies to support their decarbonization journey. While we have implemented a carbon tax, there is an allowance program for export-oriented, emissions-intensive industries, as well as specific support for the adoption of energy-efficiency solutions, including grants like the Resource Efficiency Grant for Emissions (REG(E)), which supports energy-efficiency and decarbonization initiatives. Since 2021, we have supported 35 projects in the energy and chemicals industry through the REG(E) grant, representing about 340 kilotons per annum of carbon abatement.

R&D engagement is also crucial. We aim to accelerate the adoption of low-carbon technologies and bring innovations to market sooner. The Low-Carbon Energy Research (LCER) program supports such early-stage research; to date, we have funded 28 projects totaling over S$180 million (US$142 million).

Through RIE2030, we will continue to engage companies on their innovation and growth plans. We are excited about these opportunities, and recognise that they will require sustained attention and effort. ■

Cindy Koh

Group Director, Green Growth
JTC CORPORATION (JTC)

> *By linking up well-resourced companies with innovative technology developers, we have created an environment where new solutions can be tailored and scaled up appropriately.*

Can you introduce us to JTC and your role in it?
Land is Singapore's scarcest resource, and JTC's role is to allocate it where it delivers the greatest industrial and economic value. JTC works alongside EDB to anchor investments across diverse industry verticals, including energy & chemicals, semiconductors and data centres, pharmaceuticals, and other sectors. We also collaborate with Enterprise Singapore, another government agency that helps transform and upscale local businesses.

Can you discuss the development of Jurong Island and JTC's role?
Jurong Island was purposefully planned to optimise land use and seamlessly connect upstream, midstream and downstream players across the value chain. We have developed a unique ecosystem that provides shared services across Jurong Island, serving refineries, petrochemical and chemical companies. We have worked hard to foster relationships between multinationals and Singapore companies that provide services such as utilities, pipelines, logistics and maintenance.

There are many changes in the global chemical sector, and in Singapore, we are pivoting towards specialty chemicals and higher-value activities. Historically, Jurong Island tenants have had very large footprints, building large and complex refinery and petrochemical complexes. As regional countries continue to build their own refinery and petrochemical production, Singapore must go up the value chain. The specialty chemicals segment adds value and enables companies to produce and compete in Singapore despite cost pressures.

Our biggest challenge is to plan for optionality. In the low-carbon space, there are alternatives, such as biofuels, carbon capture and storage (CCS), and renewables. There is no single approach, so our agencies must be flexible in planning, because once infrastructure is set in our land parcels, we need to consider the sunk costs.

What has JTC done to promote sustainability on Jurong Island?
We employ a range of tools to encourage companies to be energy-efficient and employ nascent low-carbon technologies. In 2019, we conducted a Jurong Island circular economy study. We brought Jurong Island companies together to share data to identify potential ways to better shape the ecosystem. Our survey found that Jurong Island tenants are leaders pursuing sustainable operational strategies. For example, most Jurong Island companies today already use seawater wherever possible.

However, given the niche problem statements, many of the additional solutions required are not available off-the-shelf. Hence, we have launched innovation calls and supported innovative Singapore startups to connect with the Jurong Island companies. By linking up well-resourced companies with innovative technology developers, we have created an environment where new solutions can be tailored and scaled up appropriately.

One example includes matching Croda, a chemical company, with NanoSun, an NTU spin-off that developed an advanced wastewater treatment plant on Jurong Island, using nanofiltration technology. Another example includes the MOU signed between Advario and VFlowTech, another NTU spin-off. These kinds of partnerships incentivise decarbonisation, presenting commercial opportunities for companies willing to invest and scale new solutions for themselves and, eventually, the market.

How does the JTC connect the chemical, semiconductor and data centre sectors?
Many of our chemical companies on Jurong Island are critical suppliers to the semiconductor industry, providing specialty gases and electronic chemicals. The wider public tends to view the energy & chemicals industry as highly siloed, and we want to increase awareness of the critical role this industry plays, not only as providers of basic goods but also across advanced manufacturing.

Singapore is also leading research on the development of tropical data centres. JTC signed an MOU with NUS, Keppel, and another with the Rocky Mountain Institute. The data centre industry can leverage the existing, integrated infrastructure network on Jurong Island to tap both traditional and new energy solutions and support the scaling of green data centres.

What should we expect to see from JTC in the future for the energy and chemicals industry?
We will continue working closely with the industry to support their sustainable transformation, even as they contend with a difficult market environment driven by global oversupply. At our core, JTC is forward-looking and always on the lookout for new technologies and solutions for our partners. We will intensify our initiatives in low-carbon technologies. This includes Singapore's first ammonia pathfinder project, and other innovation projects coming on Jurong Island, future-proofing the industry and supporting Singapore's energy resilience in the process. ■

Thomas Luedi

Senior Partner
BAIN & COMPANY

> *Next year, companies will need to make tough decisions about assets and portfolios to protect their core businesses, leading to a rebalancing of the demand and supply balance.*

Could you provide an assessment of the current state of the chemical sector?
We are in an unprecedented downturn in the chemical sector, longer and deeper than previous ones. It's primarily driven by significant capacity additions in China, which have essentially created self-sufficiency, but capacity continues to be added. In addition, more production is becoming available from the US and the Middle East, where there have been significant additions to petrochemical production in recent years. Since COVID, the Chinese economy is still growing, but at a much lower rate. The capacity additions have been substantial, so it will take a long time for China to regain that demand-supply momentum. That has been exacerbated by US tariffs on various Southeast Asian economies and on China. Furthermore, in 2026 it is expected that ~15 million tons of ethylene capacity will be added, the majority of it in China

In the past 18 months, we've not only seen restructuring plans announced but also shutdowns in Australia and the Philippines. Korea announced plans to consolidate petrochemical facilities into three clusters, and Japan has announced a plan to shut two or three of its 12 crackers. Asia has realized it needs to address excess capacity. If everything stays the same and China builds what they announced, we will not see a cyclical recovery until at least 2030.

Why has so much excess production come online in China?
Driven by geopolitics and China's overall development, self-sufficiency has been paramount for strategic sectors, as has onshoring supply chains. The chemical sector has been identified as needing to become self-sufficient and modernized. The shift from disparate chemical facilities to large clusters has been underway for some time. A few things happened in parallel. Whenever the Chinese government pursues a particular industrial policy, companies begin building simultaneously because funding is readily available. There's momentum in this process, and it is challenging to slow down.

What developments are ongoing in Southeast Asia?
There are ongoing expansion plans in the Southeast Asian petrochemical space. In Indonesia, Chandra Asri has an extension project on the drawing board. In Malaysia, the Petronas refinery and petrochemical integrated development project is still not fully ramped up, but once it is, there will be even more volume. Thailand's SCG Chemicals is ramping up the Long Son Petrochemicals Complex in Vietnam.

How are regional governments supporting their chemical industries?
Korea is a good example of how a government has identified the challenges of the chemical industry and stepped in. The government has encouraged consolidation in the petrochemical space, recognising the need to shut down some capacity, while also loosening regulation to determine which assets are the right ones to shut down, and sharing the burden of restructuring costs. This hasn't yet happened in Japan, nor in Southeast Asian countries.

Singapore's government has been committed to its sustainable objectives and decarbonization. Companies are making decisions about their Jurong Island hubs, assessing their competitiveness, and exploring how they can effectively pivot into green, sustainable chemicals.

Are challenging market conditions affecting companies' sustainability priorities?
The current market environment makes it challenging to advance sustainability across the industry. With customers cutting costs, it's very hard to double down and build a sustainable business. The willingness of companies to pay a sustainability premium has been mixed in the region.

How is Bain & Company integrating AI tools in its consulting business?
We are now applying AI tools across the board. In commercial excellence, we are using AI tools to analyze historical data trends and forecast future price movements, and to support customer interactions. We are overlaying AI tools in our cost optimization consulting services. These help clients develop maintenance strategies for critical equipment, linking it to the client's inventory and supply chain. We can digitize the entire procurement process.

What do you expect in the coming year?
There is varied growth across ASEAN countries, but overall, there are opportunities across the board and across industries. We remain focused on helping clients reach their full potential, encouraging AI enablement. I am very optimistic about the consulting business across industries, though petrochemicals will remain difficult in Southeast Asia. Next year, companies will need to make tough decisions about assets and portfolios to protect their core businesses, leading to a rebalancing of the demand and supply balance. ■

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PIPC, the Pengerang Energy Complex is being developed by ChemOne Group; a US$5.3 billion aromatics project.

The advent of the Johor-Singapore SEZ signals how closely integrated Malaysia and Singapore's economies are becoming. Policy choices in Singapore are also being mirrored in Malaysia, though not at the same speed. Thomas David, managing director, Malaysia at Schaefer Kalk, a global specialty lime supplier, said: "We know that a carbon tax will be introduced in Malaysia, similar to Singapore's, though the timing and the impact on overall business is uncertain."

Indonesia

Indonesia experienced a turbulent 2025, which could have dented economic growth. For specialty and commodity chemical producers, distributors and logistics providers, the country remains a critical market given its 284 million-strong population. The country's beneficiation policy for mining, which mandates the processing and refinement of minerals in-country, has been a boon for the industry. Chandra Asri, the national chemical leader, is continuing construction of its Chlor Alkali and Ethylene Di-chloride (CA-EDC) plant.

Additionally, Topsoe announced an MoU in December 2025 with PT Kilang Pertamina Internasional, an Indonesian refinery company, to deploy its proprietary Wet gas Sulfuric Acid technology. Amrul Atiqi, Topsoe's managing director in Southeast Asia, said: "Refineries are now looking for ways to decarbonize, but there aren't many low-hanging fruits. This technology is valuable because when a refinery installs it to clean gas, it also supports decarbonization. It produces sulphuric acid as an additional product, which can increase margins, and supports compliance with environmental outcomes."

Thailand

Thailand's sluggish economic growth in 2025 contrasted with some of its Southeast Asian peers, though it is not all doom and gloom. A simmering border conflict with Cambodia has not helped boost investor confidence. Nevertheless, the country remains a manufacturing hub, and its personal and home care sectors are dynamic. For global chemical distribution company Caldic, Thailand was a bright spot in 2025. Knud Mohr, CEO, APAC for Caldic, commented on the company's Thai business, saying that life sciences performance was central to its growth, and its industrial solutions portfolio performance was stable relative to other markets.

Upstream

Just as Southeast Asia's major economies have pursued specific policies to increase manufacturing activity in their countries and raise national income, the same can be said of the regional development of hydrocarbons. Energy security is central to Singapore, given its reliance on imports, as well as other countries like Malaysia, Indonesia and Thailand, which have growing economies and populations. The combination of a global pandemic and Russia's invasion of Ukraine dealt dual shocks to energy supply chains. In 2026, multiple, simmering crises in the Western Hemisphere and the Middle East make

Lee Andrew Fagg

Vice President for Chemicals Consulting
WOOD MACKENZIE

Why are non-integrated and refinery-integrated facilities particularly vulnerable right now?
Non-integrated facilities are in the worst position, except for sites that are utilising ethane/NGLs. Historically, companies could operate successfully even by importing naphtha, because they had access to local markets, were able to monetize co-product streams to higher value products and faced fewer international competitors. That model is under significant pressure today for conventional commodity chemical and plastics producers. In comparison, refinery-integrated units have better economics as they can optimise and cross-sell streams between the chemical plant and the refinery and have lower fixed cost structure shared across the entire site. However, in the current environment most refiners are also under pressure due to the developing energy transition environment. Some older refineries have been shut down or are at risk of closure. If an uncompetitive refinery goes off-line, any associated chemical assets that rely on the integration cannot continue operating in the current business landscape, therefore leading to inevitable closure.

What is your assessment of Singapore's approach to chemicals and petrochemicals?
Singapore's strategic pivot toward specialty chemicals and higher value materials is the correct approach. For the chemicals sector specifically, Singapore has no feedstock advantage and no addressable domestic market. Production is largely for export. Singapore's initial commodity chemical build-out made sense for companies exporting to neighbouring deficit markets such as Indonesia and China without taking project risks and other complexities directly associated with those markets.

How might AI adoption change the chemical sector?
I think AI will have an evolutionary impact rather than a revolutionary impact. The chemical industry is already highly automated. Modern operating sites utilise both automation and various process control systems across production and supply chains. However, the wider implementation of advanced AI systems will enable companies to expand and improve automation through better utilisation of real-time data and machine learning, resulting in faster "correct" decision-making. ■

it more prescient than ever to develop national resources at home. The Association of Southeast Asian Nations (ASEAN)'s latest data on regional oil & gas activities showed that in 2024, the region remained a net importer of crude oil, crude oil production declined slightly, and natural gas production expanded. The trend is clear: natural gas demand growth is outpacing oil demand growth.

Fossil fuels accounted for 60% of total energy investments in Southeast Asia over the past decade, according to the International Energy Agency. Down from its 2015 peak of US$70 billion, the sector received US$50 billion in 2025, alongside US$47 billion in clean energy projects. The clean energy revolution is firmly apace in Southeast Asia, racing with hydrocarbons to meet the growing demand of populations.

Securing greater domestic natural resources will also enable local petrochemical and refinery operations to source products regionally. The parallel trend in the petrochemical space reflects this, as Thomas Luedi, partner at Bain & Company, noted: "There are ongoing expansion plans in the Southeast Asian petrochemical space. In Indonesia, Chandra Asri has an extension project on the drawing board. In Malaysia, the Petronas refinery and petrochemical integrated development project is still not fully ramped up, but once it is, volumes will increase further. Thailand's SCG Chemicals is ramping up the Long Son Petrochemicals Complex."

There are currently several active oil & gas developments across Southeast Asia, and Singapore can leverage its location and extensive oil & gas history to tap into these opportunities.

Atul Chandna
ASEAN Supply Chain and Digital Innovation Leader
EY

> *"Singapore's edge lies in its ability to orchestrate, serving as a hub where chemicals companies can digitalize and innovate, while also strengthening the nation's broader economic resilience."*

Vast volumes of hydrocarbons pass through Singapore every year, which is the world's largest bunkering hub for maritime fuel, according to S&P Global. Companies serving the oil & gas and chemical industries are often present both in Singapore and other regional markets. Among those companies, McDermott leads the international pack. The company has decided to headquarter its global subsea & floating facilities division in Kuala Lumpur, Malaysia, where it employs more than 1,200 people. Mahesh Swaminathan, senior vice president and leader of the global subsea & floating facilities business, commented: "In South and Southeast Asia, there is significant pent-up energy demand. Energy security is critical in this part of the world. Global turmoil and macroeconomic issues affect national economies, and regional governments are keen to stave off those threats."

Surachet Tanwongsval, executive vice-president, Asia Pacific, at Bureau Veritas, said: "Oil & gas remains resilient in the region because energy security is central to national oil companies, even as downstream dynamics can be uneven. Another theme is the expansion of Chinese overseas investment from infrastructure into industrial assets, alongside EPC firms internationalizing."

McDermott directs projects across West Africa, North & South America, and Asia from their Kuala Lumpur base. McDermott has been awarded or is already developing numerous projects, including a deepwater project in Brunei and a feasibility study for an LNG project in Indonesia. It is also working with Petronas in Malaysia on a carbon capture pipeline project. Swaminathan added that, in addition to domestic projects, "Another observable trend is the proliferation of regional national oil companies and independents pursuing energy projects overseas, including Brazil and West Africa."

Oil price volatility is, however, impacting Petronas' revenues. Reuters reports that in 2026, Petronas is expected to pay a US$4.7 billion dividend to the Malaysian government, a 20% annual decrease and its lowest in nine years. Gas is a major focus in the country; Petronas states that over half of its portfolio is dedicated to gas. Like in many Asian countries, the role of oil in transport is facing a significant shift with the embrace of EV technology, so gas and downstream applications are becoming more important than ever. ■

Surachet Tanwongsval

Executive Vice President, Asia Pacific
BUREAU VERITAS

> *"Singapore's approach to transformation—being more productive, more technology-forward, and more open to new operating models—creates a practical testbed for ideas we can later replicate across Asia."*

Could you introduce Bureau Veritas' Asia Pacific (APA) region?
Across APAC, we have a significant footprint in people and capabilities, spanning multiple business lines: Building & Infrastructure; Industrial (including power utilities, renewables, oil & gas, and industrial products); Certification; Commodities; and Cybersecurity.

Performance has been mixed due to the region's high heterogeneity and an uncertain global environment. In the buildings & infrastructure sector, activity is policy-driven: there is continued flow in parts of Southeast Asia and the Pacific, but investment timing can slow during periods such as elections and overcapacity. In the industrial sector, power utilities have been a strong growth story. Oil & gas remains resilient in the region because energy security is central to national oil companies, even as downstream dynamics can be uneven. Another theme is the expansion of Chinese overseas investment from infrastructure into industrial assets, alongside EPC firms internationalizing.

Tell us more about "Leap 28". How will it shape organizational change and growth in APA?
Our Leap 28 strategy is structured around three pillars—portfolio, performance and people—with sustainability placed at the core. In practical Asia Pacific terms, we are reinforcing our product line organization by bringing in deeper domain experts who understand customer processes and local industry operations. The goal is to strengthen our proximity to the customer while deepening the expertise we bring to complex operational problems.

We align investments and capability-building with higher-growth segments through targeted acquisitions and organic growth. On performance, we are pushing digital components to help customers reduce cost, improve compliance and operate more sustainably.

Why is Singapore important for Bureau Veritas in Asia Pacific?
Singapore is a key hub for us not only as a management center, but also as a place where policy, regulators and industry are oriented toward innovation and long-term competitiveness. We partner closely with bodies like EDB and BCA, and Singapore's approach to transformation—being more productive, more technology-forward, and more open to new operating models—creates a practical test bed for ideas we can later replicate across Asia.

Because the market is already looking ahead on carbon-related initiatives, productivity constraints, or future infrastructure needs, customers tend to be more willing to explore new technology-enabled approaches. That creates opportunities for us to co-develop and pilot solutions with regulators and industry stakeholders, rather than deliver traditional compliance services.

What is your view on Jurong Island's shift toward specialty chemicals?
Moving up the value chain toward specialty chemicals makes strategic sense for Singapore, especially given China's strength in commodity chemical production. The "what" is specialty chemicals, but the "how" matters just as much: producing with a lower carbon footprint, improving efficiency, and building resilience against supply chain and tariff volatility. These pressures reinforce Singapore's need to stay ahead in decarbonization and digitalization.

For us, this creates demand for more advanced support—such as tech-augmented inspection that can reduce downtime and avoid shutdown cycles. When margins and competitiveness matter, improving productivity and reliability through smarter assurance and inspection approaches is a direct lever for customers operating in an integrated, high-standard environment like Jurong Island.

What is Bureau Veritas doing in cybersecurity?
Cybersecurity spans baseline standards work—such as ISO 27001 certifications—as well as specialized services, including advisory and penetration testing. The "pen testing" work is particularly important because vulnerabilities persist even in well-funded systems, and stress-testing must be continuous. What is changing is that cybersecurity is no longer only an IT topic: as equipment becomes more sensor-rich and increasingly capable of control, cyber risk extends into operational technology.

We look at this through people, processes, and technology—it is not just about firewalls, but also about training, governance, and real-world exposure.

Looking ahead, what are your priorities for APA?
Our priority is supporting customers to operate more safely, more sustainably, and more competitively—because customer outcomes are the anchor that keeps the strategy practical. That means accelerating tech enablement, expanding technical capability—especially through Singapore as an innovation hub—and investing in sectors with structurally growing demand, such as power, renewables, and digital-enabled assurance.

Under Leap 28, we will continue to sharpen our portfolio focus, strengthen product-line expertise, and use digital tools to help customers reduce costs and downtime while remaining compliant and ready for a more sustainability-driven operating environment. ■

Wayne Yap

Executive Director
ASSOCIATION OF PROCESS INDUSTRY (ASPRI)

Can you discuss the significance of 2026 to ASPRI and the process industry?
Over the past several years, ASPRI, together with the Singapore Chemical Industry Council (SCIC) and the support of various government agencies, has been steadily laying the foundations for a stronger, skills-based Process Construction and Maintenance (PCM) workforce. What began as collaborative discussions on training quality and levy optimisation has now crystallised into three cornerstone frameworks. The Enhanced R1 Framework recognises and rewards companies investing in genuine upskilling. The Productivity Certification Framework links measurable site performance to workforce capability. The Workers Credentialing System (WCS) is a trusted digital infrastructure that verifies skills, strengthens compliance, and enhances workforce transparency.

What tangible progress has ASPRI achieved leading up to this stage?
Training volumes and quality of completion under the Enhanced R1 Scheme have steadily increased, and more companies are starting to train their workers to meet the new standards. To further boost capability building, ASPRI has allocated a S$1 million Training Support Scheme (TSS) to help cover up to 50% of course fees for training conducted at ASPRI-IPI. This initiative is expected to benefit up to 5,000 trainees as members work toward meeting the enhanced R1 training requirements, easing cost pressures while promoting greater participation in structured upskilling.

Beyond frameworks, ASPRI also delivered a significant infrastructure milestone: the successful development of ASPRI-D Wall Papan, a 1,200-bed workers' accommodation compliant with the New Dormitory Standards.

What will define ASPRI's direction in the year ahead?
For Singapore, the challenge is to maintain competitiveness in a new cost environment — ensuring that productivity, capability, and workforce transformation continue to underpin the nation's edge. Growing in new markets in the region will also be crucial. As the world pivots toward decarbonisation, Singapore's process industry is seeking a delicate balance — sustaining competitiveness today while positioning itself for tomorrow's low-carbon economy. ■

Richard Bourne

Senior Vice President
Asia Pacific Japan
ECOVADIS

What are EcoVadis' updates in APAC?
In APAC, we have expanded our on-the-ground presence with offices in Tokyo, Hong Kong, Singapore, and a growing footprint in Malaysia. On the buyer side, three priorities are driving activity: supply chain resilience, decarbonization, and regulatory due diligence. On the supplier side, about 80% of rated companies are SMEs, and many suppliers increasingly treat sustainability as a competitive advantage. They understand that remaining the world's production center requires proving transparency, responsibility and readiness. APAC showed the strongest sustainability progress last year compared to other regions, and its environmental performance surpassed that of North America in our dataset.

What are the biggest challenges as more companies sign up for sustainability assessments?
The first challenge is engagement, particularly among SMEs, because many are at low maturity and have never reported on topics such as emissions or structured ESG policies. A common issue is that companies want to provide data but lack internal systems to generate it, so they struggle to respond beyond intent.

Improving the accuracy and usefulness of carbon data is also challenging, especially in supply chains, where companies may not yet understand methodologies or may rely on incomplete or inconsistent inputs. The answer is a combination of tailored education, context-adapted guided assessments, and structured improvement pathways so suppliers see why the work matters and how it benefits them.

How can sustainability enhance commercial viability?
For buyers, better supply chain risk insight helps avoid disruptions and generates meaningful returns by reducing risk exposure and improving resilience. For suppliers, strong third-party evidence helps secure tenders and reduces the burden of repeated questionnaires, as the scorecard can be shared widely. We also see financial mechanisms emerging, such as sustainability-linked lending, where improved performance can reduce borrowing costs or improve commercial terms. ■

Mahesh Swaminathan

Senior Vice President, Subsea and Floating Facilities
MCDERMOTT

> *"We have seen a pickup in new projects announced in Southeast Asia during the second half of 2025, which we expect to carry into this year."*

Can you update us on McDermott's Subsea and Floating Facilities business?
There has been significant activity in 2025, driven by energy security and the growing need for gas in Southeast Asia. We've been awarded new work in Vietnam and in Indonesia, and continue to execute work in Malaysia. Most recently, we were awarded a major contract in Brunei for Petronas. We are seeing national oil companies and some independents increase spending on upstream resource development, and we are seeing that momentum reflected in our pipeline.

Our strategic base in Kuala Lumpur has enabled us to capture substantial new business. Kuala Lumpur serves as the global hub for this division. Strengthening local partnerships continues to be a priority for us, particularly where we can contribute to sustainability goals and local content. Today, we have more than 1,200 employees in Kuala Lumpur, with over 80% being Malaysian, cementing it as an engineering centre of excellence.

We are also seeing strong growth opportunities in West Africa, especially in deepwater developments requiring specialized capabilities, for which we have uniquely positioned assets. We recently completed work in Angola and see Namibia as a major opportunity for us.

Petronas is and continues to be an important customer and strategic partner. This is reflected not only in the work we are currently executing in Malaysia, including the carbon capture pipeline project called Kasawari, but also the recent Brunei project I mentioned, which is a deepwater subsea oil and gas development. Beyond that, we are conducting a feasibility study for the Abadi LNG project in Indonesia, where Petronas is an important partner.

What keeps driving Southeast Asia's energy growth?
In South and Southeast Asia, there is significant pent-up energy demand. Energy security is a top priority for governments across the region. As a result, several long-planned energy projects are now moving forward, including a gas to power project we are supporting in Vietnam that will feed four power plants. Similar gas-focused developments are underway in India and Indonesia, all geared toward strengthening domestic energy supply.

Another observable trend, tied to the previous point, is the increasing activity of regional national oil companies and independents pursuing energy projects overseas, including Brazil and West Africa. Once again, the motivation is the same: to secure energy for a growing population.

Despite market volatility, long-term demand remains robust. Many of the projects we are discussing have lifespans of 15 to 25 years, so operators are making decisions based on long-term planning, not short-term price movements.

How does McDermott's Integrated EPCI model improve viability and sustainability?
We are working on how to be a truly 'multi-local' company. In Southeast Asia, Kuala Lumpur serves as a world-class regional hub. Still, we are also pursuing deeper partnerships across Vietnam, Indonesia, and Brunei, building on those local capabilities.

From a sustainability perspective, we are incorporating carbon reduction measures in the facilities that we design and build. Our Batam facility and China fabrication facilities are powered by solar.

How does McDermott employ technology to meet carbon-cutting goals?
McDermott was an early adopter of digital-twin technology. Our technology innovation extends beyond that to the vessel fleets we are deploying for offshore work. We are using technology to reduce manpower needs at sea, automating work and developing internal digital tools with our industry partners to standardize and mainstream engineering designs, improving efficiency in designing complex facilities.

In addition, we are using our in-house carbon measurement tool, which allows you to enter all your data upfront and provides the carbon emission levels and the changes required. We are making strides in circularity measurement, having developed an ISO-59020-aligned tool in-house that provides a standardized, data-driven method for assessing circularity from design through to decommissioning. The reality is that there is no single solution. We are making incremental but meaningful improvements across operations to work faster, better, more cost-effectively, and more sustainably.

What are your expectations for 2026?
2026 is an exciting year for McDermott, as we have seen a pickup in new projects announced in Southeast Asia during the second half of 2025, which we expect to carry into this year. Looking ahead to 2028, we see a very promising pipeline of projects; Indonesia, Brunei, Malaysia, and Vietnam are hot spots for us. We are excited to be there. ■

PETROCHEMICALS AND REFINING

> *Singapore offers a unique combination of world-class infrastructure, regulatory clarity, talent, and connectivity to global and regional markets.*

Andre Khor
Group CFO and Deputy CEO
ASTER

Image courtesy of Braskem


Image courtesy of Neste

New Players, New Directions

Cracking the PCR nut

Global oversupply issues and soft demand might be hurting petrochemical and refinery companies, but Singapore continues to claim a top spot among global producers. With the region's most extensive downstream infrastructure, it hosts the largest refinery in ASEAN. According to Singapore's Economic Development Board (EDB), the energy and chemicals sector accounts for about 2-3% of GDP and approximately 20% of manufacturing output. The global chemical industry is reeling from a prolonged downcycle driven by sustained oversupply from Chinese producers and softened global demand. High-cost jurisdictions are feeling the gravest pinch. Singapore is redirecting its chemical sector towards more specialty and added-value products, reducing its exposure to commoditised markets.

The challenges of Singapore and Asia's petrochemical and refinery (PCR) industry were discussed by Wayne Yap, executive director of the Association of Process Industry (ASPRI), who said: "In Asia, petrochemical margins remain under strain; the ethylene–naphtha spread has narrowed to around US$200/t, below the breakeven range for many producers, prompting run-rate cuts and temporary cracker shutdowns. At the same time, China's polyolefin overcapacity continues to weigh on resin prices, while naphtha cracks in Asia and Europe remain weak amid soft downstream margins and new capacity coming online."

The global downturn, according to many in the industry, bears no signs of a quick turnaround. Overcapacity issues persist. Lee Andrew Fagg, vice president for chemicals consulting at Wood Mackenzie, said: "Further large-scale capacity investments are also forecast post-2026 in China, and there is a renewed focus on coal-to-chemicals. This capacity build-up is clearly not sustainable and has led to competitive devaluation across all major chemical value chains, as well as various closures of older, smaller-scale plants."

A recovery is not expected until at least 2030, according to Thomas Luedi, partner at Bain & Company. >>23

Andre Khor

Group CFO and Deputy CEO
ASTER

> *"Aster is a Chandra Asri-led joint venture with Glencore that acquired Shell Energy & Chemical Parks Singapore in 2025, giving us a world-class platform in refining, petrochemicals, power, storage and logistics anchored in Singapore."*

Can you introduce Aster's history, footprint and assets?
Aster is a Chandra Asri-led joint venture with Glencore that acquired Shell Energy & Chemical Parks Singapore in 2025, giving us a world-class platform in refining, petrochemicals, power, storage and logistics anchored in Singapore. With this partnership and over US$2 billion committed to rejuvenate assets and back transformational technologies such as sustainable aviation fuel, alongside the acquisition of ExxonMobil's Esso retail network in Singapore, Aster today operates one of Asia's most comprehensive downstream energy, chemicals and infrastructure platforms, tightly integrated with the Chandra Asri Group across Southeast Asia.

Our strategy is built on scale, integration and disciplined capital allocation. We are investing to extend the life and productivity of our assets, improve power efficiency and reduce carbon intensity, while expanding into downstream fuels, engineering services and infrastructure such as power, steam, storage, ports and terminals. This strengthens earnings resilience and positions us to capture long term structural demand for energy security, supply chain reliability, and an orderly energy transition in the region.

Could you provide us with an overview of Aster's commercial portfolio and outline recent investments?
Aster is an integrated energy, chemicals and infrastructure solutions provider with a refinery capacity of more than 300,000 barrels per day with ongoing asset rejuvenation, alongside a 1.1 million metric ton naphtha cracker on Bukom Island, and 2.5 million metric tons of downstream chemical assets on Jurong Island. Our infrastructure also includes approximately 4.3 million cubic metres of storage tankage, extensive marine infrastructure, and nearly 200 megawatts of power generation capacity, forming a high throughput regional hub.

Over the past year, we have invested in key infrastructure upgrades – the Single Buoy Mooring and Condensate Splitter Unit to power efficiency projects – to extend asset life, lift utilisation, and enhance supply reliability. We are partnering with Sembcorp to grow low carbon and renewable power, with Aether Fuels and Keppel on sustainable aviation fuel, and are advancing hydrogen ready power and CCUS pathways that convert CO_2 into circular fuels and chemicals while contributing to the S Hub consortium. We also continue to deepen collaboration between Aster Singapore and Chandra Asri in Indonesia, including doubling ethylene export capacity through a partnership with Hitachi, and, most recently, expanding into retail fuels through Chandra Asri Group's acquisition of Esso branded service stations in Singapore.

What drove the decision to make such significant investments in Singapore?
Singapore offers a unique combination of world class infrastructure, regulatory clarity, talent, and connectivity to global and regional markets, making it a natural hub for Aster's integrated energy and chemicals platform.

How is the current chemical downcycle impacting Southeast Asian producers?
The current environment is characterised by oversupply and softer global demand, with petrochemical utilisation rates still below healthy levels, which puts pressure on margins for Southeast Asian producers. This reinforces the importance of remaining agile, resilient, and cost competitive rather than simply waiting for the next up cycle.

Can you discuss the interplay between sustainability principles and the embracement of advanced technologies in Aster's operations?
At Aster, sustainability and technology are fundamentally interconnected; meaningful decarbonisation requires scalable, commercially viable solutions that improve efficiency and lower emissions without compromising reliability or returns. We therefore prioritise technologies that can be deployed at scale across our existing asset base, turning legacy infrastructure into a platform for lower carbon growth.

Practically, this means applying advanced process optimisation and digital tools, developing sustainable aviation fuel with partners using refinery off gas, investing in solar and hydrogen ready power, and progressing CCUS and nature based solutions where there is regulatory clarity and infrastructure readiness.

Can you outline Aster's priorities for the coming year?
In Singapore, our near-term priorities are to complete key rejuvenation projects such as the condensate splitter and SBM, deepen downstream integration, and advance initiatives that support the country's energy security and decarbonisation pathways.

Across Southeast Asia, we will continue to enhance supply chain resilience, drive operational excellence across our integrated assets, and selectively scale opportunities that reinforce the region's long term energy security and growth. At the same time, we will keep building cross border integration between Singapore and Indonesia, leveraging the combined strengths of Aster, Chandra Asri and Glencore to serve customers more competitively across the value chain. ■

Steven Bartholomeusz

Head of Public and Regulatory Affairs, Asia Pacific

NESTE

"In APAC, SAF policy is still at a very early stage, but the number of announcements is increasing. That combination of existing and projected demand, plus Singapore's logistics advantages, provided the basis for our expansion investments."

What are the main developments for Neste in the Asia Pacific (APAC) region recently?

The most significant milestone has been the expansion of our Singapore refinery and the start of sustainable aviation fuel (SAF) production in 2023. The expansion made the Neste Singapore refinery the world's largest renewable fuels refinery, with a total capacity of 2.6 million t/y.

We also established our first innovation center outside Finland, in Singapore, in 2023. The new center allows us to work on new feedstocks and pre-treatment technologies. Finally, we have built an integrated SAF supply chain into Changi Airport. That started operating in 2024 and allows us to supply SAF to airlines that voluntarily choose to use it today. From 2026 onwards, this infrastructure will also support the Singapore government's 1% SAF target. We have already announced several offtake arrangements that leverage this supply chain. For example, we agreed with DHL earlier this year, and more recently, we announced an agreement with China Airlines.

Where does Singapore sit today in terms of SAF policy and uptake?

Singapore is the first country in APAC to put an actual SAF target into policy. The initial target is modest at 1%, but it is a critical starting point. Since then, other countries have announced their intentions. In APAC, SAF policy is still at a very early stage, but the number of announcements is clearly increasing.

That combination of existing and projected demand, plus Singapore's logistics advantages, provided the basis for our expansion investments. Singapore has also launched the Asia Pacific Sustainable Aviation Center, which aims to support the growth of aviation sustainability across the region.

What are the main commercial challenges impeding SAF adoption?

SAF supply growth has outpaced demand growth. The expected demand growth has not materialized as quickly as hoped. In APAC, most countries still lack mandates or incentives, so almost all SAF use here is voluntary. For significant capital investments such as our refinery expansion, there needs to be demand certainty. That generally comes from clear policies, whether mandates, incentives, or both. Until more of those are in place, the ramp-up of SAF demand will lag behind the available supply for the next couple of years, after which the situation might reverse.

Our fuels are made primarily from waste oils and fats. These feedstocks have effectively become global commodities. Used cooking oil is a good example: it is traded internationally, and its price rises and falls like any other commodity. Those fluctuations directly affect the final renewable fuel cost. We also see a certain degree of resource protectionism increasing, especially in APAC. In addition, there are practical constraints on the total volume of suitable waste and residues that the world can produce. All of this pushes us to innovate beyond today's waste oils and fats feedstock base.

Which types of new feedstocks is Neste exploring?

Today, we use around 10 types of waste and residue feedstocks, mainly waste oils and fats from sources such as used cooking oil, animal fat, and fish fat from food industry waste, and vegetable oil processing waste and residues. These renewable raw materials will not be enough to meet the global fuel volumes needed if aviation is to reach net zero by 2050.

We are investing in several directions. One is regenerative agricultural concepts, with oilseed crops grown on degraded land, as intermediate crops, or on land that does not create indirect land-use change. Another area is lignocellulosic feedstocks. We have a cooperation with Chevron Lummus Group to develop fuels from forestry waste and residues. We are also examining more challenging waste streams, such as sludge and brown grease.

Looking ahead, what are Neste's priorities?

We are fully committed to strengthening our position as the leading global producer of SAF and renewable diesel. Our total annual renewable fuels production capacity is currently about 5.5 million t/y and is expected to increase to 6.8 million t/y by the end of 2027.

SAF attracts much attention, but renewable diesel is equally essential. Electrification can work very well for light vehicles, but for heavy transport, public transport, mining operations, or even backup power for data centers, renewable diesel offers an available and convenient decarbonisation option for countries in Asia Pacific. ■

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Tight margins and tighter budgets mean the industry's appetite for capital expenditure projects is low. This forces industry suppliers to reconsider their services. Chandran Jayabalan, head of sales for Asia at Aggreko, spoke of the demand for opex solutions, saying: "Many producers are very cautious about large capital projects due to volatile margins, evolving trade rules and the rapid pace of technological change. However, they still have to maintain high uptime, meet environmental standards and improve competitiveness. We invest in the assets and the technology and make them available as a service."

Even though these challenges are pressuring traditional petrochemical producers, low fossil fuel prices have also pressured margins for bio-based alternatives in a price-sensitive market. Braskem, Brazil's petrochemical giant, is pursuing a bio-based polymer market strategy in Asia. Roger Marchioni, global commercial director of biopolymers, business director Asia, and managing director of its JV Braskem Siam, said: "Fossil-based resin prices have widened the cost gap between bio-based and conventional plastics. Tariff conflicts and inflation have also put pressure on brands to prioritize short-term profitability, shifting resources from long-term sustainability investments."

A new generation: SAF

A number of leading global PCR players are exiting and undergoing significant restructuring in Singapore. The most relevant of these was Shell's sale of its Energy and Chemicals Park to a joint venture between Chandra Asri and Glencore, Aster, in April 2025. Shell's divestment was part of an ongoing effort to 'high grade' its chemical business, according to the transaction's press release. Nevertheless, Singapore remains a key hub for its trading and marketing business. Another supermajor, Chevron, is widely reported to be finalising a sale of its oil refining and distribution assets in Singapore, according to Reuters. ExxonMobil is also downsizing; it agreed to sell its retail business in Singapore to Chandra Asri in October 2025, and there is talk of a cracker shutdown and job losses.

The exit of supermajors from Singapore's PCR space is freeing up assets for new players to fill the void. Chandra Asri is a leading Indonesian downstream player that recently purchased Shell's Jurong Island assets in a joint venture with a Glencore minority interest. Andre Khor, group CFO and deputy CEO of Aster, said its capabilities included refinery capacity of more than 300,000 barrels per day (bpd) with ongoing asset rejuvenation, alongside a 1.1 million metric ton (t) naphtha cracker on Bukom Island, and 2.5 million t of downstream chemical assets on Jurong Island. "Our infrastructure also includes approximately 4.3 million cubic metres of storage tankage, extensive marine infrastructure, and nearly 200 megawatts of power generation capacity, forming a high throughput regional hub," he explained.

Aster has made significant investments since the takeover, including infrastructure upgrades to its Single Buoy Mooring and Condensate Splitter Unit. In addition to deepening the partnership with Chandra Asri in Indonesia, Khor said: "We are partnering with Sembcorp to grow low carbon and renewable power with Aether Fuels and Keppel on sustainable aviation fuel, and are advancing hydrogen ready power and CCUS pathways that convert CO_2 into circular fuels and chemicals while contributing to the S Hub consortium."

Aster is choosing to bolster its presence in a high-cost jurisdiction as others exit, and is pursuing commercial opportunities, such as sustainable aviation fuel (SAF), to capture higher returns and capitalise on Singapore's policy decisions in this space. The Civil Aviation Authority of Singapore (CAAS) has announced that it will introduce a Sustainable Aviation Fuel (SAF) Levy for all Origin-Destination passengers, Origin-Destination cargo shipments, and general and business aviation flights departing Singapore from 1 October 2026. The government wants the aviation industry to meet a 1% SAF target for 2026, aiming to raise it to 3-5% by 2030. Combined with the massive Changi East development, which is expanding Changi Airport capacity, including its industrial scope, Singapore is becoming a key SAF market. New

runways, increased cargo capacity, and a new air cargo hub are all planned. Aster's agreement with Keppel will be to collaborate on an ethanol-to-jet SAF plant, with a planned production of 100,000 t/y.

Neste, the Finnish refinery and SAF leader, has devoted considerable resources in the past three years to doubling its production of renewable diesel and SAF in Singapore. Its integration into the SAF supply chain in Singapore is deep. Steven Bartholomeusz, Neste's head of public and regulatory affairs, Asia Pacific, said: "We have built an integrated SAF supply chain into Changi Airport that started operating in 2024 and allows us to supply SAF to airlines that voluntarily choose to use it today. From 2026 onwards, this infrastructure will also support the Singapore government's 1% SAF target."

The company has already agreed to offtake agreements with DHL and China Airlines. Singapore is the first country in the Asia Pacific region to implement a SAF policy. Japan and South Korea have also published SAF roadmaps, alongside peers in Europe and parts of North America. One of the key limitations to this industry is the availability of feedstocks. Neste established an R&D centre in Singapore in 2023 tasked with working on the development of new feedstocks and pre-treatment technologies. Bartholomeusz discussed Neste's feedstock R&D: "We are investing in several directions. One is regenerative agricultural concepts, with oilseed crops grown on degraded land as intermediate crops, or on land that does not create indirect land-use change. Another area is lignocellulosic feedstocks."

Leon de Bruyn
CEO
LUMMUS TECHNOLOGY

> *"Throughout the region, we are seeing increasing interest for chemical recycling of plastics and tyres, ethanol to ethylene and ethanol to SAF as feedstock diversification becomes a major priority."*

Jurong Island's 25th

2025 marked a milestone for Singaporean chemical companies as Jurong Island, the cornerstone hub behind this industry's success, celebrated 25 years since its founding. Jurong Island is home to over 100 chemical and energy companies, including ExxonMobil, BASF, Chevron Oronite, Mitsui Chemicals and Sumitomo. A hallmark of Singapore's active and forward-thinking industrial policy, Singaporean policymakers now speak of transforming Jurong Island into a 'future-ready' hub, prioritising sustainable materials, new energies, and low-carbon technologies. Singapore's leading policy delivery agencies, including the EDB, JTC and A*STAR, the government's research agency, are deeply involved. Kelly Lai, vice president and head of chemicals and materials at the EDB, said of 2025:"We want Jurong Island to become a global innovation hub, where new technologies can be tested and scaled."

Maintaining close relations with private industry, these agencies are focused on encouraging the development of industry ecosystems that will push the needle further towards specialty chemicals and added-value activities on Jurong Island, while recognising the historic pressures facing the PCR industry. Cindy Koh, group director of green growth at the JTC, said: "Historically, Jurong Island tenants have had very large footprints, building large and complex refinery and petrochemical complexes. As regional countries continue to build their own refinery and petrochemical production, Singapore must go up the value chain."

Land scarcity is Singapore's greatest challenge, and the JTC's role includes 'anchoring' investments brought in by its sister agency, the EDB. Koh continued on the most important task facing the JTC as it considers the chemical industry's future in Singapore, as she said: "Our biggest challenge is to plan for optionality. In the low-carbon space, there are alternatives, such as biofuels, carbon capture and storage (CCS), and renewables. There is no single approach, so our agencies must be flexible in planning, because once infrastructure is set in our land parcels, we need to consider the sunk costs." ■

Roger Marchioni

Global Commercial Director of Biopolymers
Business Director Asia and Managing Director
JV Braskem Siam
BRASKEM

> *"Our main priority is to move forward with Braskem Siam and begin construction so that the new capacity is operational by mid-2028."*

Can you provide a recap of Braskem's performance in Asia over the past 18 months?
The petrochemical industry is facing a very challenging period due to global oversupply of new capacity and significant spread shrinkage across all regions. Commodity polyethylene and polypropylene prices have remained extremely low. In contrast, our bio business has demonstrated strong resilience in terms of demand and spreads. Although it is still expected to see a steady growth in sustainable solutions demand, some circumstances are upsetting a stronger movement. Fossil-based resin prices have widened the cost gap between bio-based and conventional plastics. Tariff conflicts and inflation have also put pressure on brands that prioritize short-term profitability, shifting resources from long-term sustainability investments. All these headwinds slowed the pace of new sustainable projects, but our bio business maintained stable performance.

Can you provide an update on Braskem's JV project in Thailand?
We are preparing to bring the project to the boards of Braskem and SCGC for a final investment decision. The engineering work is almost complete. We signed a letter of intent with MitrPhol, one of the world's top sugar producers and Thailand's largest ethanol producer, to locally supply Braskem Siam. They maintain strong sustainability practices, which are essential because our customers expect ethically sourced, responsibly produced feedstock.

We are also engaging with smaller mills to support the entire local ethanol sector and farming communities. Our goal is to encourage better agricultural practices, including reduced sugarcane burning and lower supply-chain emissions. The project also received support from Thailand's Board of Investment, which significantly strengthens the project's economics.

What role does Singapore play in Braskem's Asia strategy?
Singapore remains our main Asian headquarters. Singapore continues to provide substantial logistical advantages, geographic reach, and an innovation-friendly environment. We maintain an excellent relationship with the EDB and continuously evaluate opportunities there. Singapore also remains a long-term strategic option as we work toward our vision of reaching 1 million t of bio-based polymer capacity by around 2030. In the near term, we have launched a partnership with Katoen Natie in Singapore to use their warehouse to store and distribute our bio-based polyethylene and bio-based EVA. This allows us to supply regional markets more efficiently, especially footwear manufacturing hubs in China and Vietnam, which increasingly demand bio-based materials.

What is your outlook for the long-term cost competitiveness of bio-based products?
The fossil-based plastics industry has had over 50 years to refine technology and achieve cost efficiencies. The bio-based industry is very young by comparison and is still in an early stage of technological development. At Braskem, we are working on several fronts to improve competitiveness. We operate an innovation center that focuses on new bio-based feedstock routes and early-stage biotechnologies. We also have a strong engineering team dedicated to improving the efficiency of ethanol-to-ethylene conversion. These efforts will help reduce costs over time, but the process will take years.

Another critical factor is the need for transparent accounting of total carbon costs across supply chains. Technologies such as blockchain and AI can provide clarity about the actual environmental impact of different materials. Today, it is not easy for brands to rely on many methodologies and diverse information provided by all materials suppliers they use, making it difficult to make material choices. Transparent, standardized, science-based life-cycle assessments will reveal that some choices that appear environmentally friendly, such as switching from plastic to paper bags, may not reduce impact when evaluated across the whole life cycle. Better data will help brands and governments understand the benefits of bio-based products and encourage greater adoption.

What are Braskem's priorities for the coming year?
In 2026, our main priority is to move forward with Braskem Siam and begin construction so that the new capacity is operational by mid-2028. We will also continue our advocacy efforts in Japan and Europe to encourage stronger regulatory support for bio-based materials as a tool for climate mitigation. In Asia specifically, we will focus on expanding support for our customers through our new warehouse in Singapore, strengthening supply reliability, and being closer to brands and manufacturers as they shift to sustainable materials. Our priority is to help our customers advance their own transitions while we continue expanding our global bio-based footprint. ■

Fandy Suradji

Partner
ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)

Why are so many companies in Singapore considering closures, downsizing, or divestments?
As decarbonization is becoming a requirement and various factors such as carbon taxes and accounting are coming to play, we have seen more global companies consider Singapore as a high-cost location and divest, close, repurpose or downsize their Singapore operations. This includes many of our pharmaceuticals and agrochemical clients. We are seeing shifts of manufacturing facilities to lower-cost countries, such as the Philippines, Thailand and Indonesia. Commoditized activities generally struggle to be cost competitive in Singapore, while higher-value activities and specialty chemicals tend to remain strong.

How is ERM using technology and AI in sustainability work?
We partner with technology providers and deploy ESG digital platforms, carbon-emission calculators, climate-risk solutions, and many other tools. These tools help address gaps in how carbon-emission and sustainability-related risks are calculated and assessed. Another example would be supply chain traceability, which is a major issue in the Asia region, particularly as supply chains include many small suppliers, farmers, or fragmented contributors. Digital tools and AI enablement help address uncertainties where conventional measurement becomes unreliable.

In the sustainable asset retirement space, we utilise ERM Smart Asset Decarbonization, a tool that we can use to input operational data and generate a decarbonization roadmap. We are also slowly seeing digital applications in the market for planning and executing asset retirement and closure work, such as smart CCTV and PPE for construction projects in Singapore and the broader Asia region. These digital-enabled tools will be key to how site closure and repurposing projects are becoming more structured, efficient and sustainable.

What do you expect in 2026 for Singapore's chemicals landscape?
We are excited to see how Singapore's sustainability journey translates into practical transformation and to be an integral part of this journey. ■

Diego Trujillo

Vice President and General Manager for Downstream
ECOLAB SOUTHEAST ASIA

How does Singapore compare with other markets in your portfolio from a regulatory standpoint?
In my perspective, Singapore is comparable to the European Union or California in terms of regulatory rigor and momentum toward the energy transition. Carbon costs are increasing, and the planned rise in the carbon tax will materially affect emissions economics. That drives our customers to seek competitive pathways that maintain reliability while lowering emissions and resource intensity.

What are the downstream sector's most common water-management requests?
In Singapore, cost and stewardship of water are central. We deploy Total Water Management (TWM) to assess the plant holistically—intake, utility use, discharge—and then design solutions to reduce freshwater purchase, cut discharge fees, and enhance reuse. A notable example is a zero-liquid-discharge system we started up in the first half of 2024 at Aster's facility in Jurong. Singapore's reclaimed NEWater supply and pricing policies also influence strategies, and we help customers optimize their operations within those frameworks.

Across the region, we see sustained interest in sustainability investment, but progress benefits from coordination among government policy, regulation, and business initiatives. Our Ecolab Watermark study shows strong public support for investment by both government and industry in water sustainability, which reinforces the demand for recycling, reuse, and automation that improve reliability and reduce operating costs.

What innovations and programs are you prioritizing for the coming year in Southeast Asia?
On the digital side, Climate Intelligence is a key service: a digital twin developed with Siemens that enables operators to model utility changes before adjusting setpoints or valves, improving safety and outcomes. We will continue rolling out direct-to-chip liquid-cooling monitoring for data centers via the 3D TRASAR platform and expand advanced recycling and reuse solutions under TWM. The region will remain dynamic—there will be expansions in Indonesia, Vietnam, and Thailand, as well as asset rationalizations and new entrants. ■

Amrul Atiqi

Managing Director, Southeast Asia
TOPSOE

What were the key trends and developments across your business lines?
In 2025 and in 2024 we spent a lot of time developing low-carbon projects across the region. We've engaged a lot with certification bodies and associations to increase education on the topic.

What are the biggest challenges limiting the adoption of alternative fuels and low-carbon solutions?
First is economics. Low-carbon products remain more expensive than fossil-based products. Second is physical constraints. Feedstocks such as used cooking oil are limited. We need pathways beyond the current available feedstocks. That includes technologies that convert electrons into chemicals. Third is policy. Buyers want clarity and need to understand how credits and sustainability certification work. Much of the market remains voluntary, and uncertainty persists.

Can you explain Topsoe's wet gas sulphur technology?
The wet gas sulphuric acid technology produces sulphuric acid as an additional product, which can increase margins, and supports compliance with environmental outcomes. Revenues from sulphuric acid are used to repay the plant over time. ■

Khalid Shaikh

Regional General Manager, Singapore and Malaysia
ATLAS COPCO

How do Singapore and Malaysia differ as places to do business?
The Malaysian market is conservative and sometimes more resistant to change, taking a back seat in adopting new technologies compared to Singapore. Singapore is steadily moving towards a greener future, with a sharp focus on process improvements and the adoption of new technologies to conserve energy.

How is Atlas Copco's R&D strategy influenced by sustainability principles?
We see significant opportunities, especially as Singapore's specialty chemical sector expands and process systems are upgraded. Additionally, the cross-sectoral focus on emissions reductions and Singapore's ambitious targets are driving many businesses towards our advanced solutions.

In the compression space, we are transitioning to AI tools in control systems and helping clients improve efficiency. We are innovating in systems to reduce energy consumption and increase output.

Recycling energy has become a focal area; when compressors operate, they generate significant heat that we can convert into energy. We are working to recoup this heat and put it to tangible use. ■

Viktor Friberg

Managing Director, Southeast Asia
ALFA LAVAL

Can you elaborate on your service offering in Southeast Asia?
We deliver predictive maintenance, reconditioning, upgrades, and lifecycle support tailored to each industry's operating conditions—whether that means aligning with planned shutdowns, meeting stringent hygiene requirements, or supporting high redundancy environments.

We saw that some new projects and new plant investments were put on hold or reevaluated from a business case perspective. That reduced momentum on certain new-build opportunities. At the same time, it increased interest in upgrading and improving existing plants. Customers became more focused on how to operate current assets more efficiently and extend asset life, which created a stronger pull for service work linked to efficiency improvements and operational performance.

What are your objectives and expectations for Southeast Asia in 2026?
We expect solid growth across all our Southeast Asian markets, and Malaysia is clearly picking up pace—particularly in oil and gas and petrochemicals—as project pipelines start converting into real demand. ■

SPECIALTY CHEMICALS

"Singapore must go up the value chain. The specialty chemicals segment adds value and enables companies to produce and compete in Singapore despite cost pressures."

Cindy Koh
Group Director, Green Growth
JTC CORPORATION (JTC)

Image by alexraths at DepositPhotos

Image courtesy of DKSH

A Special City in the Tropics

Singapore doubles down on sector

Specialty chemicals are in Singapore's crosshairs, and the industry continues to be underpinned by strong growth dynamics across APAC, particularly in Southeast Asia, creating steady demand across personal care and cosmetics, adhesives and coatings for industry and construction, and ingredients and formulations for food & beverage. The Singaporean government is clear: as Singapore's competitiveness in commoditised spaces continues to decline and the PCR industry faces serious headwinds, the chemical industry nationally should repurpose and develop specialty chemicals.

Bio-based and sustainable materials, specialty chemicals, high-performance materials, SAF, and biofuels are top of the agenda.

Southeast Asian economies delivered mixed results in Q3 2025, and core growth drivers are softening, according to a McKinsey & Company report, but Singapore's position at the nexus of over 680 million people across ASEAN countries makes it an ever-relevant business hub. Despite the challenges, this region continues to deliver for companies. Vinod Agnihotri, managing director, ASEAN, and VP and head of material protection products, APAC at Lanxess, said: "In ASEAN our performance has been resilient and stable, and we have been the only sub-region in APAC to show year-to-date growth. The reasons are structural: ASEAN still benefits from urbanization and industrialization, and many of our end markets continue to expand."

Singapore's oldest German company, Behn Meyer Group, celebrated its 185th anniversary in 2025 and is investing in its own production to complement its established distribution business and further tap into regional dynamics. Dirk Lorenz-Meyer, chairman, said, "In 2025, we started building a brand-new factory for Intracare in the Netherlands, which is our single biggest investment in the last three years. We also made our first investment in the United States by taking an equity stake in a company focused on organic trace elements."

Singapore's specialty chemicals pivot is underpinned by the macro trends driving Southeast Asia. Nikesh Hindocha, general manager, NE Asia & SE Asia of AAK, said: "The structural trends are favorable: a rising middle class, rising expectations for taste and product quality, growing interest in health, and a gradual yet clear shift toward more sustainable choices."

There have been several specialty chemical investments in the country over recent years, underpinning Singapore's pivot. These include DSM-Firmenich, which has set up a new production line for fully automated encapsulation and compounding, while IFF launched its immersive experience hub as part of its innovation centre in Singapore. Additionally, there is Cariflex, a global polyisoprene latex producer, which received grants and tax benefits, as well as support from the EDB for workforce mobilization and contractor support during the pandemic. Sangwoo Ryu, Cariflex's CEO, said: "The facility represents a total investment of US$355 million. As built, it can meet current customer needs and expected growth over the coming years. It was engineered with immediate expansion in mind."

New specialty companies are establishing a base in Singapore, including Münzing, a German specialty additives manufacturer with production sites in Malaysia, Australia, Europe, and North America. Hector Chow, president, APAC at Münzing, said: "In 2025, we also opened our new Asia-Pacific headquarters in Singapore, which serves as a logistics hub for the APAC region and further streamlines our logistics processes."

A strong talent pool, robust infrastructure and government research incentives make it a compelling case for multinationals. In the coatings and construction sector, Singapore's push for cooler roof coatings to protect from intense heat is creating opportunities for specialty chemical companies. Sobers Sethi, senior vice president, emerging markets and China, Nouryon, said: "The cool roof coatings initiative is a good example of how Singapore can serve as a testing ground and reference for the rest of ASEAN. Once benefits such as energy savings and lower carbon footprints are demonstrated here, other countries in the region tend to take notice and consider similar approaches."

Wayne Yap
Executive Director
ASSOCIATION OF PROCESS INDUSTRY (ASPRI)

> *"Internationalisation is not about expansion for its own sake, but about deepening the credibility of Singapore's skills-based ecosystem abroad."*

New markets need new materials

The proliferation of EVs and electrification across Asia and the rest of the world is creating new markets for specialty chemical companies to consider. 2026 heralded a new energy crisis for the world, and Southeast Asia has not been spared; the EV pivot is now crucial for the region to continue to thrive. Many specialty chemical companies based in Singapore that supply the region's automotive industry with lubricants, coatings, and other specialty materials are adjusting to the rising demand from EV producers and consumers. Singapore remains a crucial hub for lubricants marketing.

Southeast Asia's industrial and EV transformation is still in transition, leaving the door open to medium-term strategies for product innovation. Envalior, an engineering materials company, has set new targets for the region, as Jason Zhang, managing director and commercial VP, Asia, explained: "We are accelerating innovation from high-voltage EV components to next-generation composites. Our new strategy for Southeast Asia is based on three pillars: strengthening key accounts, focusing on application development, and optimizing our best-suited route to market."

New materials and innovations for EV adoption are high on the agenda. Commenting on Envalior's new regional strategy, Zhang said: "This is driven by customer relocation and supply chain shifts into Southeast Asia, including Chinese customers relocating to Vietnam and Thailand, as well as a strong Japanese specification-driven business in the region."

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Dirk Lorenz-Meyer

Chairman
BEHN MEYER GROUP

> *While our core focus remains to distribute life science and specialty chemical solutions across Southeast Asia, we have been very deliberate about backward integration into our own production.*

Since we last spoke in 2023, what have been the major developments for Behn Meyer?
We have continued our quest to build a global network of interconnected businesses. While our core focus remains to distribute life science and specialty chemical solutions across Southeast Asia, we have been very deliberate about backward integration into our own production. This integrated approach gives us greater control of our supply chain, deeper industry expertise, and hence offers multiple synergies for our customers.

Consequently, we moved away from simple distribution toward a co-innovation model with our customers. We are working directly with customer R&D teams in their factories, running trials, iterating repeatedly, and developing solutions rather than selling single ingredients. A good example is the food ecosystem we have built within our group.

On sustainability, we received the EcoVadis platinum rating twice in 2023 and 2024, and we are currently ranked within the Top 3% of more than 150,000 rated companies. As the bar is raised every year, we stay committed to improving our portfolio with future-oriented products and solutions, including biological and AI-enabled technologies.

What were the main investments and upgrades you made?
After the acquisition of our enzyme partner in Germany in 2023, we set foot in the United States in 2024 by becoming the largest shareholder in a company focused on organic trace elements, certified for plant, aquaculture and animal feed applications.

In 2025, we inaugurated a factory for our Dutch company Intracare in Thailand, which will focus on hygiene and biosecurity products for the animal farming and aquaculture business. We also started quadrupling the capacity of Nutrivo Ingredients in Thailand to cope with demand for our natural food solutions. The expansion will be ready by May.

However, Behn Meyer's single biggest investment in the last three years is the new factory for Intracare B.V. in the Netherlands, with the grand opening set for early June. Intracare is a fast-growing global business at the intersection of agriculture and animal husbandry. This investment strengthens our offering in hygiene, biosecurity, and non-antibiotic medicines for animal health as well as bio-stimulants for horticulture.

Lastly, we opened a three-story application lab centre in Malaysia in January 2026 to strengthen our R&D capabilities and to reinforce our dedication to innovative, safe and customer-centric solutions. This new facility houses specialized labs for food ingredients, personal care, coatings, rubber, and latex, focusing on in-house testing and formulation development.

What role does Singapore play for Behn Meyer today?
Singapore has always been our home base, and about 90% of our business is conducted in Southeast Asia today. We see Singapore as a strategic hub and recognize how it has built a striving ecosystem around its openness to technology and trade, its stability and the rule of law. We keep our investment holdings in Singapore, and it remains central to how we govern and steward the group.

We also see the ongoing reality that many forms of manufacturing are relocating into nearby locations due to costs. Again, Singapore with its pro-business attitude embraces such trends and advocates free-trade zones together with Johor, Batam and Bintang.

Can you discuss Behn Meyer Agricare's expansion into Agri Analytics and Services?
In 2025, we spun off our agronomist services into its own entity, called Agri Analytics and Services. The aim of the new unit is to provide smallholders and plantations with actionable insights about their crops. We use satellite imagery for an aerial overview and then refine insights with drone-based footage where higher resolution is needed.

Our goal this year is to elevate on-the-ground agronomist diagnosis with our AI models so we can ultimately enable precise drone interventions to truly achieve precision agriculture, where we detect, diagnose, and then treat only what is needed, where it is needed.

What are your goals for Behn Meyer in the near term?
One big push will be to convert the agro-feed-food value chain into a holistic loop, where waste streams from farms and food processing are converted into organic fertilizers and reused as inputs for crop production. Behn Meyer has the biological compost and water treatment expertise to close the loop and help our customers accomplish circularity for their businesses. ■

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The relocation of Chinese manufacturers across the region is prompting corporates to tailor their services and develop different capabilities. Evelyn Shen, vice president of surface treatment, Asia Pacific at Chemetall, BASF's coatings company, said: "Many years ago, the automotive OEM mix in Southeast Asia was very different. Today, you can meet component suppliers whose management teams operate entirely in Mandarin, reflecting how much production and investment patterns have shifted."

Chemetall's APAC and regional headquarters are based in Singapore, a significant market for Chemetall across automotive, aerospace and food. A large part of Singapore's production is dedicated to supporting the aerospace industry. Singapore is an important Maintenance, Repair, and Operations (MRO) hub for the region. Conscious of the changing face of OEMs in the region and increasing EV and electrification, Shen said: "Recently, we launched Gardolene D, the world's first chromium-free and fluoride-free passivation technology for copper foils for the battery industry."

According to executives across the lubricants space, Southeast Asia will continue to see growth in lubricants demand as the ownership of motorcycles continues to rise, and the adoption of hybrid vehicles increases, a mid-way step to electrification, which will be necessary, given the considerable infrastructure and energy needs required for widespread EV adoption.

John Hong, Asia Pacific sales director and country head, Singapore for Infineum, said: "Electrification in Southeast Asia will progress at different speeds depending on local infrastructure and policy… We expect a mix of mild hybrids, where internal combustion engines work with energy-recapture systems, and plug-in hybrids, where the internal combustion engine primarily charges the battery."

Along with electrification, bio-based alternatives have become national and corporate priorities. Eugene Ng, general manager for sales & marketing, APR, and director of Chevron Oronite, said: "We are actively studying EV-related markets, but our current investment focus is on lower-carbon solutions. This includes incorporating re-refined base oil into our formulations to reduce carbon footprints for both our customers and us." ■

Sangwoo Ryu

CEO
CARIFLEX

> *"We expect that the later part of 2026 and especially 2027 will reflect normalized operations and improved profitability as the plant climbs the learning curve and customer volumes continue to recover."*

Could you introduce Cariflex?
Cariflex was carved out of Kraton in March 2020 and acquired by DL Chemical. Before that transaction, The business began in 2001, producing synthetic rubber latex for manufacturers of surgical gloves as an alternative to natural rubber. Today, our materials are widely used in polyisoprene surgical gloves, and certain specific medical instruments. A smaller portion is used for industrial purposes. A recent milestone is that our Singapore plant started commercial operation in November 2024, and we have consolidated latex production there, replacing a prior tolling arrangement in Japan that expired in December last year.

How would you describe the market landscape for 2025–2026?
Our business in synthetic rubber latex and related materials is capital-intensive, and raw materials are expensive. Production speed is slow, and unit costs, especially fixed costs, are higher than for other synthetic or natural rubber latexes. That narrows the customer base to manufacturers who value the performance and can absorb the cost. Most of our demand is medical, primarily surgical gloves and some specific medical devices.

The high regulatory bar is a significant barrier to entry. New competitors would need to meet complex medical approvals, such as FDA-type clearances and extensive qualification testing, which takes time and resources. During 2020–2022, revenue, margins, and volumes rose significantly. In 2023, demand fell as customers worked through excess inventory, and in 2024, it dipped further before a modest rebound this year, as we added a new global customer. Our customers are communicating a more positive outlook.

Can you share details about Cariflex's new plant in Singapore?
The facility represents a total investment of US$355 million. As built, it can meet current customer needs and expected growth over the coming years. It was engineered with immediate expansion in mind: we already secured the land, and we share utilities and storage infrastructure sized for future phases. The aim is to serve customer demand over the next decade or two from a hub that reduces logistics time and improves supply assurance.

The initial years of operation are always learning intensive. Efficiency is affected by the time required to build skills and stabilize processes. We are investing in utility-consumption efficiency and other cost reductions. We expect that the later part of 2026 and especially 2027 will reflect normalized operations and improved profitability as the plant climbs the learning curve and customer volumes continue to recover.

What was the role of Singapore's government in supporting the new plant?
We began discussions with the EDB in 2020. Initially, we explored tax incentives under the Global Trader Program. As we shifted to building a plant in Asia to be closer to customers and to avoid very long transit times from Brazil, EDB became a single point of contact, connecting us with relevant agencies, including JTC, PUB, and NEA. EDB's coordination was practical and hands-on. Even as COVID-19 uncertainties persisted in 2022, EDB helped ensure workforce mobilization and contractor support, enabling construction to begin around April 2022 and finish on time. They also provided grants and tax benefits tied to our economic value addition in Singapore. That level of facilitation was instrumental, especially given that we intentionally operate with a lean headcount to keep costs down.

How are raw materials and cost pressures affecting the business now?
Upstream chemicals have been challenging globally with overcapacity and variable cracker operating rates. Our key monomer is derived from naphtha-cracking byproducts. Lower cracker utilization has made sourcing more difficult, and we have seen raw material prices rise by roughly 30-40% compared with several years ago. We cannot simply pass that through. Our customers depend on us for medical-grade latex. If we raise prices too far, they must consider alternatives, including natural rubber, which can introduce allergic reaction risks for healthcare professionals and patients. We are therefore working to absorb a portion of the cost through operational excellence.

Do you have any final thoughts?
Our priorities are to stabilize and optimize the Singapore plant, deepen customer partnerships as their inventories normalize, and continue prudent cost management amid raw material volatility. We will maintain strong quality and regulatory performance for medical applications, stay close to customers' planning cycles, and protect the advantages that come from our scale, regulatory barriers, and reliability. ■

Vinod Agnihotri

Managing Director, ASEAN and VP and Head of Material Protection Products APAC
LANXESS

Can you briefly summarize the key changes at Lanxess in SE Asia over the past 18 months?
Over the last year and a half, we implemented two significant portfolio decisions. First, we carved out our High Performance Materials business into a new company called Envalior, a joint venture in which Lanxess holds a 40% stake alongside Advent. Second, earlier this year, we divested our polyurethane systems business to a Japanese buyer. In parallel, we invested considerable energy integrating the businesses we acquired in recent years—most notably IFF Microbial Control, which we closed in July 2022—and advancing our technology transformation agenda focused on digitalization and automation.

What is driving growth in the Consumer Protection segment?
In biosecurity, home care, and personal care, we see strong demand for preservation, hygiene, and safety solutions—areas where our Material Protection Products portfolio is very competitive. In coatings, customers seek antimicrobial, high-performance preservation systems, and we supply technologies to help protect surfaces against microbial infestation. In water treatment, our Liquid Purification business provides ion exchange resins to support greener operations and more efficient purification. In food and beverage and aroma ingredients, our Flavors & Fragrances business contributes specialty agents that meet strict quality and regulatory standards. Together, these applications align with regional trends in health, nutrition, life sciences, and infrastructure, thereby enabling the segment to continue outpacing the rest.

What are you seeing inside the Specialty Additives segment regionally?
The regional build-out in semiconductors is another tailwind; beyond flame retardants, we supply oxidizing chemistries for micro-etching in printed circuit board manufacturing.

What are your expectations for ASEAN?
The resilience we demonstrated in the past 18 months gives me confidence that we can build on that base and deliver another solid year. ■

Sobers Sethi

Senior Vice President, Emerging Markets and China
NOURYON

How has the demand trend been for Nouryon's products in the past year across the APAC region?
This year has been challenging, as it has been for most chemical companies, due to supply–demand imbalances and geopolitical uncertainty. However, demand for Nouryon's high-performance specialty chemicals remains solid. We continue to see growth in bio-based and nature-derived ingredients in the personal care market.

In coatings and construction, government initiatives such as Singapore's push for cool roof coatings have already driven higher demand for our performance additives and cool coatings, and other ASEAN countries are likely to follow Singapore's lead. In agriculture, we see rising interest in solutions that improve yields and efficiency, and in food, we see higher demand for our carboxymethyl cellulose (CMC) in beverages and processed foods.

How is the "China plus one" trend influencing industry supply strategies?
Our Chinese manufacturing assets are primarily dedicated to serving customers in China, and that strategy has not changed. However, the global environment has clearly shown the risk of overreliance on any single geography. That is why we have invested in additional capacity and tolling outside China, including the acquisition of an asset in Singapore and several tolling partnerships in ASEAN and India. The goal is not to disconnect from China, but to ensure supply resilience and flexibility so that neither our customers nor we depend on a single source.

How is sustainability shaping Nouryon's product development and operations?
By 2030, we aim to reduce our absolute Scopes 1 and 2 greenhouse gas emissions by 40% and to reduce water use and waste generation by 10% compared with 2019; by 2050, we aspire to be a net-zero organisation. By the end of 2024, 28 of our 63 manufacturing sites were sourced with 100% renewable or low-carbon electricity. Approximately three-quarters of our current innovation pipeline comprises products that deliver clear sustainability benefits. ■

Alexander Berkovskiy

Regional Director, AMEA (Asia, Middle East, Africa)
SYNGENTA

Does Syngenta still maintain operations and R&D in Singapore?
We continue to operate a genotyping laboratory linked to our research activities, and we have historically benefited from nearly 25 years of excellent cooperation with the EDB. We have also collaborated with institutions such as the National University of Singapore through seed innovation initiatives that support Singapore's food security and self-sufficiency ambitions under the 2030 Agenda. These collaborations sit mainly within our vegetable seeds business. Singapore continues to offer a strong innovation ecosystem, and future expansion there remains possible as Southeast Asia's agricultural importance grows.

Agriculture in Asia is highly fragmented. How does this influence Syngenta's commercial strategy and engagement with farmers?
Fragmentation is one of the defining characteristics of Asian agriculture, dominated by millions of smallholder farms that lack the economies of scale. Historically, companies relied heavily on multilayer distribution systems involving distributors and retailers before reaching farmers. While channel partners remain essential, digital technology now allows us to interact directly with growers at an unprecedented scale.

Through digital platforms such as CropWise, farmers receive decision support across the entire crop cycle—from planting to harvesting. They can scan crops, diagnose pests or diseases, and receive recommendations instantly. Today, more than 70 million hectares worldwide operate under CropWise solutions, enabling education, engagement, and productivity improvements while integrating financial and value-chain partners into a broader ecosystem that supports farmers.

How important are biological and sustainable solutions within Syngenta's portfolio today?
Biological products are increasingly important, particularly for high-value crops and export markets where residue requirements are stricter. Biologicals complement digital agriculture platforms by enabling precise application and improved data, thereby maximizing their effectiveness. Adoption requires training since biological solutions function differently from traditional chemistry, but Southeast Asia already represents a strong growth market for these technologies. ■

Thomas David

Managing Director, Malaysia
SCHAEFFER KALK

Can you discuss Schaefer Kalk's solutions for the chemical industry?
We have a very interesting application in the specialty chemical segment, in the lubricant oil additives sectors. Our ability to serve these applications is driven by two key factors: the exceptionally high purity of our raw materials and our advanced calcination and processing systems.

How are you expanding the use of sustainable production methods?
In the past decade we have added two more kilns to our site for high-value products supplied by Maerz, one of the world's leading kiln manufacturers. All in all, we have doubled our productive capacity for special applications. We anticipate a surge in demand for sustainable products. We know that a carbon tax will be introduced in Malaysia, similar to Singapore's, though the timing and the impact on overall business is uncertain.

In preparation, Schaefer Kalk has taken multiple concrete measures to reduce the CO_2 footprint of our products. We have installed a Solar PV system that generates clean energy for us. Also, our forklift fleet has been replaced with electrically-driven ones. Our Energy Management System ensures that we continuously improve our energy usage and efficiency. On top of that, we have invested in the first-of-its-kind Maerz Eco-Ready kiln, which is currently in the commissioning phase. It gives us the option to capture CO_2 in the production process. Our eco-ready kiln will enable us to use pure oxygen instead of air for combustion, drastically increasing our energy efficiency and throughput.

Can you share your progress on digitalisation?
We continue our digitalisation journey, including the use of business intelligence and AI-supported tools. We are planning to leverage predictive maintenance tools with the amount of data that we collect. Newer technologies, like machine learning, will help to detect some areas where anomalies or irregularities occur.

Although lime production is among the oldest chemical processes, continuous improvement remains essential. ■

Remington Zhu

President, Asia Pacific
TATE & LYLE

Could you provide an update on Tate & Lyle in APAC and globally?
Asia Pacific is an incredibly important growth region for Tate & Lyle. In the last five years, we have built a half-a-billion-dollar business in APAC, which represents around 20% of Tate & Lyle's revenue today. We have five ingredient production facilities across the region, four in China and one in Australia, and six customer innovation and collaboration centres.

Over the last six years, we expanded through acquisitions: Sweet Green Fields, a stevia company; Quantum Hi-Tech, strengthening our fibre portfolio; and CP Kelco. Today, we are strong in sweeteners, including stevia, monk fruit, and fructose; we have a much stronger portfolio in mouthfeel solutions through starches and hydrocolloids; and we have expanded our soluble fibre offerings.

Beyond ingredients, we focus on solutions: sugar reduction, nutrition enhancement, and fibre fortification, while protecting taste and mouthfeel, because the goal is to make healthy food tastier and tasty food healthier.

What is Tate & Lyle's footprint in Singapore?
Singapore is unique, which is why we established our regional headquarters here. We established a new lab in the Singapore innovation centre, ALFIE (Automated Laboratories for Ingredients Experimentation). Using ALFIE, our first-to-the-industry robotics, enables us to quickly develop tailor-made starch products and run characterisation tests up to 10 times faster than before. This means we can generate new products, test them, and build customer solutions more efficiently. The investment reflects our confidence in the market and in Singapore's environment.

Across ASEAN, what major trends are you trying to capitalize on?
Two major trends are fibre fortification and sugar reduction, with sugar tax policies influencing product reformulation regionally. Taste and mouthfeel remain the top criteria in markets such as Vietnam and Indonesia, where strong taste profiles are important. ■

Nikesh Hindocha

General Manager, NE Asia & SE Asia
AAK

Could you introduce AAK in the region?
AAK operates in a wide range of segments, including chocolate and confectionery, dairy, bakery, special nutrition, candles, and personal care. One of the most significant factors this year has been the sharp increase in certain commodity prices, especially cocoa. AAK is exceptionally well-positioned in that situation because we produce cocoa butter alternatives that allow customers to design more cost-efficient or affordable chocolate and confectionery products without compromising the eating experience.

In infant nutrition, we have seen other dynamics. Lower birth rates in several markets have created headwinds, so we are pivoting more toward adult nutrition, where aging populations and lifestyle concerns generate demand for new concepts. In non-food areas such as candles and personal care, we see a shift away from petroleum-based ingredients toward plant-based, natural, and more sustainable formulations.

Can you outline AAK's specialty journey, and how does co-development fit into that?
Our specialty journey refers to our strategy to grow profit per kilogram by focusing on higher-value, more tailored solutions. These solutions can replace dairy fats, cocoa butter, as well as petroleum-based ingredients with plant-based alternatives that provide specific functionality or nutritional benefits. Our strength lies in specialty, and co-development with customers is at the center of that.

Focusing on Southeast Asia, what are the main demand trends and challenges?
Part of our dialogue with customers is how to optimize formulations to deliver good quality and taste at a price point that consumers can afford. Taste remains non-negotiable; if the product does not taste good, it will not succeed. At the same time, health and wellness remain strong drivers. The market is also moving in stages on plant-based foods. A first wave of plant-based meat alternatives generated significant excitement but did not consistently deliver on taste or price, leading to moderate growth. ■

Emmely Geertsen-Janssen

Country Leader, Singapore
DIVERSEY

Could you share Diversey's developments in the region over the past two years?
A significant milestone for our organisation was the opening of Solenis' new office at Science Park Drive in November 2025. This facility now serves as the consolidated regional hub for both Solenis and Diversey, enabling closer collaboration and integration across our water management, cleaning, and hygiene portfolios. Additionally, in November 2025, Solenis completed its acquisition of NCH Corporation, a leading provider of water treatment and industrial solutions. This acquisition has expanded our capabilities and strengthened the breadth of solutions we are able to offer customers throughout the region.

In Singapore, we recently announced a Memorandum of Understanding with NatureLoop, which converts post-consumer plastic waste into durable functional items, such as coffee tables, sports medals, and tissue boxes.

Could you expand on the major trends shaping the Singaporean market for Diversey?
There is a clear shift towards solutions that reduce waste, promote safer formulations, and provide measurable environmental impact. Technology-led solutions play a central role in this transformation. In a market such as Singapore—where labour constraints are persistent—customers increasingly rely on insights and automation to simplify processes and improve productivity. Sustainability and digitalisation remain the predominant forces shaping customer expectations.

How do Diversey's CSV programs align with client needs?
Diversey's Shared Value (CSV) programs are a core differentiator and align closely with the megatrends we observe across Singapore and the broader region—specifically, sustainability, safety, and circularity. We execute four key CSV programs with our customers: Soap For Hope – collecting and recycling used hotel soap; Linens For Life – upcycling end-of-life hotel linens into items such as tote bags, aprons, and plush toys; CoffeeBriques – converting used coffee grounds into charcoal briquettes, and PlasticShreds – transforming single-use plastic waste into long-lasting functional products. These programs not only divert waste from landfills but also create meaningful livelihood opportunities. ■

Hector Chow

President, APAC
MÜNZING

Could you introduce MÜNZING?
MÜNZING is a leading innovator in sustainable, high-performance specialty additives. We work closely with downstream customers to develop application-driven solutions that help them improve and commercialize their products. We have been a family-owned company since our founding in 1830, with headquarters in Germany and more than 650 employees worldwide.

In 2018, we established production capabilities in Malaysia and Australia through strategic acquisitions and additional investments, enabling us to manufacture locally, improve supply chain processes and reduce our global carbon footprint. We built a new greenfield factory in Malaysia in 2023 with a capacity of 25,000 t/y. In 2025, we also opened our new Asia-Pacific headquarters in Singapore, which serves as a logistics hub for the APAC region and further streamlines our logistics processes. Our primary markets include the coatings, construction, and adhesives industries.

Why did you establish the regional headquarters in Singapore?
In 2024, we opened our Singapore office to strengthen our presence in APAC and establish a regional headquarters supporting our expanding operations across the region. The strong support and engagement from the EDB also played an important role in our decision to establish this regional hub.

Through our Singapore office, we have consolidated key regional functions such as pricing, supply chain management, customer service, and product development, allowing us to operate more efficiently and respond faster to customer needs.

What are the challenges to growth in Southeast Asia compared with mature markets?
A major challenge in Southeast Asia is regulatory fragmentation. In Europe, a largely harmonized regulatory framework applies across the region, whereas in Asia individual countries have different chemical regulations and compliance requirements. This creates significant complexity for manufacturing and R&D companies, as product approvals and documentation must be managed across multiple regulatory regimes, including country-specific requirements in markets such as Korea and China. ■

Jason Zhang

Managing Director and Commercial VP, Asia
ENVALIOR

How would you describe Envalior's presence across the Asia Pacific (APAC) region?
In 2025, we delivered strong results across mobility and electronics and continued focusing on sustainability and high-performance material innovation.

We are accelerating innovation from high-voltage EV components to next-generation composites. Our new strategy for Southeast Asia is based on three pillars: strengthening key accounts, focusing on application development, and optimizing our best suitable route to market. This is driven by customer relocation and supply chain shifts into Southeast Asia, including Chinese customers relocating to Vietnam and Thailand, as well as a strong Japanese specification-driven business in the region.

How did Envalior's target markets in APAC perform in 2025?
China and India exceeded its 2025 budget and delivered high-single-digit volume growth. Japan and Korea were stable. Southeast Asia was more mixed, facing headwinds in certain consumer-product key accounts.

How is Envalior approaching innovation and R&D across the Asia Pacific?
Our innovation priorities in high-temperature nylon include the Stanyl® PA46 and EcoPaXX® PA410 lines, with a strong focus on EV-era gears and bearings, including motor insulation, high-voltage connectors, and EV power electronics. We are expanding EcoPaXX® and broadening the HPPA portfolio. We are also expanding Xytron™ PPS use in EV applications, including busbars, inverters, converters, fuse boxes, thermal management systems, e-pumps, and other heat-related components.

We continue to develop innovation projects, including foaming grades, technical fibers, films, and flexible connectors.

In our product portfolio, we focus on mechanical recycled grades, bio-based grades, and mass-balance approaches. Across product lines, we have a portfolio that encompasses mechanical, chemical, and bio-based materials, supported by a mass-balance approach. We delivered a key example in China with a leading smartphone brand using 100% recycled content in that application. Sustainability is integrated into portfolio development rather than treated as a separate initiative. ■

Ruben Mannien

Executive Vice President, APAC
ALLNEX

Allnex recently made significant investments in China and India. Can you elaborate on those?
China remains the largest coatings market globally. Over the years, we have invested heavily there. Our sixth factory in China, located in Dushan, came online two years ago. It is a flagship resin facility that enables us to localize the production of high-quality, high performing, sustainable resins, including waterborne technologies, UV systems, and phenolic resins for food packaging.

In India, we will soon complete our first greenfield resin investment. In March we will commission a solvent-borne acrylic resins production line and in July we commission the second line for butylated amino resins. In parallel, we are expanding capacity in Thailand and Malaysia and investing significantly in R&D. In India, we opened a new technology center, which we are staffing and training. We continue to expand our R&D footprint in China and Thailand, including close collaboration with PTT Global Chemical.

Can you explain the EcoWise portfolio initiative?
EcoWise is a brand label assigned to products that demonstrate a superior sustainability profile compared to incumbent market alternatives. We use a structured methodology that is externally audited. Our global goal is to have 50% of sales come from EcoWise products by 2030. In APAC, 33% of our 2025 sales came from EcoWise products, and the share has increased year after year. This year we will launch a medal system for our customers, recognising their uptake of Ecowise products.

What is your outlook for 2026?
Many reported a solid fourth quarter and a strong start to 2026. The market may have bottomed out. At Allnex, we are bringing new capacities online, including the Indian plant and additional capacity in China, as well as smaller investments throughout the region. These expansions are essential to support growth. I see two positive drivers: signs of market recovery and our expanded capacity. ■

John Hong

Asia Pacific Sales Director and Country Head - Singapore
INFINEUM

> *Singapore will likely be the first to fully electrify because the government has already removed hybrid subsidies and mandated that all new vehicles sold after 2030 be electric.*

Could you share updates from Infineum?
We closed 2024 on a powerful note, achieving solid growth across our key markets. However, as we entered 2025, the first quarter proved quite soft for demand. The dominant factors were macroeconomic and political uncertainties. Many of our customers delayed investment decisions because they were uncertain about trade policies, tariffs, and shifts in global manufacturing hubs driven by the change in US leadership.

On top of that, political transitions in Thailand and Indonesia added further volatility. Thailand underwent leadership changes and regional tensions, while Indonesia's new administration was still shaping its policy direction. As a result, both countries experienced slower growth than expected, which was reflected in our volumes. Even India, which had been a star performer for us, softened in the first half.

For Infineum, diversification helps us serve a more expansive geography more efficiently. China itself is transitioning rapidly toward electrification, which means that while we continue to serve existing lubricant demand, we expect it to decline gradually over time. Our growth opportunities are shifting toward emerging manufacturing hubs such as Vietnam and Indonesia. Vietnam is already absorbing significant production capacity from China, and Indonesia, with its mineral and energy resources, will play a growing role in the supply chain for batteries and base materials once its political landscape stabilizes. Thailand remains vital to us because of its automotive manufacturing base, even though demographic challenges and slower growth are evident.

How do you view the automotive transition in Southeast Asia?
Electrification in Southeast Asia will progress at different speeds depending on local infrastructure and policy. Singapore will likely be the first to fully electrify because the government has already removed hybrid subsidies and mandated that all new vehicles sold after 2030 be electric. In contrast, countries such as Indonesia, Malaysia, Thailand and the Philippines will adopt hybrid technology more broadly in the near term because their power grids and charging infrastructure are not yet ready for full electrification.

How is Infineum adapting its products to this hybridization trend?
Hybrid engines face unique challenges, such as water retention, increased corrosion risk, and temperature cycling, which affect wear and lubrication performance. We engineered products that address these issues through advanced additive chemistry for rust protection, oxidation stability, and low-temperature performance. One notable development is our collaboration with automotive OEMs, such as Toyota, which emphasizes a flat viscosity across operating temperatures to improve wear protection and fuel economy. We are already working with several lubricant partners to prepare products that meet these next-generation specifications.

India is another primary market you cover. How does the energy transition look there?
India is approaching the transition pragmatically. Instead of pushing full electrification, India is improving internal combustion efficiency and exploring alternative fuels such as compressed natural gas, hydrogen, and ethanol blends. We have invested heavily in India with a local sales and technical team to support this direction. India's adoption of higher Bharat Stage fuel and emissions standards has elevated lubricant performance requirements, and our products are aligned with those specifications.

Could you elaborate on Infineum's sustainability goals and achievements?
We publish an annual sustainability report that tracks our progress. Our goal is to reduce our operational carbon emissions by 80% by 2030 through initiatives that are within our direct control. This includes deploying solar panels at several significant sites, electrifying automation systems, switching to lower-emission refrigerants, and continuously improving energy efficiency at our production facilities. In Singapore, we have focused on reducing carbon intensity per tonne of additive produced.

When growth slows and margins tighten, companies become more cautious. We see that many customers remain supportive of sustainability goals, but their willingness to invest depends heavily on government policy and economic incentives. In Singapore, the carbon tax provides a direct financial reason to reduce emissions. In India, regulatory mechanisms such as extended producer responsibility are driving progress.

What are Infineum's priorities for 2030 and beyond?
Our core mission is to build a sustainable future through innovative chemistry. By 2030, we will continue leading in transportation additives while becoming more efficient and sustainable in how we manufacture and deliver them. We are also extending our technology into adjacent markets beyond lubricants. This diversification is part of our evolution from a transportation-energy additive supplier into a broader specialty chemicals company. ■

Eugene Ng

General Manager for Sales & Marketing, APR and Director
CHEVRON ORONITE

> *Singapore's strategic location allows us to respond quickly to customer needs and fosters innovation in fuel and lubricant additives.*

Can you provide an update on your operations in Singapore and the region?
Singapore remains a highly significant operational base for us, and we have made several important advancements recently. One significant recognition we received was the BizSafe Partner Award. This award reflects our commitment to safety as a top priority. We have embedded safety into our procurement processes, requiring our suppliers to prioritize safety when working with us.

We also modernized our plant inspection process, using drones equipped with high-resolution cameras. In the past, inspections required people to access areas that were physically difficult or high-risk.

What trends have you observed in key Asian markets?
The lubricant additive sector continues to grow, although at a slower pace due to geopolitics, supply disruptions, tariffs, and the challenges the industry is facing. In China, although market growth projections remain soft due to economic and structural challenges, we still achieved significant growth from 2024 to 2025. This demonstrates customers' trust in our technology and reliability. India is another market where we have positioned ourselves strongly for continued growth. The rest of the Asian markets are also growing, although not as rapidly as in the past, but we have still been able to capture opportunities across the region.

How do regulatory and market developments in India and Southeast Asia influence your strategy?
In India, two regulatory factors have been significant. First, the increase in local content requirements. We are well-positioned for this because our joint venture, Indian Additives Limited, is one of the largest local producers. We can leverage our supply capabilities and product technology to meet these requirements. The second factor involves the requirement for re-refined base oils in formulations. We are able technologically to support these requirements. India also has a very aggressive plan to raise lubricant performance standards, and this creates opportunities for us because higher performance requirements translate into higher additive treat rates and more advanced additive systems.

In Southeast Asia, markets such as Indonesia are moving toward greater localization and are beginning to upgrade performance requirements. We also meet our customers regularly to gain firsthand insights into evolving market trends, government regulations and specific customer needs.

How is Chevron Oronite approaching market transitions across the region?
We are actively studying EV-related markets, but our current investment focus is on lower-carbon solutions. This includes incorporating re-refined base oil into our formulations to reduce carbon footprints for both our customers and us. We aim to provide lower-carbon solutions that remain affordable and reliable for the markets we serve. Regarding EV-specific lubricant and additive technologies, we continue to evaluate these areas to remain competitive. In the marine sector, Singapore plays a significant role for us.

We have seen an increase in marine volumes due to changes in global shipping routes. Because we are a leader in this sector and because we have strong supply reliability, more customers are approaching us for supply. Marine industries are also exploring low-carbon fuels such as methanol and ammonia. We have product technologies in development to support these future marine fuel requirements when the technology and market demand align.

How does your Singapore hub support operations regionally?
Our plant on Jurong Island allows us to leverage the petrochemical ecosystem, including suppliers located on the island and throughout the region. Our private jetty gives us a strong competitive advantage by enabling us to move raw materials in and out efficiently and cost-effectively.

Chevron Oronite also integrates seamlessly with our other regional operations based in Singapore. This unified approach enables collaboration, reliable supply, and effective logistics across the markets we serve. Singapore's strategic location allows us to respond quickly to customer needs and fosters innovation in fuel and lubricant additives. This integration enhances our competitiveness and enables us to deliver lower-carbon solutions to our customers.

Singapore's stable regulatory environment, world-class infrastructure, and strategic location continue to make Jurong Island an excellent base for serving customers across Asia-Pacific.

Looking ahead, what do you expect for the coming year?
We expect to continue growing steadily and to keep supporting our customers. Although next year will bring new challenges, we remain focused on growing our business, partnering closely with customers, and delivering innovative products. ■

Paul Nai

Managing Director
LUBRIZOL SOUTHEAST ASIA

Can you tell us more about Lubrizol's recent MOU with Aster?
This is an opportunity for us to work closely with a key partner in the value chain for our products and to provide insights into the needs of the market. Our MOU will explore strategic partnership and collaboration opportunities throughout Singapore and the wider region.

Can you share with us the purpose of the new Singapore Innovation Center?
This center is designed to bring our purpose statement to life and demonstrate our domain expertise and our ability to collaborate across different end use markets. We will leverage our innovation center through new partnerships, enabling us to develop regional, tailored solutions. We are building an additional R&D center with enhanced synthesis and analytical capabilities, as well as facilities for the other business to conduct application work. It is an excellent opportunity to tap into Singapore's R&D ecosystem and to collaborate with universities; indeed, we recently hosted a group of Nanyang Technological University (NTU Singapore) lecturers.

Can you share where Lubrizol is seeing growth in Singapore in recent years?
One business that has been doing well over the past couple of years is the marine business. And that's reflective of trade flows: with global supply chain disruptions, much more trade is moving into the region. Naturally, they also need to acquire lubricants, and Singapore serves as a central hub for this. In the maritime sector, we are closely monitoring IMO (the International Maritime Organization) regulations on carbon footprints, as they will influence lubricant requirements and could signal a broader shift toward alternative fuels such as ammonia. We will focus on innovation to address these trends so we are prepared for the next change.

What is Lubrizol's long-term outlook across its businesses?
We are expanding our presence in local markets – with new offices established in Jakarta, Indonesia, Vietnam and Thailand. ■

Evelyn Shen

Vice President Surface Treatment Asia Pacific
CHEMETALL

Can you briefly introduce Chemetall's footprint in the Asia Pacific (APAC) region?
Chemetall is the global surface treatment business unit of BASF Coatings and a leading provider of innovative surface treatment solutions for metal, plastic and glass substrates. From a production perspective in Asia Pacific, we operate two production plants in India, and one each in Singapore, China and Australia.

In Singapore, we serve diverse industries, including automotive, aerospace and food. A large part of Singapore's production is dedicated to supporting the aerospace industry. Beyond production, we have an application laboratory in Singapore that supports customers with application testing.

How is Chemetall responding to electrification and EV growth in APAC?
We set up an Energy Generation and Storage dedicated team focused on electrification and storage systems. Recently, we launched Gardolene D, the world's first chromium-free and fluoride-free passivation technology for copper foils for the battery industry and also announced our collaboration with a customer in China that is a globally recognized copper foil producer. This is a space with strong opportunity, but it requires staying close to industry trends and delivering solutions that support development.

What are your key R&D and innovation priorities as you head into 2026?
We are committed to sustainability at Chemetall, and this is reflected across our entire value chain. In addition to developing innovative surface treatment solutions that empower our customers to meet their sustainability targets, we also utilize clean energy sources in our operations. For example, our plant in Pinghu, China, runs on 100% renewable electricity and received recognition from the local government.

In digitalization and AI, we implemented an Industry 4.0 roadmap at our Pinghu plant and are extending these approaches across Asia Pacific. We have integrated enterprise resource planning systems with AI-driven capability to enhance predictive maintenance. ■

Narendra Varde

President, APAC
IMCD GROUP

"My focus is to deliver organic growth. That is the central theme. To deliver that, I want to continue investing in our people through training and development, because the right team is critical."

How has IMCD evolved globally and in APAC over the last 18 months?
APAC is a growth engine for IMCD, so our strategy has remained consistent despite headwinds such as tariffs, market uncertainty, and geopolitical tensions. We continue to build a broad specialty portfolio across life sciences (pharma, beauty and personal care, food and nutrition, home care) and industrial (lubricants and energy, advanced materials for automotive and cable, plus coatings and construction). We have invested heavily in technical capabilities and in state-of-the-art labs. We recently opened new life science and industrial labs in Shanghai, a beauty and personal care lab with a beauty studio and a food and nutrition lab in Malaysia, and a personal care lab in South Korea.

We are very selective in our M&A. We look for strategic acquisitions that complement our portfolio and give customers a more holistic offering. In Korea, we acquired YCAM and Dong Yang FT to strengthen our position in beauty and personal care. In China, we acquired Daoqin to enhance our food and nutraceutical capabilities. In India, we acquired Trichem to become a strong API player, complementing our already strong position in excipients.

How have macro headwinds affected your business segments?
After COVID, we saw two years of robust, pent-up demand and growth. A correction was inevitable, and that is what the industry is going through now. Geopolitical tensions and constantly changing tariff announcements have made customers more cautious about procurement and inventory. Many paused product development or slowed buying to wait for clarity. Things have now normalized, mainly in terms of tariffs, so we should see customers restart product development and begin rebuilding pipelines.

Segment-wise, for APAC in food and nutrition we see strong trends around sugar reduction and cocoa replacement. In beauty and personal care we see demand for multifunctional products. In advanced materials we see interest in wire and cable in some countries, and in others, the automotive sector is picking up again after a weak period in late 2024 and much of 2025. Demand revival is sporadic by industry and country; we are not entirely out of the woods, but inventories are very low, so restocking will have to come.

What role does Singapore play for IMCD?
For us, Singapore is a regional hub for talent, for ease of doing business, and for connectivity. The government is very business-friendly and supportive, which helps us operate in a sustainable, clean, and cost-effective way. In addition to our own labs, we tap into the technical infrastructure our suppliers and customers have built in Singapore.

What does Ecovadis Platinum recognition mean for IMCD and your partners?
Achieving that level requires extensive audits, documentation, and process discipline; it is a significant investment of time and resources. We have made tough portfolio choices, stepping away from some highly profitable products when they were not aligned with our sustainability principles.

On our digital platforms, including MyIMCD and our website, we flag and tag ingredients with their sustainability attributes so customers can make informed choices aligned with their ESG goals. Our major suppliers also have strong sustainability agendas. When they see their distributor has Ecovadis Platinum, it gives them extra confidence that we share their standards and have robust processes in place. It is an important differentiator.

How mature is the sustainability agenda across your customer base in APAC?
The region is very diverse. In some countries, you have a concentrated base of large customers; in others, the market is heavily fragmented. Today, sustainability is clearly on the agenda of key accounts and larger companies. Beyond that, many small and mid-sized companies do not yet treat it as a core priority.

What are your priorities and expectations for the coming year?
My focus is to deliver organic growth. That is the central theme. To deliver that, I want to continue investing in our people through training and development, because the right team is critical.

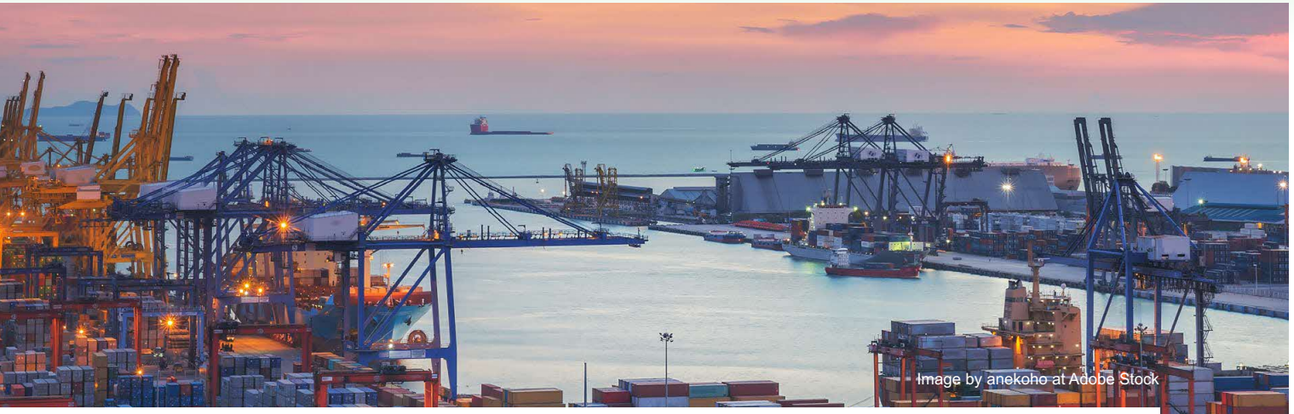
We have also invested heavily in digital tools, and next year I want to see much higher adoption so we can access more customers more efficiently and work smarter, not just harder. If I had to summarise the agenda for next year in one word, it would be growth. ■

SUPPLY CHAIN

> *Singapore remains one of the strongest infrastructure hubs globally and continues to set benchmarks in efficiency and reliability.*

Carsten Drazewski
Managing Director,
Cluster Singapore/Malaysia/Indonesia
LESCHACO

Image by Travel Man at Adobe Stock



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The Global Port of Call

Air and sea infrastructure upgrades

Singapore's role as a regional and international trading & logistics hub remains unparalleled, though sector growth has softened compared to 2024. In 2025, the transportation and storage sector grew by 3.3%, according to MTI data, down from 6.6% in 2024. Sea transport and cargo through Singapore's ports increased, as did air cargo and passengers passing through Changi Airport. Just a five-hour flight within reach of 60% of the global population, Singapore remains the ideal location for APAC and Southeast Asia-based and oriented companies across the chemical industry's value chain.

Manufacturers in Southeast Asia are constantly assessing their supply chains and manufacturing locations. Uprooting existing manufacturing sites is not easy, and it takes meticulous logistics work to establish a new chain of reliable Tier 1, 2 and 3 suppliers, as Atul Chandna, ASEAN supply chain and digital innovation leader at EY said: "The key question that companies need to answer is while they can move facilities around, how can they diversify their production networks and sourcing partner ecosystems?"

For traders and distributors, establishing new supply chains is part and parcel of the business, especially during downcycles. Gina Fyffe, CEO of Integra Petrochemicals, discussed how the company is succeeding in a challenging environment by tapping into its logistics knowledge, as she said, "Despite a challenging distribution market, we are performing well. Thanks to our supply chain expertise, we are combining the roles of trader and distributor, reducing leakage through the system."

Supply chain resilience is critical in an uncertain world, as is transparency, especially for export-oriented players across APAC meeting the demands of ever more scrutinous, sustainability-minded Western consumers. Chandna continued: "There is growing emphasis on improving visibility and risk management within supply chains. This trend is driven by global geopolitical tensions, changes in trade policies and the adoption of advanced technologies."

Elevated supply chain risks are now the new normal. The pandemic and multiple global conflicts have disrupted shipping in fundamental ways. Nevertheless, trade continues, and according to Akira Sasa, former CEO of MOL Chemical Tankers, MOL's shipping subsidiary headquartered in Singapore, chemical cargo demand recovered after the pandemic: "Feedstock flows and trade patterns from Russia and Europe have shifted significantly, altering some traditional chemical trade routes. In early 2024, the security crisis around the Red Sea and the Suez Canal led many shipowners, including chemical tanker operators, to reroute via the Cape of Good Hope. This increased voyage distances, fuel consumption and operating costs, and also tied up more tonnage in longer voyages, further tightening the supply–demand balance."

Chemical trading, distribution and logistics supply chains are deeply embedded in Singapore and will benefit from the significant infrastructure upgrades underway in the country. The Changi East development spans 1,080 hectares and includes a fifth terminal, a three-runway system, underground and aviation support facilities, and the new Changi East Industrial Zone. According to a McKinsey report on the development, Changi's T5 will add an additional capacity of 50 million new passengers annually. Cargo handling will receive a significant upgrade, with handling capacity planned to increase from 3 million t/y today to 5.4 million t/y.

Changi's expansion is encouraging logistics companies to deepen their presence in the strategic hub, complementing existing logistics gateways in larger regional markets within reach. Joachim Hanssen, CEO, Asia Pacific (APAC) for Rhenus Logistics, which is making investments across Southeast Asia, said: "We opened four strategic regional air gateways: a new facility in Singapore in 2025, our existing Kuala Lumpur gateway, and an expanded Bangkok operation, including a free zone within the airport. A new office in the Philippines, with an overall investment of US$20 million, supports air freight as well among its services."

Another logistics provider with deep expertise in chemical industry supply chains, Leschaco, is also making investments in Changi Airport. Air freight has become increasingly important for its Singapore operations, especially as the chemical industry continues its specialty chemicals pivot. Leschaco relocated and opened a new office at Changi Airport in 2025, citing Singapore's growing specialty chemical footprint, including fragrances and flavors. Lower-volume, higher-value cargo is the future of Singapore's chemical logistics.

Ocean freight has historically been the lifeblood of Singapore's economy, given its strategic location. For the chemical industry, a decline in chemical production in Europe means the direction of chemical freight is shifting. The European Chemical Industry Council released a report in January 2026 claiming that the rate of chemical plant closures in Europe has risen sixfold since 2022. Aaron Montgomery, CEO of Ouray Services, said: "The logistics flows of ISO tanks are changing. With less production taking place in Europe, we are seeing much more being loaded in Asia and staying regional or shipped into the European market."

Distribution and trading: Green credentials

Within the trading and distribution space, sustainability and traceability have become must-haves. In Asia, producers are hyper aware that sustainable credentials will be key to retain their market shares. Richard Bourne, senior vice president, Asia Pacific and Japan at EcoVadis, said: "On the supplier side, about 80% of rated companies are SMEs, and many suppliers increasingly treat sustainability as a competitive advantage. They understand that remaining as the world's production center requires proving transparency, responsibility and readiness."

Over 35,000 chemical companies worldwide have been rated by EcoVadis, including 300+ in Singapore. Scope 3 performance remains the biggest challenge; chemical companies score the lowest on 'Sustainable Procurement' according to Bourne, who added: "This represents the single largest leadership opportunity in the region: by managing upstream feedstock risks and Scope 3 data, Singaporean firms can gain a competitive advantage in global markets where sustainability is a non-negotiable differentiator."

The place of distributors and traders along the supply chain makes them ideal sustainability partners, whose credentials and focus on environmental, social and governance metrics can influence suppliers and customers on either end of the chain. The Southeast Asian distribution market is also booming, driven by regional cosmetic and beauty trends that prioritise health and longevity. Kok Wei Goh, general manager, performance materials, Malaysia and Singapore, at DKSH said that the two countries had delivered double digit growth for the company over the past five years.

M&A remains dynamic in Southeast Asia, and many distribution executives spoke of the existence of 'hidden gems' remaining in the region, which distributors are keen to identify. Consolidation is afoot globally. Huan Yong Chan, president, APAC for Brenntag Essentials, said: "The Asian chemical market is also undergoing consolidation, with significant acquisition activity across the industry, particularly among major international players."

IMCD, the Dutch distribution giant, has been active in M&A in APAC. Narendra Varde, president, APAC for IMCD, said: "In Korea, we acquired YCAM and Dong Yang FT to strengthen our position in beauty and personal care. In China, we acquired Daoqin to enhance our food and nutraceutical capabilities. In India, we acquired Trichem to become a strong API player, complementing our already strong position in excipients." ■

Integrity, Inclusion, and Resilience

by Gina Fyffe
CEO, **INTEGRA PETROCHEMICALS**

Singapore's chemical strategy: Thinking outside the box
Singapore has never shied away from thinking outside the box. The transformation of Jurong Island into a chemical hub is a great example of this. Singapore has always excelled at change, and its vision now is attracting the right type of specialty chemical companies into its evolving ecosystem.

Regulators have long been aware of the cost pressures and the global competition facing feedstock producers and traders. For large commodity players, Singapore is a small market but a huge trading hub. This historical situation was fortunately well understood by the government, which planned to develop these markets early, getting ahead of the curve. Singapore focuses on quality and differentiation, which will serve it well into the future.

As long as Singapore is faster or better than others at innovating, it will remain relevant not just regionally but on the global stage. It has all the right ingredients: a stable, well-educated workforce; language skills; economic heft; a strong legal system; and a mindset that prioritises agility, efficiency and intelligence. Singapore will find its niche to weather the storm. Companies across the sector must strive to do the same.

Diversity of approach
The chemical industry faced a challenging 2025, and 2026 is shaping up to be no different. Trouble began with an ongoing oversupply of commodity material in the market, since when, a whirlwind of economic and political crises is making markets more challenging than ever, flipping oversupply to limited supplies, and limiting visibility on what happens next.

Companies thus need resilience, integrity, inclusion, the ability to work as a team and a deep understanding of the markets to succeed. Diversity of approach is a strength, not a weakness. We set out 37 years ago to build Integra based on a strong customer focus, repeat business and responsible growth, with intentional timing. In our market, a company's greatest asset is its local yet global reach; we manage to maintain strong presences across key trading hubs worldwide, and our offices work closely together. Our philosophy is rooted in practical action, whether it is using technology to make supply chains more transparent, embedding sustainability into decisions, or championing the need to recruit, train, develop and retain the best people. It all plays its part.

Our workforce has always been diverse and a reflection of the places we work in. Globally, we are a little more than 50% women, from entry-level to board roles. Age differences across the company span 50 years, we speak more than 25 different languages and are ethnically highly diverse. By embracing this diversity of approach, companies avoid "same speak" and spur ideas and innovation.

Diversification in the face of adversity: Chemical distribution in new markets
Adverse conditions require innovative thinking. One solution is to expand strategically further into the supply chain and distribution markets, focusing on Europe's rapidly developing chemical hubs. Middle Eastern and Latin American markets have had to position themselves differently, moving away from the model of exporting cheap feedstock in an oversupplied environment. Hence, the demand for distribution of chemicals continues to increase there as well. Many companies in these markets seek niche chemical products but have yet to build the scale or infrastructure for bulk deliveries. They lack the storage, demand or logistical capabilities.

That is where experienced traders can step in. Thanks to our supply chain expertise, we are combining the roles of trader and distributor, reducing leakage through the system. Our integrated trading and distribution model ensures resilient supply chains and optimized delivery across global markets.

As legacy plants shut down and downstream feedstock supply tightens and changes, new growth markets inevitably appear. Considering this, companies should devote significant time and energy to flexible sourcing strategies and differentiate themselves with superior service and the ability to source competitively priced materials through diverse networks, optimising logistics to ensure reliability, for example, by sourcing ISO tanks closer to the target customer.

When markets are very volatile and unpredictable, as they are now, experience, innovation and resilience are key to not only surviving but thriving. A trader's main role is to provide a seamless, uncomplicated and under-the-radar service that avoids disruption and allows clients to continue to operate optimally.

About: Integra Petrochemicals, headquartered in Singapore, is one of the oldest petrochemical trading companies and has grown over the last 37 years to become a global player in the petrochemical industry. With a strong emphasis on global reach and local markets, Integra operates across multiple continents, serving a diverse range of related industries, as well as the petrochemical majors themselves.

Akira Sasa

Former CEO
MOL CHEMICAL TANKERS

How do you view recent market conditions in the chemical tanker sector?
From around 2009 until approximately 2020, market conditions were very challenging, with low freight rates and pressure on profitability. Over the last several years, the situation has improved. Fleet growth has been more moderate, and scrapping has removed older vessels to some extent, while demand for chemical cargo movements has recovered. Over the past three to five years, we have experienced a much healthier balance between tonnage supply and cargo demand, with demand slightly exceeding supply. As a result, utilisation has been higher, and the market has been tighter and more stable.

What impact have recent geopolitical and trade disruptions had?
Feedstock flows and trade patterns from Russia and Europe have shifted significantly, altering some traditional chemical trade routes. In early 2024, the security crisis around the Red Sea and the Suez Canal led many shipowners, including chemical tanker operators, to reroute via the Cape of Good Hope. At the same time, higher energy costs in Europe have led to the closure or curtailment of some chemical plants, gradually shifting production locations and flows. We are in a period of transition, with many uncertainties.

How do you see Singapore's role in the transition to alternative marine fuels?
Singapore is one of the world's most critical bunkering hubs, so it naturally plays a leading role in the introduction of new marine fuels. The Singapore government and port authorities actively support pilot projects and industry collaborations for alternative fuels such as ammonia and methanol. Many stakeholders in the shipping value chain are working together here to build the necessary infrastructure and regulatory frameworks.

We already operate several MGO mono-fuel and LNG dual-fuel vessels, and in the coming years, we will operate six ammonia dual-fuel new builds under time charter agreements: two ammonia dual-fuel and four ammonia-ready vessels. ■

Sudheer Vijapurapu

Managing Director
NEW ASIA SHIPBROKERS

Can you discuss the latest updates from New Asia Shipbrokers and the trends that stand out?
This year has been acceptable given the challenging environment. Biofuels remain a significant share of our portfolio. We continue to fix spot voyages and time charters for bio cargoes. The chemicals sector has been tougher this year due to weaker demand and a more cautious investment stance by producers on plant builds and longer-term procurement. Sanctions placed on Indian receivers towards the latter part of the year also did not help. We still fix commodity chemicals on both contract and spot, but volumes were below those of prior years. We remain stable because we have diversified our activities into bio and shipping projects alongside chemicals.

What route dynamics are you seeing in Asia?
Southeast Asia to North Asia used to be the reliable front-haul for specialized tankers, today the movements on this route are a fraction of what they were. Roughly 90% of that business is tied up on contract of affreightments, and spot opportunities are scarce. Owners are reluctant to open ships in Southeast Asia unless they have a firm northbound cargo. Activity out of China is now considered the front haul, with significant volumes moving down to Southeast Asia, to India, and westbound to Europe. Rates on the southbound and westbound legs have held up, but positioning ships back to the Far East is difficult due to the lack of northbound spots.

How are you positioning for decarbonization across the shipping industry?
We at NAS have tools to quantify costs and choices for clients: the cost of decarbonizing, pathways to compliance, and we can introduce credible partners who can execute projects. It is our passion to find ways to assist clients on positive transitions because informed clients make better long-term decisions. ■

Aaron Montgomery

President and CEO
OURAY

> *Nobody wants their products to cost more. But as they look more local and invest more locally, it could be a long-term benefit for the market.*

Can you update us on OURAY's activities in the past two years?
Over the past two years, OURAY has continued expanding its logistics services business, while emergency response has remained at the core of our operations. During this period, we also strengthened our regional footprint and enhanced our transloading capabilities — particularly in rail-to-ISO and rail-to-road transfers for bulk liquid chemicals and gases.

From a market standpoint, the petrochemical sector has experienced notable challenges. Overproduction and high energy costs have pressured margins, affecting much of the industry. Even so, demand has stayed robust, and specialty chemicals (one of OURAY's key focus areas) have shown greater stability compared to traditional petrochemicals. In the US market, activity has remained elevated, especially in recent months.

Europe has been the most exposed region, primarily due to high energy costs and stringent regulatory requirements. In contrast, markets like China face far lower regulatory burdens, and many companies benefit from varying forms of state support. Meanwhile, the Middle East and the US continue to benefit from access to low-cost raw materials. For OURAY specifically, the US market experienced a slowdown in Q2 and Q3 of 2025, but activity surged again in Q4, resulting in an extremely busy end to the year.

Why is Southeast Asia such a crucial market for OURAY?
Southeast Asia is an exciting market for us and the wider industry. Yes, there is overproduction of petrochemicals, primarily from China, but China aims to be self-sufficient. That can help Southeast Asia and Singapore, as recipients of those products and the downstream production and manufacturing that results from them.

Trade disruptions might have profound consequences. In the long term, businesses in the Asia-Pacific region will be much more skeptical about investing in long-term partnerships in the US, especially if the ability to impose long-term tariffs persists. It has taken a long time to build those trade and business relationships, but only a short time to cause concern over their long-term viability. In that case, they may start to look more inward, whether that means within the country, within Southeast Asia, Asia, or globally. Nobody wants their products to cost more. But as they look more local and invest more locally, it could be a long-term benefit for the market.

Are you looking to capitalize on increasing Southeast Asian intra-regional tank container flows?
The ISO tank container trade has also been subject to oversupply. There have been several companies buying tank containers and trying to enter that market by undercutting the competition. That was primarily private equity-driven, as many companies viewed that business from a balance-sheet perspective, wanting to own those "30-year assets". As a result, we are also seeing consolidation and financial corrections in this space.

The logistics flows of ISO tanks are changing. With less production taking place in Europe, we are seeing much more being loaded in Asia and staying regional or shipped into the European market. In addition, the ISO tank business is easier to operate as a turnkey solution than other methods of transporting bulk liquid or gas chemicals in Asia, primarily because of the geographical makeup of the region as a selection of peninsulas and archipelagos.

Is OURAY actively expanding its footprint in Southeast Asia?
With a strategic presence in Singapore, we are well-positioned to support regional growth and meet rising demand. Most of our customers in this space are global players headquartered in the US or Europe, and we are focused on deepening awareness of OURAY's capabilities within the Asia-Pacific market. One of our priorities is to broaden local knowledge of our services and drive targeted growth among Southeast Asian and Chinese partners.

Do you want to share your company's priorities and growth expectations for this coming year?
We are really excited about our location in Singapore, and growth in Southeast Asia remains strong. One sector with considerable potential for us is the electronics chemicals market. We foresee significant growth in that market as the semiconductor industry expands outside Taiwan as the industry works to diversify the global supply chain, providing that capital in Southeast Asia. In the long term, we believe this shift will drive Singapore—and the region—toward substantial growth. ■

Carsten Drazewski

Managing Director, Singapore, Malaysia and Indonesia
LESCHACO

Could you introduce Leschaco's new regional cluster?
This cluster approach is part of a broader global structural change at Leschaco, designed to enhance decision-making agility and responsiveness. In this case, Singapore was chosen as the cluster head. While staffing varies across the three countries, with Indonesia having the largest headcount, followed by Singapore and Malaysia, Singapore is centrally located due to its role as a gateway hub.

From a cluster perspective, Singapore is important for its logistics ecosystem, including its role as an LCL gateway, and for the broader trajectory of its infrastructure. The cluster lens also expands the focus to areas such as South Malaysia and Batam as feeder and opportunity zones, especially as cargo streams and industrial activity evolve around Singapore's hub function.

How did 2025 look from Leschaco's perspective in Singapore and regionally?
2025 was challenging, competitive, and volatile, with significant cost pressures across the customer base and the wider industry. In 2025, we focused on air freight, including relocating and opening an office at Changi Airport to better meet operational needs. Air freight is not traditionally common for base chemicals and polymers, but Singapore's growing specialty chemical footprint, including fragrances and flavors, supports demand in segments where speed and handling requirements differ. We also observe a broader market shift, with some customers and product profiles relocating out of Singapore for cost and footprint reasons, while other verticals expand within Singapore. We aim to remain aligned with both dynamics.

How are your customers approaching sustainability metrics, and what is Leschaco doing in response?
We are seeing increasing customer demand for per-shipment, monthly, and annual carbon dioxide emissions reporting, and we provide those calculations and visibility. Customers also request alternative fuel options in quotations, whether for air freight or ocean freight bunker choices. While cost pressure influences purchasing decisions, transparency around sustainability has become a non-negotiable expectation in customer dialogues. ■

Joachim Hanssen

CEO, Asia Pacific (APAC)
RHENUS LOGISTICS

Can you summarise Rhenus Logistics' developments in APAC in the past 18 months?
We opened four strategic regional air gateways: a new facility in Singapore in 2025, our existing Kuala Lumpur gateway, an expanded Bangkok operation including a free zone within the airport, and a new office in the Philippines, with an overall investment of US$20 million, that supports air freight as well among its services.

How are sector trends evolving in your core industries, including chemicals?
Our principal focus areas in air and ocean logistics are automotive, high-tech, dangerous goods and chemicals, life sciences and healthcare. We see clear growth in the chemical supply chain within APAC, as the chemical supply chain demand is expected to grow at a CAGR in the mid-single digits in this region in the coming years. Our organisation supports this segment with certified staff across all relevant countries and a strong compliance structure based in Singapore, with compliance managers throughout the region. The shift in foreign investment patterns in APAC also drives new plants and production facilities in the area, which we support through project logistics, warehousing, and ongoing supply chain services.

In the automotive industry, the rapid rise of Chinese EV companies has completely reshaped the sector. This shift requires new relationships, new cultural skills, and different technical expertise, especially as batteries become a distinct strategic component.

How are sustainability requirements and digital tools influencing your operations?
We are excited to be awarded an EcoVadis Platinum Medal and are committed to becoming carbon-neutral in Scope 1 and Scope 2 by 2045. We have invested in electric vehicles for last-mile services and milk runs. We continue to expand the use of renewable energy, including solar installations, and to use renewable energy certificates where a direct transition is not possible. ■

Marc Duchene

CEO, Asia Pacific
BARENTZ

How did Barentz perform in 2025?
In 2025, APAC delivered resilient growth, driven by a strong project pipeline and new business development. At the same time, the region faced pressure on its established market share from price and volume competition. Dynamics differ by market. China saw more intense competition for market share across life science segments, including human nutrition and pharmaceuticals. Southeast Asia showed strong demand and growth for specialty ingredients, including nutritional ingredients and flavor systems, excipients, APIs with better conditions than more commoditized categories, reinforcing the value of maintaining an attractive, innovation-oriented portfolio rather than remaining in product cycles that become commoditized.

How do market dynamics shape your acquisition and partnership strategy?
After a major acquisition in India in 2024, the focus was on integrating into a unified India organization, thereby strengthening Barentz's position as a partner of choice in pharmaceuticals, personal care, and human nutrition. In 2025, we made a significant investment in China by acquiring a pharmaceutical distribution platform to strengthen the portfolio.

What role does Singapore play for Barentz as a regional hub?
Singapore provides access to technical expertise, regional commercial talent, and support capabilities, including regulatory and financial expertise. At the same time, we remain selective and lean in Singapore, with distribution handled by local teams. Many technical and application functions are best located locally because product development and customer needs vary significantly by country, even within the same segment.

How important is sustainability for Barentz?
Our commitment to responsible business practices has been recognised with a gold rating from EcoVadis, placing us among the top 5% of companies assessed globally. We track emissions across scopes and use data to optimize our share of the supply chain impact, including the movement of products into Asia and their local distribution. ■

Mohammed Azougagh

General Manager, Distribution
TRICON ENERGY

How did Tricon Energy perform in 2025?
We structure our business around four main product pillars: chemicals, polymers, raw materials, and sustainable products. In 2025, we achieved our highest volume growth to date, reaching 23.3 million t — an increase of 2.4 million t compared to 2024. In polymers specifically, we expanded in every region. Our logistics capabilities were a key strength and a major contributor to overall performance.

In polymers, what macro trends are driving change and contributing to volume growth?
Overcapacity remains a key structural trend in the market and is likely to persist. As global prices adjusted downward, Asia became relatively more attractive. From a trading and distribution standpoint, abundant supply creates opportunities, but it also requires careful and disciplined management of supplier relationships. Demand may still be healthy, yet supply conditions increasingly influence pricing dynamics and overall trade flows.

What role does sustainability play for Tricon Energy?
Tricon is rated Platinum by EcoVadis for the third consecutive year, placing us among the top 1% of assessed companies globally. We have maintained carbon neutrality for our Scope 1 and Scope 2 emissions, including the use of removal offsets and renewable energy certificates, for four consecutive years.

We continue to strengthen transparency across our value chain. In 2024, we expanded our collaboration with CarbonChain to improve product carbon footprint (PCF) reporting. As a result, we are now able to provide transaction-level PCF data for most sales orders, giving customers greater visibility into the carbon intensity of the products they purchase.

We are also working with industry partners, including Together for Sustainability and the Smart Freight Centre, to improve data quality and reduce emissions across logistics and supply chains.

From a governance and social perspective, our focus remains on strong risk management, responsible sourcing, compliance, and human rights across a global supply chain spanning more than 120 countries. ■

Knud Mohr

CEO, APAC
CALDIC

How does Singapore's shift toward specialty and high-value chemicals affect distributors?
Singapore's emphasis on specialty and higher-value chemical activities supports Caldic, as the city-state is also a logistics and supply chain hub. We use Singapore as a hub-and-spoke platform to consolidate shipments and distribute them to other countries. This is especially important in specialty distribution where volumes are often smaller, products are more specialized, and shipments are frequently not full container loads.

What does the EcoVadis Platinum recognition mean for Caldic and its customers?
Caldic was awarded the EcoVadis Platinum rating globally, reflecting a deliberate ESG strategy and strong organizational execution. We chose to certify each country and legal entity individually. Through that work, APAC achieved Platinum in 9 of 15 countries in 2025.

Many customers in this region export to Europe, which increases the importance of sustainability data and compliance. We help customers replace certain chemicals with sustainable alternatives, providing data support and offering guidance on raw materials and substitution choices. Sustainability is an emerging driver of innovation and growth. ■

Kok Wei Goh

General Manager, Performance Materials, Malaysia and Singapore
DKSH

Can you summarize DKSH's recent performance in Singapore and Malaysia?
DKSH has continued to strengthen its presence across Asia Pacific through disciplined acquisitions and a focus on tailored solutions for partners in life sciences and industrial specialties. In Singapore, we expanded our capability in specialty chemicals distribution by leveraging strong local logistics partners, while drawing on technical service infrastructure and laboratories based in Malaysia.

We also broadened our pharmaceutical and nutraceutical portfolio through the 2024 acquisition of Elite Organic Sdn. Bhd., which supports our move into new life sciences adjacencies. A key development has been upgrading our Innovation Centres to accelerate product development, application testing, prototyping, and technical support.

What demand trends are you seeing by end market?
In Food and Beverage Ingredients, the demand for functional ingredients and clean-label solutions is rising. Consumers are looking for foods that deliver specific benefits, and brand owners want evidence-based claims and support for compliance. In Personal Care Ingredients demand is particularly high for innovative skin and hair care products. ■

Huan Yong Chan

President, APAC
BRENNTAG ESSENTIALS

How is Brenntag approaching sustainability?
Our focus goes beyond product and carbon footprint to include safety, diversity and inclusion and broader ESG commitments. We are proud that Brenntag received an EcoVadis Gold rating in 2025. In terms of emissions, we are committed to reduce absolute Scope 1 and 2 greenhouse gas emissions by 90% by 2045, from a 2023 base year. To support this, we are increasing the use of renewable energy, converting suitable sites to solar power and electrifying our fleet where feasible.

On the product side, we work with suppliers to offer greener products and more sustainable alternatives, but adoption in Asia Pacific remains slower than in regions such as Europe, where legislation is stronger.

What is your outlook for the coming year?
I expect 2026 to remain challenging, with a generally subdued growth outlook and continued pressure on margins. Oversupply is likely to persist, and while conditions may begin to shift from 2027 onward, visibility remains limited. ■

TECHNOLOGY AND INNOVATION

> *A common issue is that companies want to provide data but lack internal systems to generate it, so they struggle to respond beyond intent.*

Richard Bourne
Senior Vice President Asia Pacific Japan
ECOVADIS

Image courtesy of Siemens

Image courtesy of Rockwell Automation

AI Deals, and Singapore's Play

Attracting automation and AI investments to Singapore

Digital twins, automation and AI technologies are slowly revolutionising chemical industry processes and supply chains. Singapore wants to be at the centre, not only for its energy & chemicals cluster, but to foster data centre, semiconductor, and AI development in the country. The government's recent Research, Innovation and Enterprise (RIE) 2030 plan has devoted over S$37 billion to R&D spending over the next five years. Fostering a competitive semiconductor ecosystem is a top priority. As it stands, the semiconductor industry in Singapore contributes 6% to GDP and employs over 35,000 people.

The National University of Singapore (NUS) and Nanyang Technological University (NTU), two of Singapore's flagship tertiary education institutions, are collaborating on the world's first tropical data centre testbed. In addition, Jurong Island, Singapore's energy & chemicals hub, will host Singapore's largest green data centre park, the JTC announced in October 2025, and allocate 10% of the island's land to the development of green energies and fuels, complementing the data centre development.

Singapore's carbon tax, cost pressures, and a challenging commercial environment for chemical, petrochemical, and supply chain players are also driving the rapid adoption of new technologies in operations. Speaking of these pressures, Chay Kin Wah, president and CEO of Yokogawa Engineering Asia, said that this new phase of sustainable industrial development in Singapore is translating into lower carbon footprint requirements for new investment decisions. He added, "Customers are increasingly looking to leverage automation and digital solutions to do more with limited resources, reduce operational inefficiencies, and strengthen decision-making. This is where it is important to get a trusted and reliable partner who can combine deep OT heritage with IT, cloud, and AI innovation to support sustainable, long-term growth."

Naturally, this also changes the automation and digital requirements companies have. The challenge for technology providers today is to engage customers in new solutions despite the current market downturn and tighter operating budgets. Kin Wah added that in times of a downturn, customers tend to delay non-critical spending, postponing upgrades that are not directly safety- or reliability-related. Nevertheless, new opportunities are arising for technology providers due to ongoing manufacturing relocations; Kin Wah continued, "When customers redistribute their manufacturing footprint, we can support them wherever they go by providing continuity of technical capability, local execution and future-proofing their operations. That combination of global reach and local delivery becomes especially valuable when customers are trying to move quickly while maintaining operational standards."

The impact of this downturn is being felt hardest by the PCR industry, globally and in Southeast Asia. Topsoe's managing director in Southeast Asia, Amrul Atiqi, said: "Clients are under pressure on margins, and that indirectly impacts us. They tighten budgets and adjust decisions. One clear impact is the catalyst cycle length. We sell catalysts as a recurring business, and clients evaluate whether to change catalysts every 3, 4, or 6 years. In tighter conditions, they try to prolong the cycle."

Given the PCR sector's historic downturn, technology suppliers are tweaking commercial formulas to adapt and survive. These include Lummus Technology, a global leader in developing, licensing and implementing process technologies. In 2025, Lummus acquired Napcon, Neste's proprietary digital technology business, strengthening its AI and advanced process control capabilities. Leon de Bruyn, global CEO for Lummus Technology, said: "A major priority this year is implementing our AI roadmap, which will elevate how we collaborate across our global organization and how we engage with partners and customers. Process and digital technologies are getting intertwined."

Automation

Automation and AI solutions are becoming standard across the PCR and chemical industries, though adoption rates and budgets vary. Longer investment cycles than in other sectors and the life cycle of manufacturing plants limit the speed of adoption. Southeast Asian companies are front and center,

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Kin Wah Chay

Regional Chief Executive for ASEAN, Pacific and China, and President and CEO

YOKOGAWA ENGINEERING ASIA

> *Singapore is entering a new phase of industrial development, in which investment decisions increasingly require lower carbon footprints. That changes the nature of projects and the automation and digital requirements.*

What is your perspective of the Asian chemicals industry today?

We serve across a wide range of industries as we expand our business, including energy and sustainability, materials and life-related sectors. In some markets, we benefited from continued investment in natural resource-linked activity. In other segments, particularly chemicals, the environment was more challenging, as customers faced margin pressure and hesitated to expand.

Macro uncertainty does not reduce demand for automation, it sharpens it, pushing customers toward technologies that deliver resilience, efficiency and measurable returns. As customers look to do more with less, optimising operations, reducing inefficiencies and enhancing resilience, the need for a trusted and reliable partner becomes ever more critical. This is where Yokogawa brings distinct value with our strong OT heritage, complemented by our IT expertise in digital, cloud and AI driven innovation.

Where is Yokogawa seeing growth in demand?

Manufacturing relocations across Southeast Asia create opportunities for us. We operate with our own in-house engineers and teams across the region rather than relying primarily on third-party vendors. When customers redistribute their manufacturing footprint, we support them wherever they go by providing continuity of technical capability and local execution to future proof their operations.

As demand accelerates in areas of digitalisation, decarbonisation and the transition toward autonomous operations, we are seeing growing interest in solutions that deliver real, measurable outcomes. Customers are increasingly adopting our carbon management solutions, AI and ML driven automation solutions, such as Factorial Kernel Dynamic Policy Programming (FKDPP), to achieve safer, more efficient, and increasingly self optimising operations. Such opportunities are also further strengthened through strategic partnerships and targeted acquisitions, expanding our portfolio.

How are changes in Singapore's chemical industry creating new business opportunities?

Singapore is entering a new phase of industrial development, in which investment decisions increasingly require lower carbon footprints. That changes the nature of projects and the automation and digital requirements. Beyond traditional automation, customers are increasingly seeking capabilities such as advanced energy management, performance optimisation, and lower emissions technologies. This creates strong opportunities for Yokogawa to support customers with solutions that improve energy efficiency, reduce emissions and enable more autonomous operations.

Our launch of the Sustainability Incubation Hub (SIH) in Singapore aims to accelerate the development of new technologies and foster research collaborations with customers and partners, particularly in the areas of climate solutions and decarbonisation.

How is Yokogawa applying AI in a way that delivers practical value for customers?

AI is a core enabler in Yokogawa's customer solutions, helping customers achieve safer, more efficient autonomous operations. We apply AI pragmatically, combining our domain expertise in OT and IT, such as FKDPP, a reinforcement-learning–based control solution, to deliver real operational and sustainability outcomes. This includes improving equipment reliability, reducing downtime, optimising maintenance decisions, and reducing inefficiencies that drive waste and unnecessary energy consumption.

No single company can build every capability internally at the speed the market demands. Hence, a key part of our strategy has been to leverage partnerships and selective acquisitions to quickly fill capability gaps and respond to customer requirements, especially in areas of AI-enabled performance solutions and renewable energy management. In parallel, Yokogawa works with customers, partners and research institutions to develop and test AI based solutions in operational settings which enable reliable applications and scaling within industrial environments.

What role does Yokogawa aspire to play in APAC over the next year?

The future we are preparing for is one where manufacturing customers increasingly need integrated support that combines deep OT understanding with advanced digital and IT capabilities. This is no longer just about supplying systems; it is about advisory, problem-solving and driving operational improvement grounded in real plant conditions.

We will continue to strengthen our digital capabilities, scale carbon management and AI enabled solutions, and deepen co-innovation with customers and partners. We aim to enable more resilient, efficient and sustainable industrial operations across APAC, supporting the next phase of manufacturing transformation with confidence and trust. ■

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according to Marcelo Tarkieltaub, regional director in Southeast Asia for Rockwell Automation, who said: “Our latest report found that over 94% of companies surveyed are planning to invest in AI automation to improve productivity, reduce pressure, enhance quality, enhance agility, and strengthen supply chain resilience. This is particularly true in Southeast Asia, where the adoption of AI tools can help companies advance their sustainability agendas.”

These solutions can also relieve labor pressures for companies and entice newer generations into the industry, according to Tarkieltaub. Given Singapore’s pivot towards fine and specialty chemicals, technology providers are also ramping up their focus on this sector to capitalise on the pivot. Christian Pust, Siemens’ global sub-industry lead for the chemical industry, said: “With integrated capabilities such as connected recipe management, modular and adaptive automation, real time transparency, and data driven optimization, manufacturers gain significant improvements in visibility, quality, flexibility and predictive intelligence across the entire value chain.”

Siemens’ reference projects delivered tangible outcomes, including up to 15% higher output through paperless operations, 30% faster recipe transfer from R&D to production, full traceability of materials/specifications, about 30% fewer manual data entries, and around 10% energy-cost reduction through ISO 50001 programs.

According to Prust, the principal challenge faced by specialty chemical companies is their reliance on operating models built on disconnected systems and manual handovers. Pust continued: “The way forward is to replace fragmented processes with a closed loop, data driven production model. A comprehensive digital twin spanning material and process design, engineering, operations and even in field performance creates a continuous digital thread across the value chain.”

Li-San Chan
Head of Semiconductor Materials
HERAEUS ELECTRONICS

> *A key trend is the adoption of AI for computational chemistry to accelerate material formulation and development. Collaboration between suppliers, customers, and research institutions is becoming increasingly important to accelerate innovation while maintaining reliability and quality standards.*

With sustainability and carbon reduction on the agenda, Siemens is collaborating with Ecolab on digital twins technology. Diego Trujillo, VP & GM for downstream at Ecolab, said: “On the digital side, Climate Intelligence is a key service: a digital twin developed with Siemens that enables operators to model utility changes before adjusting setpoints or valves, improving safety and outcomes. We will continue rolling out direct-to-chip liquid-cooling monitoring for data centers via the 3D TRASAR platform and expand advanced recycling and reuse solutions under TWM.”

Anchoring AI

In the first few months of 2026, Singapore’s tech ecosystem has attracted ever deeper AI investments, further anchoring the industry within the city-state’s limits, and cementing the country’s role as an AI hub in the region, and globally. In April 2026, A*STAR, Singapore’s leading innovation agency, signed an MOU with Microsoft to explore agentic and deployable solutions for the manufacturing sector.

The announcement followed an earlier investment by Google in February, when the company deepened its R&D footprint in the country and committed to significant investments in human capital across software engineering capabilities, with the aim of contributing to building an ‘inclusive and responsible’ AI economy in Singapore, according to its press release. As AI investments continue to flow into the Lion City, specialty chemicals companies further upstream will continue to benefit, and Singapore’s manufacturing base will be transformed. ■

AI Is Everywhere.

So why aren’t chemicals companies seeing the gains?

by Thomas Luedi
Senior Partner, **BAIN & COMPANY**

Artificial intelligence (AI) is the trending topic across sectors, and chemicals is no exception. The benefits and potential of this technology are discussed extensively, but what is harder to find is real results: substantiated movement in productivity and margin.

The challenge is that technology develops faster than organizations can absorb it. Value is generated only after process redesign, training and governance turn AI outputs into real decisions.

The chemicals sector in Asia-Pacific should have an advantage. Many plants already have strong data foundations. The missing ingredient is turning model output into trusted actions within the context of hard-wired operational processes and commercial routines.

What often goes wrong

1. Failure to define the problem first: Models are built before the team agrees on the goal, constraints and tradeoffs.
2. Trust gap: People cannot identify when the model gets it wrong or who is accountable if it fails.
3. Process misalignment: Recommendations are not aligned to the cadence, approvals and tools where work happens.
4. Getting stuck in pilot mode: Lots of proofs of concept, some of which succeed; but there is no repeatable engine to industrialize and scale.
5. Job fears: Frontline experts worry AI is replacing human judgment and are not enthusiastic about adoption.

Five moves to value creation

1. Diagnose first, with the people who run the process. Define the objective, constraints, and boundaries before building models.
2. Be specific about the decision loop, articulating who decides, how often, what triggers action, and how overrides are handled.
3. Encourage trust-building through auditable and visible workflows. Be transparent about results and open to discussing error modes.
4. Document boundaries and accountability. In safety-critical environments, adhere to advisory recommendations gated by deterministic operating envelopes and approval tiers. Identify owners for drift, change control, and performance.
5. Build capability and adoption where the work happens. Pair domain leaders with product and analytics teams. Embed skills in operations, maintenance and commercial teams. Use supervisors and frontline champions to make usage a habit, and track adoption and outcomes like any KPI.

These moves hinge on a parallel approach: a cross-functional team redesigns a few processes end-to-end, while line leadership mobilizes adoption, so the new routines are implemented across shifts and sites.

Case Study 1: A pricing engine that did not land until decision rights changed

A chemicals producer in Asia-Pacific built an AI-driven pricing engine. Back-tests suggested a 1%–2% topline uplift, but seasoned sales teams dismissed it: “We already price as well as anyone. The model doesn’t know my customer.” The model was used selectively and irregularly.

The turning point in value came when leadership created an independent pricing desk, led by a former salesperson with analytics fluency. For three months, the company ran a shadow mode: sales teams and the AI tool issued separate recommendations, and leadership tested them in controlled customer sandboxes with guardrails. Then there was a joint meeting where the results were compared side-by-side, with senior executives making the final judgement call. The tool remained in an advisory function, and sales retained its voice. Crucially, however, trust was built because performance was proven in the field.

Case Study 2: Setpoint optimization with agents, designed around safety and workload

A chemicals plant explored AI agents for real-time setpoint optimization - monitoring thousands of parameters across columns, rotating equipment, and heat exchangers, then recommending adjustments to improve stability, energy and yield. Three barriers stood out: safety-critical assets, unclear accountability, and overloaded operators.

Successful deployments treat human factors as design constraints. They start with a diagnostic led by process engineers (often with operators) to align on what the agents optimize and what safeguards are non-negotiable.

The process engineer becomes the main interface, screening recommendations and deciding when a secondary human check is needed.

Within the system, checks-and-balances catch bad inputs and brittle reasoning, and recommendations are gated by deterministic operating envelopes. A three-to-four-month shadow period helps enforce discipline, while engineers run their own RCA/analysis and compare outcomes to the agent. The scope is expanded only after the proof, alongside audit trails and drift monitoring.

Conclusion

Effective leaders invest in getting diagnostics, decision loops and boundaries right; they build capability and engender trust down the line, then mobilize adoption. This way, the new way of working becomes routine. Break out of pilot purgatory, and AI stops being just something that shows up in board decks and slides, and starts showing up in yield, reliability, energy, and margin. ■

Ubolrat Wiwattanakul

Vice President,
Southeast Asia
LUMMUS TECHNOLOGY

> *In Southeast Asia, Singapore remains the benchmark thanks to faster decision-making, transparent carbon pricing, and continued investment in efficiency and flexibility projects even in a challenging market.*

Can you provide updates on Lummus Technology's presence in Southeast Asia?
Today, Lummus is a leading provider of process technologies and value-driven energy solutions. Recently, we have focused on expanding supply, services and new technologies to better align with how customers buy and operate. In Southeast Asia, we are prioritizing actions to deliver quick cash flow gains, improve yields and reduce utilities for our customers. This means revamps, removing process bottlenecks, improving reliability and leveraging AI and digitalization to offset project delays and keep customers competitive.

Are bio-based routes and bio-feedstocks gaining momentum in Southeast Asia?
Yes, and ethanol is driving this momentum in the region. We are seeing increasing interest in ethanol-based products from not only petrochemical producers but also agricultural producers. Both are interested in our proven ethanol-to-ethylene and ethanol-to-jet technologies because of local feedstock concerns and market volatility of ethane, propane and naphtha. India's program has been a reference point, and inbound requests for ethanol-to-ethylene across ASEAN have increased markedly compared to a year ago.

Can you give a snapshot of the refining and petrochemicals situation?
In Southeast Asia, Singapore remains the benchmark thanks to faster decision-making, transparent carbon pricing, and continued investment in efficiency and flexibility projects even in a challenging market. We have supported upgrades and see new bio-refining initiatives emerging through partnerships.

Several NOC-led markets like Indonesia have paused large-scale programs due to funding or scope constraints, prompting owners to consider smaller, modular steps. In Vietnam and Thailand, we are focused on improving unit performance, reliability and sulfur management while preparing for deeper refinery-to-chemicals integration to enhance long-term value.

You mentioned additions to the technology portfolio, especially in circularity and low-carbon. What does that mean for customers in practice?
On sustainability routes, we now offer ethanol-to-ethylene, ethanol-to-jet, bio-butenes, bio-aromatics building blocks, and pyrolysis oil upgrading. On low-carbon routes, we embed emissions-reducing options into both new designs and retrofit packages. Customers now evaluate technology selections with carbon intensity as a formal line in the net present value (NPV[MB1.1]), so we arrive at quantified reductions in scope one and scope two, along with fuel, steam and flare minimization. Finally, we show how those gains coexist with capacity and reliability.

How strong is the regulatory push on decarbonization in Southeast Asia?
It is a blend, with Singapore clearly policy-led through carbon taxes, which make business cases crisper and accelerate action. In other markets, the intent is intact, but capital budgets have been tight. Many companies are gathering data, commissioning studies, and staging work into smaller steps.

What is Lummus doing on digital, AI, and operator enablement to support this services push?
As we aggressively expand our process technology portfolio, we are also aggressively expanding our digital capabilities. For example, in 2025 Lummus acquired Napcon, Neste's proprietary digital technology business. This acquisition strengthens our AI and advanced process control capabilities, better positioning Lummus to help customers improve operational safety, efficiency, asset performance and sustainability.

Lummus also offers digital simulations and training and houses digital centers of excellence in the US and India. These services offer customers hands-on opportunities to simulate plant operation, enabling operational teams to run the plant in a safer, more productive way, leading to better performance, higher efficiency and less waste.

Central to all of our digital capabilities is Lummus Digital, a joint venture between Lummus Technology and TCG Digital. Lummus Digital offers a hybrid solution that merges decades of process engineering experience with modern AI and data science.

Looking ahead 12 months, what are your priorities for Southeast Asia?
Lummus intends to keep the momentum, bring something genuinely new, and make the numbers work in today's environment.

To do this, first, we will expand feed flexibility, with a specific push to convert local ethanol into higher-value products and bring ethanol-to-ethylene and ethanol-to-jet to final investment decisions. Second, grow catalysts through Chevron Lummus Global in hydrocracking, renewables, and lube base oil, paired with revamp and operating support to capture measurable unit economics. Third, scale services and proprietary equipment with disciplined execution, delivering energy and yield projects that stand on their own while mapping each new technology to specific customers for practical adoption. ■

Marcelo Tarkieltaub

Regional Director,
Southeast Asia
ROCKWELL AUTOMATION

Can you provide an overview of industry shifts in the past 18 months?
From macroeconomics to geopolitics and tariffs, it's been dynamic and has had a significant impact. In the manufacturing landscape, companies are trying to understand, what does that mean for me? From a technology standpoint, it has been a period of significant change, with new technologies emerging across segments, including manufacturing.

What are the key challenges in Singapore driving companies to adopt automation solutions?
Singapore benefits from enormous talent, technology, and logistics advantages. At the same time, there are significant constraints on talent due to generational shifts. Sustainable solutions are crucial in Singapore, given its small size and high energy costs. Talent acquisition is an ongoing challenge due to the country's small population. We want to maintain the high standards passed down by previous generations. We need to leverage digital technologies to enable the new workforce to work in the chemical sector, making it a more attractive workplace for a younger, highly educated generation that generally shuns manufacturing. ■

Jonas Berge

Senior Director,
Applied Technology
EMERSON

What have been the key highlights for Emerson over the last two years?
Emerson has completed its transformation from a multi-industrial company to a pure play automation technology leader. This was a significant transformation of the portfolio, which included the acquisition of AspenTech. Now, we have a much larger portion of software in our technology portfolio. This really helps us better serve our customers in Singapore and the broader APAC region, particularly as they look to deploy industrial AI for autonomous operations.

How do macro challenges impact the adoption of new technologies?
In countries where things are slowing, plants are looking to autonomous operations and industrial AI to reduce costs by becoming more efficient, specifically in energy and yield efficiency. Small chemical companies are always more agile in adopting digital transformation, while refineries tend to lag. Plants are also looking at heat integration, adding mechanical equipment such as heat exchangers and heat recovery steam generators to improve efficiency. This mechanical equipment also needs automation to function effectively. ■

Andreas Kappler

Head of Chemicals and
Life Science ASEAN
SIEMENS

How do you view the Singapore government's broader strategy for the chemical industry?
The Singapore government is very forward-looking. It embraces digitalization and positions Singapore as a smart nation. This mindset greatly benefits companies that choose to invest here. Singapore is clearly pivoting toward carbon-neutral solutions, biomedical production, and bioproduct-based materials.

Can you elaborate on Siemens' collaboration with A*STAR?
The memorandum of understanding covers two main areas. The first is the Smart and Sustainable Advanced Manufacturing (SSAM) Catalyst, which is an industry test bed. This is an innovation sandbox that showcases our integrated portfolio of automation, electrification, industrial software and AI across the entire product life cycle. That includes design, engineering, advanced manufacturing, and operations. The goal is to help companies accelerate innovation, improve efficiency, and build resilient operations.

The second area is with the A*STAR Institute of Sustainability for Chemicals, Energy, and Environment. Here, the focus is on digital twin capabilities that allow engineers to simulate and optimize chemical processes and to design modular production facilities. ■

Chandran Jayabalan

Head of Sales - Asia
AGGREKO

posure, making the region increasingly important. Trade flows are also changing. For example, China historically relied heavily on the US for LPG and ethane feedstock, but tariff uncertainty has forced it to diversify. That opens opportunities for other producers in the region.

Most analysts expect some form of market normalisation only toward 2030, so in the interim, the environment will remain quite dynamic. Additionally, there is a strong emphasis on reducing greenhouse gas emissions and advancing carbon innovation. That is very aligned with Aggreko's direction, as we can help customers meet reliability and cost objectives while reducing emissions through more efficient technology, lower-carbon fuels, and hybrid systems.

What are the main ways in which you support PCR customers?
First, we help maintain continuous operations. PCR plants run 24 hours a day, and unplanned downtime is extremely costly and can create safety risks. We work with customers on contingency planning long before an incident happens. That can include optimising the placement of temporary generators, pre-laying cables and connectors, and agreeing rapid mobilisation plans. In a grid instability event or outage, we can respond within 24 hours, and in Singapore, within 12 hours.

Second, we support temperature-sensitive processes. Many chemical reactions are highly exothermic and require precise temperature control to maintain quality and efficiency. Some plants in the region have operated for decades, and their cooling assets may have degraded. Rather than forcing a significant capital expenditure immediately, we can supplement with temporary chillers, cooling towers, or other temperature control equipment so processes can continue to run safely at design conditions while the customer plans permanent upgrades.

Third, we work on process enhancement.

How are market challenges influencing demand for opex-based solutions?
Many producers are very cautious about large capital projects due to volatile margins, evolving trade rules, and the rapid pace of technological change. However, they still have to maintain high uptime, meet environmental standards, and improve competitiveness. We invest in the assets and the technology and make them available as a service. Customers can upgrade processes, test new concepts, or bridge periods of underperformance without tying up substantial capital. When the strategic picture becomes clearer, they can decide whether to invest permanently or move on to the next improvement.

How is Aggreko decarbonising its own solutions?
On the power side, we have introduced more efficient engines, such as Tier 4 and Stage V generators. These have significantly lower emissions and better heat rates than older units, and they incorporate emission conditioning technologies that reduce exhaust pollutants. Fuel choice is another lever. Access to hydrotreated vegetable oil (HVO) has improved markedly in the region. Our generators can typically run on HVO as a drop-in replacement for conventional diesel, with no significant modifications.

Turnarounds are a big focus area for us. During shutdowns, extensive temporary power is needed to keep critical systems operating. Traditional diesel generators are robust but very fuel-intensive and inefficient. Our approach is to design a microgrid. We rationalise the number and placement of generators, then pair those generators with battery energy storage systems. The batteries and generators are controlled as a single hybrid system. If we use HVO as the fuel and specify high-efficiency Tier 4 or Stage V units, the net result is significantly lower fuel consumption and a substantial reduction in CO_2 and local pollutant emissions.

Looking ahead, what are your priorities for Aggreko in Asia and in the PCR space?
Customers will continue to approach us with complex issues, and we will collaborate with them to design solutions that integrate our fleet, engineering expertise, and their in-depth process knowledge. Often, this will involve new technologies, whether in low-temperature chilling, advanced boilers, specialized heat exchangers, or hybrid power systems. We are prepared to take on the investment risk for those technologies, so our customers do not have to. ■

> *"Flexibility is powerful when you must do more with less capex, and it is one reason we see growing interest in opex-based power, cooling, and process solutions."*

What have been the main developments for Aggreko globally and in Asia?
Across Asia we see a combination of overcapacity, shifting trade flows and a strong push toward decarbonisation. China has significantly ramped up production, creating oversupply across several product chains. Producers in Thailand, Singapore, Malaysia and Indonesia must compete directly with Chinese supply. At the same time, tariff measures have driven changes in where chemicals are produced and consumed. There is a trend toward relocating production to Southeast Asian countries with lower ex-

Wu Min

Senior Vice President
Southeast Asia
VEOLIA WATER TECHNOLOGIES

Could you summarize Veolia's performance in Southeast Asia in 2025?
2025 marked a shift towards a more integrated Group approach for Veolia. By bringing together its long-established water, waste, and energy capabilities, the Group is better positioned to deliver integrated solutions and respond to increasingly complex customer challenges. In Southeast Asia, this translated into a stronger presence in six core markets.

Can you explain your mobile water treatment and service capabilities in Southeast Asia?
Mobile water solutions are a core part of Veolia's portfolio that complements our permanent and installed solutions. What we see today is a growing recognition that mobile water is part of a broader, integrated services approach, supported by digital tools, installed base services, and both on-site and remote monitoring.

In 2025, the demand for mobile water solutions remained strong, particularly from advanced manufacturing, chemicals, and pharmaceutical industries. In these sectors, flexibility is critical and downtime has a direct impact on production and costs.

What opportunities are you seeing in advanced manufacturing, semiconductors, and chemicals?
For semiconductor and ultrapure water applications, we have dedicated service capabilities across SEA, supporting customers in a sector that continues to expand rapidly.

Can you describe the most pressing water-related challenges faced in Southeast Asia?
Southeast Asia faces increasing pressure from industrial wastewater, rapid urbanization, and growing concerns around water security. In Singapore, for example, the focus is particularly strong on water security and reuse, with the government introducing policies aimed at reducing freshwater intake for water-intensive industries.

What are your objectives for 2026?
In 2026, Veolia will build on both regional and global expertise to deliver measurable environmental impact while supporting operational performance. ■

Tina Loke

CEO
AIR LIQUIDE SINGAPORE

How has Air Liquide's business fared in the past 18 months?
The petrochemical chain in Singapore is clearly at an inflection point, with pressure from oversupply and cost challenges with operating costs - energy, utilities and manpower are prominent examples - that are structurally higher in Singapore compared to the region, highlighting the challenge to be competitive. As such, we must act early on efficiency, asset flexibility, and new growth vectors, ensuring our solutions are tailored to customer needs and meet clear, emerging use cases.

What is Air Liquide's energy transition strategy in Singapore?
On Jurong Island today, hydrogen production is primarily via conventional steam methane reforming. To decarbonize at scale, the pathway is to pair hydrogen production with carbon capture and storage and to deploy autothermal reforming (ATR), which produces large volumes of hydrogen with a CO_2 stream that is more concentrated and hence easier and cheaper to capture.

Air Liquide has proprietary ATR technology and more than three decades of operating experience with such units worldwide. We also operate interconnected industrial gas pipelines on Jurong Island and to Tuas—oxygen, hydrogen, and nitrogen — which enables us to integrate new units quickly and distribute molecules efficiently. We are collaborating with power producers, including YTL Power Seraya, under the Energy Market Authority's power sector CCS Grant call for pre and post combustion carbon capture. That, in turn, can supply low-carbon electricity to data centers and advanced manufacturing.

What role does Air Liquide's Cryocap technology play?
Cryocap is our proprietary suite for carbon capture and large-scale CO_2 liquefaction. Depending on the application, it can both capture CO_2 from hydrogen plants and increase hydrogen yield or capture from hard-to-abate sectors such as cement and steel. Liquefaction enables transport to sequestration sites, as Singapore is likely to export captured CO_2. ■

SINGAPORE CHEMICALS 2026 COMPANY DIRECTORY

COMPANIES	WEBSITE
AAK	https://www.aak.com/
Aggreko	https://www.aggreko.com/
Air Liquide	https://www.airliquide.com/
Alfa Laval	https://www.alfalaval.com/
Allnex	https://allnex.com/
ASPRI	https://aspri.com.sg/
Aster	https://www.aster.com.sg/
Atlas Copco	https://www.atlascopco.com/
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Barentz	https://www.barentz.com/
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Chevron Oronite	https://www.oronite.com/
Chemetall	https://www.chemetall.com/
Diversey	https://diverseyvericlean.com/
DKSH	https://www.dksh.com/
EcoVadis	https://ecovadis.com/
Ecolab	https://www.ecolab.com/
Emerson	https://www.emerson.com/
Envalior	https://www.envalior.com
Environmental Resources Management (ERM)	https://www.erm.com/
Ernst & Young (EY)	https://www.ey.com/
Heraeus Electronics	https://www.heraeus-electronics.com/

COMPANIES	WEBSITE
IMCD Group	https://www.imcdgroup.com/
Infineum	https://www.infineum.com/
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Jurong Town Corporation (JTC)	https://www.jtc.gov.sg/
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Leschaco	https://www.leschaco.com/
Lubrizol	https://www.lubrizol.com/
Lummus Technology	https://www.lummustechnology.com/
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MOL Chemical Tankers	https://www.molchemtankers.com/
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Neste	https://www.neste.com/
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Thank you!

We would like to thank all the executives and authorities that took the time to meet with us.


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