GLOBAL BUSINESS REPORTS & APLA

LATIN AMERICA

PETROCHEMICALS AND CHEMICALS

2022

Macroeconomic Overview - Sustainability - Petrochemicals
Specialty Chemicals - Chemical Distribution - Logistics

Dear Reader,

Welcome to GBR's *Latin America Petrochemicals and Chemicals 2022* – the latest edition of the special annual publication produced in collaboration with APLA. In this report, we discuss how Latin America's petrochemical and chemical sectors have faced a challenging global economic and political backdrop in 2022, and how they are preparing for what is expected to be a turbulent 2023. Fueled by high commodity prices and government stimulus packages, GDP in Latam and the Caribbean grew by 6.9% in 2021. However, whether such growth was sustainable in the context of a myriad of macro challenges was questionable. The Russia-Ukraine conflict that began in February 2022 upset an already fragile global supply chain, and as inflation began to ramp up, the backdrop has been set for a potential recession.

As the year has progressed, a surging US dollar has put pressure on Latin America's chemical supply chain, increasing costs for a region dependent on imports of raw materials. At the same time, rising energy prices globally have highlighted the importance of energy sovereignty.

Despite the headwinds, trends such as the re-regionalization of production chains and the acceleration of the green agenda offer opportunities for a region with abundant natural resources, a large consumer market, and the world's biggest economy in close proximity. To stimulate the investment necessary to capitalize on these opportunities, cooperation between the so-called 'pink tide' of left-wing governments with the private sector is paramount. Braskem Idesa's agreement with Pemex to construct the US$400 million Puerto Mexico Chemical Terminal in Veracruz in Mexico points to a path forward.

The most notable theme of over 60 interviews conducted for this report has been an industry-wide focus on sustainability. While this used to be the realm of the large producers, now the full value chain is aligned with a push for greener products and carbon emission reduction.

APLA's 42nd annual meeting in Cancun, Mexico, provides a platform for the industry to share knowledge at this critical moment. APLA is committed to supplying top-value information for the industry's stakeholders in Latin America and beyond. This special publication, in partnership with industry report specialists Global Business Reports, contains articles, analysis, country factsheets and first-hand exclusive interviews with the most important players across the value chain, and is presented this year in both print and digital interactive formats accessible on the GBR and APLA websites. We hope you enjoy the report, as well as the sessions and networking opportunities at APLA's annual meeting.

Manuel Díaz
Executive Director
APLA

Alfonso Tejerina
Director and General Manager
GBR

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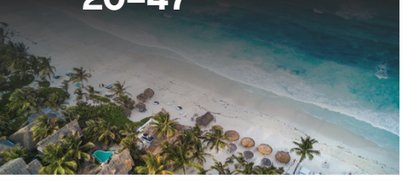

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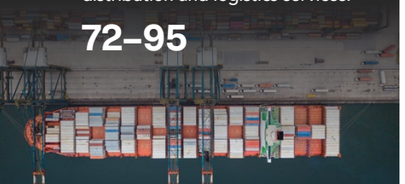

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LATIN AMERICA OVERVIEW

"The chemical industry could become part of the solution to net zero carbon emissions. Investments into green sources of energy and towards a net-zero future will continue, but will vary from country to country depending on their ability to access the raw materials required for the transition."

- Rina Quijada,
VP Industry Executive Advisory,
Latin America, S&P Commodity Insights

Ica, Perú. Image courtesy of Viajante Dibujero.

Latin American Resilience

CAN THE REGION LEVERAGE ITS ADVANTAGES TO WEATHER ECONOMIC TURMOIL?

In 2021, pent up demand fueled by government stimulus packages triggered a remarkable rebound in the chemical and petrochemical industries, as companies bounced back from the lockdown shock of 2020 to post record profits. However, whether such growth was sustainable in the context of a myriad of macro challenges was questionable. The Russian invasion of Ukraine in February 2022 upset an already fragile global supply chain, and as inflation began to ramp up, the backdrop was set for a looming recession which could lead to political and social turmoil.

The old Brazilian saying, 'a calm sea never made a good sailor,' seems apt in times like these. Many Latin American nations are used to volatility, and as such are better prepared to deal with dynamic change. Furthermore, two of the predominant themes to gain traction in the last two years – the re-regionalization of production chains and the acceleration of the green agenda – offer opportunities for a region with abundant natural resources, a large consumer market, and the world's biggest economy in close proximity.

On one hand, a combination of high freight rates and political tension between the US and China position Latin America as an ideal candidate for nearshoring expansion to feed the biggest consumer market in the western hemisphere. Investments such as Braskem Idesa's construction of the US$400 million Puerto Mexico Chemical Terminal in Veracruz in Mexico, a landmark project for Latin America's petrochemical sector, highlight the potential for development in the region. "The current global situation reinforces this importance of establishing investments in Mexico. This is why Braskem Idesa decided to invest in Mexico initially, and the global focus on regionalization has reinforced our conviction," affirmed Stefan Lepecki, Braskem Idesa's CEO.

On the other hand, a failure to develop sufficient local production in Latam has left the region exposed due its reliance on US goods and feedstock. "Latin America will be significantly affected by how the US will perform in the next eight to 12 months," stated Rina Quijada, VP industry executive advisory – Latin America, at S&P Commodity Insights.

Quijada explained that as high inflation in the US can probably only be fixed by increasing interest rates, the strength of the US dollar in comparison to devalued Latam currencies will impact purchasing power. "We know that from Mexico to Patagonia, no country in the region has hard currency available, and the region is very much reliant on imported goods."

Quijada elaborated that producers now require more local currency for the same volume consumed, and as prices for many commodities are going down, such as PVC and polyethylene, we could see inventory buildup and selling before prices tumble further.

Edison Terra, VP olefins and polyolefins – South America at Braskem, Latin America's largest petrochemical producer, reflected on the cyclical nature of the business: "We are currently seeing a reduction of all the petrochemical spreads on a general basis. In 2023, considering new capacities against demand growth, we will probably see a period in time where the margins will be lower than in previous years."

Despite this outlook, Terra noted that there are many opportunities for innovation. He concluded: "In terms of sustainability, either through renewable sources or circular economy, there is a lot of room for expansion."

While the short-term forecast appears turbulent, mid- to long-term demand projections remain robust. For example, the global market for ultra-high molecular weight polyethylene was valued at U$1.87 billion in 2021, but according to a July 2022 report from Straits Research, is projected to increase at a CAGR of 12.75% to reach U$5.51 billion by 2030.

Ana Paiva, ExxonMobil Chemical's (EMC) regional commercial lead – polyethylene Latin America, discussed the factors EMC expects to drive PE growth in the years ahead, including global population forecast to increase to 9 billion by 2040, with chemical products essential to modern life, economic development and improving standards of living. Paiva noted that this should drive petrochemical demand at a rate projected by EMC to be approximately 4% a year over the next decade, worldwide. "Products that will likely be required to support these growth trends, specifically on the PE side, include all related to packaging and agri-products, as food is essential. On the durable side, there are also some products with higher demand potential, such as automotive parts and medical devices."

> **I think that there are many aspects in the market which will lead to innovation and opportunities. In terms of sustainability, either through renewable sources or circular economy, there is a lot of room for expansion.**
>
> *Edison Terra, VP Olefins and Polyolefins – South America, Braskem*

Nearshoring: opportunities and challenges

For decades, an increasingly globalized market for petrochemical and chemical products had driven multinational companies to establish production and distribution hubs close to the biggest consumer markets that have access to cheap feedstock and logistics capacity. The impact of Covid-19, from lockdowns to record-high freight rates and severe logistics bottlenecks, while unlikely to be the death knell of globalization, has highlighted the value of strengthening regional supply chains.

From a regionalization or nearshoring standpoint, Latin America holds significant potential. However, there is a pervasive feeling that the region is not fulfilling its potential, and governments need to establish a more business-friendly climate to incentivize long-term investments.

INEOS Styrolution America LLC, part of global chemical giant INEOS, has increased the acrylonitrile butadiene styrene (ABS) capacity at its Altamira production plant in Mexico, according to Ricardo Cuetos, VP Americas – standard products. Discussing the challenges of working in the country, Cuetos cited the proposed energy reform by the AMLO government and a lack of security when transporting goods.

"There needs to be an openness to the energy market, especially for the chemical industry, allowing manufacturers to generate their own energy for internal usage," he said, commenting that less bureaucracy would help the industry grow – a common theme when conducting interviews for this report. Cuetos observed that high gas and energy prices have resulted in an increase in fixed and variable costs, adding: "In North America, you have to be competitive to achieve real growth."

Despite the current challenges, Cuetos reaffirmed INEOS' commitment to the region, stating: "We believe Mexico has a bright future, especially considering the reshoring and localization of production chains. I also believe that we will see significant growth in Brazil and Argentina."

In addition to multinationals opening facilities in Latin America, the lure of nearshoring could stimulate M&A in the region. In December 2019, Pilot Chemical Company, the US-headquartered specialty chemicals firm, acquired Órgano Síntesis S.A. de C.V. (OSSA) located in Toluca, Mexico, representing Pilot's first production asset outside of the US.

Richard Rehg, Pilot's VP commercial, revealed that the OSSA acquisition has strengthened the company's position in the biocide market in two ways. "Firstly, it provided an increase in industrial production capacity for our ammonium quaternaries [...] Secondly, it brought us new capabilities we did not have before, specifically with regards to cGMP manufacturing capability."

Rehg added that this has allowed Pilot Chemical to supply a number of new products to the market, such as benzalkonium chloride, benzethonium chloride, and chlorphenesin, products used in hygiene, sanitization, and personal care applications throughout the world, expanding the company's biocide business from more of a historic Americas-focused quat market to a global export market. Looking forward, he commented that the OSSA acquisition gives the company a platform for further organic and inorganic growth in Latam.

For countries such as Mexico, where APLA's 42nd annual meeting will be held in November in Cancun, the hope is that governments will create the conditions for investment that match a number of inherent advantages, from geographical location, to free trade deals, natural resources and a skilled workforce. ■

Manuel Díaz

Executive Director
APLA

What are the main themes of APLA's Annual Meeting in Cancun?
The petrochemical industry exited the pandemic in a good shape, yet it immediately entered another crisis of economic slowdown and high energy and logistic costs. This is creating uncertainty. One of the key themes during our annual meeting is an analysis of energy prices and access to feedstock. Another area of concern is logistics. As Europe requires more LNG, this is already affecting the normal flow of ships in Latin America. Moreover, another question is: Is the plan to move towards a net-zero carbon industry at risk? Finally, one of the key pillars of our meeting is sustainability.

How is the geopolitical and economic scenario affecting industry dynamics?
The weakening of the euro is related to negative economic projections in Europe. More than the exchange rate as such, what is affecting the industry more deeply is the economic slowdown, because this may cause adjustments to production capacities, generating either a shortage of certain products or higher costs. Then, if the current gas supply constraints in Europe worsen, that will definitely have a negative impact on global logistics. With regards to high oil prices, this has two impacts: one on the production chains of petrochemical products, especially in countries with naphtha-based industries, and one on the general economic situation.

In terms of the energy transition, the main question is if the current context of high energy prices and supply disruptions can act as an accelerator. There is a lot of energy capacity that needs to be replaced, but this crisis can act as an opportunity for a matrix that is both more renewable and more based on local resources. Brazil is investing heavily in wind farms, for instance.

» **The extreme dependence on certain raw materials from particular countries has caused a rethink of the whole dynamic. Latin America should be more self-sufficient in certain products such as urea.** «

Can this be an opportunity for Latin America to be more self-sufficient?
A reduction of globalization levels is already underway. The extreme dependence on certain raw materials from particular countries has caused a rethink of the whole dynamic. Latin America should be more self-sufficient in certain products such as urea; this would be a logical geopolitical step for the future of the region, and goes beyond the current Russia-Ukraine conflict.

Also, the development of unconventionals plays a key role in this process to add value to the regional economies. The continuous progress in this respect, particularly in Argentina, is helping reduce the amount of liquified natural gas (LNG) that the country imports every year. For that, the construction of a gas pipeline is still pending, so the products of Vaca Muerta can be exported. Argentina has restarted investments in this area and some projects have been announced whereby the country would invest in liquefaction facilities, which would transform Argentina into an LNG exporter. There are also projects to restart exports of natural gas to Chile, and even export natural gas to Brazil, but these plans are still preliminary. Regionally, the main petrochemical project underway is the construction of an ethane import plant in Mexico at Braskem Idesa's facility.

What were the highlights of APLA's Sustainability event in Bogotá?
The Sustainability event in Bogotá provided a summary of the main trends in this field in the petrochemical industry. Companies like Ecopetrol, Esenttia, Unigel and Braskem Idesa presented their projects on areas such as renewable energy and the reduction of carbon emissions. Then, we also had the participation of brand owners such as L'Oréal and Procter & Gamble, who shared their initiatives on areas such as water usage and the minimization of single-use plastics.

Would you like to provide a final comment about APLA's annual meeting?
This year's meeting is exclusively in person. We want our members to meet face to face, with a core goal to connect people and provide a platform to share knowledge and experiences. We are going to have around 700 delegates, and several commitments: to offset our carbon footprint during the event, to make sure we do not generate waste, and to ensure that we are very meticulous in terms of our health and safety standards. Also, we are having a volunteer initiative to clean mangroves and cenotes, together with a Mexican foundation called 'Centinelas del Agua'. ■

Rina Quijada

VP Industry Executive Advisory Latin America
S&P COMMODITY INSIGHTS

What does the merger of S&P Global and IHS Markit mean for the chemicals side of the business?
In October 2021, we had to divest IHS Markit's base chemical business to finalize the merger. The divestment included the price reporting (MAS) and the world analysis (WA), all other services remained with S&P Global.

The SRI legacy and all technical services, like the Chemical Economics Handbook (CEH) covering chemicals and petrochemicals, remained with S&P Global. We now have an enhanced value proposition for our global customer base across data and analytics, ratings, benchmarks, indices, commodities and energy, transportation and engineering.

What are the main themes influencing Latam's petrochemical sector?
Each country is faced with different sets of variables, but the underlying theme for the region is the performance of its economy. Latin America will be significantly affected by how the US will perform in the next year. High inflation in the US can probably only be fixed by increasing interest rates. This will have a direct impact on the US dollar purchasing power and will strengthen the US dollar exchange rate. We know that from Mexico to Patagonia, no country in the region has hard currency available, and the region is very much reliant on imported goods. Furthermore, each currency in the region has suffered tremendous devaluation in the past weeks. On the other hand, prices for most commodities are going down, such as PVC and polyethylene. Hence, another theme is inventory buildup and selling before prices tumble even further.

Since Covid, securing the supply of key commodities has been a difficult task for producers in the region. For example, Brazil has a large agricultural business, and they need lots of raw materials and fertilizers. The need to secure commodities has also improved levels of selected local production in countries such as Mexico and Argentina.

» **Uncertain economic performance will affect Latin America, however, sometimes, recessions can also affect demand in a positive manner for some products.** «

To what extent are sociopolitical tensions in Latam impacting investment prospects in the region?
If an investment makes economic sense, it will happen. In Colombia, Gustavo Petro was elected, and in Brazil Lula da Silva might return to power. These left-wing governments might slow investments, but institutions in Colombia and Brazil are strong enough to continue to allow for investments to flow into the countries, despite their political environment.

Which sub-segments of the industry do you expect to be most resilient?
Uncertain economic performance will affect Latin America, however, sometimes, recessions can also affect demand in a positive manner for some products. For example, in the food packaging space we might see increased demand for smaller volume of packaged goods with increased buying frequency, due to reduced purchasing power, hence, additional PE demand could emerge.

In terms of petrochemicals, we have begun to experience lower prices for most commodities. Supply chain disruptions and higher transportation costs to move products from point A to point B affected delivered prices during the past 18 months, however, market fundamentals show a balance between production, trade supply, and demand requirements which in turn softened market prices in recent months. We also anticipate lower resin prices to trigger increased demand if they stay low for a reasonable period. It is a balancing act and market information is important to enable adequate planning in an uncertain environment.

How are sociopolitical tensions impacting investment in the region?
Energy transition and energy security have now become of great relevance for many countries. It is a complex and risky process, hence, the speed of transition towards a net zero scenario will vary among countries. Each country will have to evaluate its domestic energy situation and move forward under a sustainable scenario.

The Chemical industry could become part of the solution to net zero carbon emissions. Investments into green sources of energy and towards a net-zero future will continue, but will vary from country to country depending on their ability to access the raw materials required for the transition. ■

Ana Paiva

Regional Commercial Lead – Polyethylene Latin America
EXXONMOBIL CHEMICAL

How has ExxonMobil performed in Latin America in the last 12 months?
Despite the business environment being challenging over the past 12 months, ExxonMobil achieved sustained growth and, our largest portfolio, polyethylene (PE), continued expanding. Other businesses like Vistamaxx, Butyl, and Intermediates are also demonstrating growth potential in Latin America, which is aligned with ExxonMobil's long-term commitment to the region.

How could the economic slowdown forecast for Q4 2022 and 2023 impact the PE market?
Particularly during the Covid period of time, the GDP and the PE demand were not correlated. The key reasons include that market drivers have changed on the e-commerce side and the demand profile of the packaging industry has been reshaped. In the medium to long term, we expect the market fundamentals to remain tied to the GDP. In the short term the economic recession, the high inflation and the rising interest rates might impact petrochemical demand, including PE sales.

Can you explain how ExxonMobil's new PE platform (Exceed S) provides opportunities to reduce the complexity of film formulations and designs while improving packaging performance?
The balance between stiffness and toughness is a challenge in formulations and for the converters overall, but the latest addition to ExxonMobil's PE portfolio, branded Exceed S, helps the industry to solve this balance challenge. Exceed S is a state of the art solution combining stiffness and toughness while maintaining a good processability. It improves packaging and simplifies formulations reducing the need for additional materials delivering increased stiffness while the mechanical properties are still protected.

How has the company dealt with rising inflation and logistics costs?
The magnitude of rising inflation, increased logistics costs, and scarcity of raw materials have impacted ExxonMobil. The company has responded by leveraging its global capabilities and ability to integrate assets in order to minimize impact. Some challenges still remain, such as increased costs.

Can you provide examples of ExxonMobil's latest sustainability-focused initiatives?
The Low Carbon Solution division is a new business focused on commercializing lower-emission business opportunities in carbon capture and storage, hydrogen and lower-emission fuels. The company has more than 30 years of experience capturing CO2 and has cumulatively captured more human-made CO2 than any other company.

Specifically on petrochemical solutions, we have developed our Exxtend technology for advanced recycling, which is critical to address plastic waste and circularity. We are now able to sell certified circular polymers contributing to the energy transition. We have built a world class advanced recycling facility in Baytown, Texas, and plan to have an additional 500,000 t/y in place by 2026 to address challenges in plastic waste and circularity.

In South America, ExxonMobil is part of a regional group tied to the Alliance to End Plastic Waste, which is promoting plug and play initiatives with startups. The company will continue developing molecules and formulations that enhance recyclability of products and are available to all our customers worldwide. ■

Ricardo Cuetos

VP Americas – Standard Products
INEOS STYROLUTION AMERICAS

What have been the highlights from INEOS Styrolution America in the last two years, including the demand trends you have noticed?
The past two years have been busy, and we were able to manage the situation to achieve good business results and grow in a difficult environment, while running our operations in a sustainable and safe manner. A major highlight is our new acrylonitrile styrene acrylate (ASA) plant in Bayport, Texas, which is in the final stages of construction. Additionally, we have increased the acrylonitrile butadiene styrene (ABS) capacity at our Altamira plant in Mexico to fully cover the demand in North and South America. We have also been investing significantly in sustainability on a global basis, focusing on mechanical and advanced recycling and carbon footprint reduction.

Over the past two years, our styrenics product line has seen strong demand from the construction, automotive, medical, industrial, sports and leisure, and food packaging segments. As we cover a diversified market space, we were able to balance out decreased demand from some markets, while making increases in other sectors.

How has INEOS Styrolution's Mexican plant dealt with rising energy costs and ensuring safe logistics?
INEOS Styrolution is a global company, allowing us to have the ability to leverage our global network. We produce the majority of our key raw materials in the US, and we have the great benefit of having access to the port in Altamira. However, the situation in Mexico does sometime present us with challenges.

The energy reform has been one of the factors causing gas and electricity prices to sharply increase. There needs to be an openness to the energy market, especially for the chemical industry, allowing manufacturers to generate their own energy for internal usage. Less bureaucracy would certainly help the industry to grow. High gas and energy prices have resulted in an increase in fixed and variable costs, which makes Mexico less competitive and attractive for further investment in the future. We hope that there will be some policy changes soon allowing energy permits for cogeneration plants.

Another challenge we see is the safety situation for logistics in Mexico – merchandise is being stolen from the rails or docks and on certain highways traveling is not safe.

Can you outline INEOS Styrolution's vision for Latin America in the next two years?
INEOS Styrolution is committed to Mexico and despite the concerns and challenges I mentioned, we believe the country has a bright future, especially considering the reshoring and localization of production chains. I believe that we will see significant growth in Brazil and Argentina, and we will remain committed to these countries. There is also opportunity for growth in countries such as Colombia; we would like to continue growing our presence throughout Latin America, especially through the transfer of new technologies from Europe and the US into these markets. ■

Elvira Neves

Latin America Leader
EASTMAN

Can you provide an overview of Eastman's presence in Latin America?
In Latin America, we have about 400 employees across our sites in Mexico and Brazil. Our factory in Mexico produces advanced interlayers technologies used in automotive and architectural markets, while the factory in São Paulo is focused on chemical products for industrial, agricultural and pharmaceutical applications. Eastman's Latin America operations accounted for 6% of our US$10.5 billion revenue last year, and about 50% of our revenue comes from Transportation, Consumables, and Building & Construction. In parallel with the above, Eastman has been making a transition towards the circular economy in line with our global mission.

Could you outline Eastman's approach to sustainability?
Eastman began undergoing a transformation towards sustainability and the circular economy around 2012. Innovation is part of our DNA as we aim to engage our customers, society and environment in a way that will allow us all to enjoy another 100 years of shared prosperity.

We have been innovating across our product lines with polyester with products such as Tritan Renew and Crystal Renew with a focus on reusability and circularity. Eastman is focused on developing our polymer technologies by focusing on biodegradability and discontinuing certain product lines.

Another area of solutions is around our move to BPA-free co-polyesters. If you look at the various aspects of climate change, air conditioning and cooling is a major challenge due to rising temperatures. Our films technologies are very effective in solar heat control. They are not only used in car windows but also have been developed for glass in buildings, helping them better deflect heat and make the air conditioning and cooling of these buildings more efficient and environmentally friendly.

What progress have you seen made on the topic of diversity and inclusion in recent years, and what still needs to be done?
Diversity and inclusion is an area intrinsically linked to sustainability, to ensure a more competitive business where employees can grow. We contribute to society by focusing heavily on inclusivity and diversity, which helps us innovate by unlocking the potential of our diverse staff. Innovation and improvement are daily. We have doubled the number of women in leadership positions at Eastman. One of the things we are most proud of is creating a company culture where our diverse resource groups are able not only to work but to thrive and achieve their potential. Pay equity is one of the areas where we constantly need to continue to make bold strides.

What potential does Eastman see in Latin America in the coming years, and which areas of the business offer opportunities for either M&A or organic growth?
Innovation is critical to our success. Over the coming years, Eastman expects our organic growth to come from the innovative products and applications we have been developing and will continue to put into the market, giving clients more varied sustainable options. ■

Sustainability

THE INCREASING VIABILITY OF GREEN SOLUTIONS

The most notable theme of over 60 interviews conducted for this report has been an industry-wide focus on sustainability. Where this used to be the realm of the large producers, now the full value chain is aligned with a push for greener products and carbon emission reduction. As the relevance of this agenda becomes more apparent each year, the economic value of sustainable solutions is also becoming clearer.

"Townsend has been conducting surveys of PP and PE buyers for over 30 years and this year, the overwhelming majority have told us they consider supplier engagement and sustainability initiatives a key factor when they are evaluating supply partners," observed Barb Mitchell, managing director of petrochemical market research firm, Townsend Solutions. She added: "All interactions are now filtered through a green lens. 10 years ago, this would not have even been on the radar."

Charles Fryer, senior advisor at Tecnon OrbiChem, highlighted the opportunities for Latin America to play a bigger role in the fight against climate change: "The availability of natural gas is a first step towards reducing carbon footprint, and Latam has various natural gas resources which still needs to be exploited, such as in Bolivia, Argentina and Brazil."

Fryer pointed to discussions about a pipeline between Bolivia and the coast of Peru, and how this would benefit the chemical industry as feedstock, a source of energy, and as a means of reducing electricity costs and went on to highlight the possibility, particularly in Brazil, for bio-materials to be used to make chemicals. "There is a movement around the world towards using natural resources to make chemicals, but there is the realization that the cost for using bio-materials is higher than using petroleum or other fossil fuels. The only good news from high crude oil prices is that it makes bio-materials more competitive, which will stimulate the investment necessary for their development."

Marcus Silva, Air Products' general manager for Argentina & Brazil, noticed how people started to open their eyes to the biomethane market after the Russian invasion of Ukraine, as natural gas prices skyrocketed and investment into local biomethane production started to make more financial sense. "Today, landfills in Brazil are starting to become professionally managed to capture and sell the biomethane that is generated."

Silva revealed that Air Products is piloting projects using biomethane as fuel instead of diesel, commenting that hydrogen fuel cells are an important development for the future, but biomethane as fuel is a present reality. He noted that for biomethane produced in Brazil, you can have long-term contracts with price adjustment indexes which are related to local inflation and do not have any influence from commodity price fluctuations such as the price of oil. "Local production also allows for less exposure to a scarcity of products due to supply chain disruptions. Therefore using biomethane as fuel reduces business vulnerability while also addressing carbon reduction goals."

One of the challenges in the fight against climate change is that companies are having to swim against the tide. For instance, as temperatures rise, more air conditioning and cooling is needed, requiring more energy and generating more emissions. With this in mind, Elvira Neves, Eastman's Latin America Leader, discussed the benefits of BPA-free co-polyesters – film technologies that are effective for solar heat control. She elaborated: "They are not only used in car windows but also have been developed for glass in buildings, helping them better deflect heat and make the air conditioning and cooling of these buildings more efficient and environmentally friendly."

Adriana Nobre, Croda's managing director for Latin America, mentioned that the company's Brazilian site now runs completely on renewable energy, and Croda's carbon emission road map will support a reduction in carbon emissions by 20% in 2022 compared to 2018 figures. "Moreover, we are achieving this while increasing capacity. We have a clear roadmap for all our Latam sites to reduce carbon emissions by 50% by 2030 and to reach carbon neutrality by 2050."

> **Townsend has been conducting surveys of PP and PE buyers for over 30 years and this year, the overwhelming majority have told us they consider supplier engagement and sustainability initiatives a key factor when they are evaluating supply partners.**
>
> *Barb Mitchell, Managing Director, Townsend Solutions*

Sustainability-focused innovation

The transition to greener products requires new technologies and innovation, as well as a collaborative approach between the different actors in the industry. This is providing numerous opportunities for technology providers. For example, in 2022, Braskem inaugurated its state of the art mechanical recycling facility in Indaiatuba, operated by Valoren. Two years earlier, in 2020, Braskem and Topsoe announced they had achieved their first-ever demo-scale production of bio-based monoethylene glycol (MEG).

Discussing the steps needed to transition to more sustainable solutions, Gustavo Cienfuegos, Topsoe's managing director for Latin America, suggested that a phased approach is practical: "As markets mature, we have been introducing more projects for blue technologies, which we believe are key to decarbonization. The world is not yet fully prepared for green technologies, as many are still very expensive compared to traditional technologies."

Cienfuegos gave the example of Topsoe's SynCor technology, which recovers gases and reduces the footprint of production plants by up to 80%: "This is exactly what customers need in this transition period to green technologies, to help produce ammonia and ultimately fertilizers while minimizing their carbon footprint."

José Magalhães Fernandes, president of Honeywell Performance Materials & Technologies for Latin America, spoke of the importance of increasing the scope of plastics that are recycled, particularly for those which do not have a recycling destination and are sent to waste management landfills or incinerated. "The company has developed an UpCycle Technology, which is a chemically engineered solution for converting plastics into renewable or pyrolysis oil that can be reused in the value chain. We are thus recovering waste plastics, sorting, cleaning, and processing them chemically to revert that plastic to its origin," explained Fernandes, mentioning that Honeywell has already scaled up this technology at the lab level and is now working with Spanish company Sacyr and US waste management company Avangard Innovative to scale it up to industrial level globally. He added: "Within Latin America, specifically Brazil, we are also having discussions with waste management companies to pilot this solution and technology in the region."

Another hot topic related to sustainability is water scarcity, an issue already severely impacting Latin American countries such as Chile, which has suffered a 12-year drought in its central region. Alejandro D´Hyver, CSR and communications manager – Latam North at Ecolab, revealed that the company helps clients save more than 215 billion gallons of water every year globally, representing the drinking water needs of 730 million people per year. He went on to highlight Ecolab's 3D TRASAR water performance system, which uses an ecosystem interconnected with smart technology and chemistry to actively resolve issues and offer results to improve industrial operations.

D´Hyver elaborated: "More plainly put, 3D TRASAR detects alterations that occur before incrustations, such as corrosion and bio-incrustation, and provides a suitable response for each of those alterations, preventing any damage to systems in our client's plants. It reduces operation costs, eliminates over- or under-dosing of solutions, and provides the highest protection of the assets." ■

Charles Fryer

Senior Advisor

TECNON ORBICHEM

Can you introduce Tecnon Orbichem and describe the company's areas of expertise?
Tecnon OrbiChem specializes in monitoring world markets for chemicals – mainly petrochemicals but also inorganic chemicals. The company started in 1976, which makes us one of the oldest consulting companies in the chemical business. We publish monthly reviews of specific sectors in the chemical industry – I can take chlor-alkali, engineering thermoplastics, plasticizers, PET resin and polyurethanes as random examples – with the aim of analyzing the trends within the global industry. We regard ourselves us much more than a reporting agency, but rather as an analytical and commentary company also doing consulting work and organizing conferences around the world.

What would you say are the current themes most relevant to Latin America's chemical sector?
The effect of the pandemic and lockdowns has been felt in several ways. There was a great reduction of consumption in 2020, which bounced back in 2021 when people started shopping again. This bounce back created shortages that are still present today. Logistics and supply chains were disrupted as port operations were stymied by people having to stay at home, resulting in tailbacks of ships and containers stacking up at ports. These disruptions have caused a realization that globalization can have negative consequences, as it relies on efficient transport around the globe. Countries and companies now need to start investing and looking for sources of raw material closer to home. In Latin America, the problem is that there is a lack of domestically produced feedstock, and prices of petroleum-derived raw materials are generally high.

Although there are clear challenges, there are also opportunities. The availability of natural gas is a first step towards reducing carbon footprint, and Latam has various natural gas resources which still needs to be exploited, such as in Bolivia, Argentina and Brazil. There are also discussions about a pipeline between Bolivia and the coast of Peru. These resources could be very valuable to the chemical industry, both as feedstock, a source of energy, and as a means of reducing electricity costs.

Which chemicals do you see as having the strongest potential for growth in Latam in the coming years?
In terms of base petrochemicals, the obvious one is ethylene. Brazil is short of ethylene, and we are seeing large quantities of caustic soda being exported from Brazilian ports because chlorine cannot be utilized as there is not enough ethylene to absorb it and make PVC. There is also the possibility to extract ethane from the natural gas coming from the pre-salt off-shore oil fields in Brazil. Presently a lot of the ethane is just being burned and there needs to be a program to extract the ethane and direct it towards ethane crackers, which can rejuvenate the Brazilian chemical industry.

The other possibility, particularly in Brazil, is for bio-materials to be used to make chemicals not from fossil fuels, but from natural resources which are renewable. The only good news from high crude oil prices is that it makes bio-materials more competitive, which will stimulate the investment necessary for their development.

Can you explain how the chemical industry fits into a growing bioeconomy?
The key to the future of the chemical industry is going to be the availability of hydrogen. Many chemical processes rely on hydrogen and new ones can be generated. Ideally, hydrogen must not be made from fossil fuels, so the world is working towards a competitive way of producing clean hydrogen. For this, cheap electricity is required, which can be provided from solar panels or wind energy. Brazil has a large availability of hydroelectric sources, which present a path in which blue hydrogen with zero carbon footprint can be produced.

Where do you think investment must be directed to create the necessary infrastructure to support widespread chemical recycling?
To achieve a truly circular economy, plastic waste needs to be collected. Programs are needed to encourage municipalities to sort waste. ■

» **Brazil has a large availability of hydroelectric sources, which present a path in which blue hydrogen with zero carbon footprint can be produced.** «

Richard Rehg

VP Commercial

PILOT CHEMICAL COMPANY

What has been Pilot's performance in the last year, and what is your forecast for demand moving forward?
Pilot Chemical Company's top line results have grown double digits versus the prior year. Demand has remained strong across all business lines and geographies, however, there have been headwinds in terms of cost increases and supply chain disruptions. We have been able to navigate these through close collaboration with our customers and supply chain partners, however, and we have successfully offset the cost increases with pricing action.

Looking forward, we have a strong order book, but our indicators point to the market demand softening over the 2022 and into 2023. In particular we expect softening in LATAM, given the currency challenges in Argentina.

How has Pilot progressed in the Mexican market since acquiring Órgano Síntesis in 2019?
The Órgano Síntesis acquisition has strengthened our position in the biocide market in two ways. Firstly, it provided an increase in industrial production capacity for our ammonium quaternaries – the quat products Pilot Chemical subsidiary Mason Chemical Company markets under the Mason and Maquat brands throughout the Americas. Secondly, it also brought us new capabilities we did not have before, specifically with regards to cGMP manufacturing capability. This capability has allowed Pilot Chemical to supply a number of new products, such as benzalkonium chloride, benzethonium chloride, and chlorphenesin (Enhansys CPH preservative). These products are used in hygiene, sanitization, and personal care applications throughout the world, and allow us to expand the reach of our biocide business. Another advantage of the acquisition is that it gives us a platform for further organic and inorganic growth in LATAM, as Órgano Síntesis is Pilot's first production asset outside of the US.

Why do you think many chemical companies are moving towards the specialties space, and what distinguishes Pilot in this segment?
In the specialties space you need to understand your customers' unmet needs and how to solve them efficiently and effectively. There are three main things that differentiate Pilot Chemical as a diverse specialty chemicals company – our technology; our solutions; and our people. In terms of technology, Pilot Chemical was founded with the invention of ice-cold sulfonation, a technology which allows us to make surfactants at much lower temperatures without generating impurities, thus producing high-purity products that can be used in various applications.

In terms of our solutions for customers, Pilot's Aspire line of super-concentrated surfactants is a good example. It addresses the current customer trend toward sustainable products, enabling our customers to formulate cleaning products with significantly less water use while still maintaining very strong cleaning performance. Lastly, Pilot Chemical has an extraordinary team of people who deliver outstanding service, which forms the backbone of a quick-and-nimble organization that reacts with speed to changing market dynamics and customer needs.

Pilot Chemical celebrates its 70th anniversary in 2022. How does the company intend to build upon this experience to increase its market share in Latin America in the years ahead?
There are three key growth areas for Pilot Chemical moving forward. We will continue to invest in our capabilities of our core businesses, namely surfactants, biocides and the Aristonate and additives product lines. Órgano Síntesis remains an important enabler and platform for our biocides growth, both for LATAM and for exporting to other regions. The second key lever for growth will be innovative, new products. For example, as part of our commitment to sustainability, Pilot Chemical has an exciting new exclusive partnership with Integrity Bio-Chemicals to bring new biosurfactants to the HI&I market in North America under the CalNext brand. CalNext biosurfactants are high-performing and biobased, providing customers with a new sustainable nonionic surfactant alternative. Finally, the third growth lever is M&A and partnerships, as we see inorganic growth as an integral part of the company's strategy. ■

» **An advantage of the Organo Síntesis acquisition is that it gives us a platform for further organic and inorganic growth in Latin America, as it is Pilot's first production asset outside the U.S.** «

Marcus Silva

General Manager – Argentina & Brazil
AIR PRODUCTS

In Brazil, we are fortunate that the grid is already 84% green. In Argentina, we are buying 85% of our power from the Los Teros wind farm.

What have been the main demand trends Air Products has experienced in Brazil and Argentina?
Air Products experienced good demand over the past year. The food sector has been particularly resilient – the pandemic resulted in people consuming more industrialized and frozen foods, which is a good opportunity for us as we supply food grade gasses and modified atmosphere packaging (MAP) solutions to preserve foods for a longer period.

In Argentina, many petrochemical and chemical companies are producing large volumes and they are using nitrogen to purge their facilities, reactors, and vessels for maintenance. This generates significant demand for Air Products' solutions, and we have been providing them with nitrogen, oxygen, hydrogen, argon, carbon dioxide, gas separation and purification technologies, and technical support.

The construction market in Brazil has been strong as Brazilians move up the property ladder and invest in upgrading and remodeling their homes. This has generated demand for oxygen for furnaces, as well as oxygen and nitrogen to cement, lime, and glass plants to increase production, improve efficiency and safety, and lower emissions. Automotive demand also started to rebound, where Air Products offers a full range of high performance and industry standard gases such as nitrogen, hydrogen, argon, helium, oxygen, carbon dioxide, and gas mixtures to help manufacturers and suppliers improve product quality and reduce costs.

Can you tell us about Air Products' investments into green hydrogen?
Air Products has been a pioneer in hydrogen fueling for decades, and the area of green hydrogen represents a key focus globally. For example, Air Products, ACWA Power and NEOM signed an agreement to construct the world's largest green hydrogen production facility in Saudi Arabia – a US$5 billion project which will supply 650 tons per day of carbon-free hydrogen.

There are good opportunities for green hydrogen in Brazil, especially now that steel companies have taken the decision to produce green steel in the country. Brazil can be a significant green hydrogen exporter, but also has the potential to internalize different supply chains.

Argentina has significant biomass potential to generate green power. By harvesting biomass, you are actually capturing CO2, allowing for a virtuous cycle. Most industries in Argentina see the potential to use green hydrogen locally, because in addition to the environmental benefits, these initiatives create job opportunities.

What benefits have you noticed from Brazil's *'New Gas Market'* legislation which was introduced in 2021?
We have seen some changes, with the most important being contracts signed between companies producing biomethane and companies willing to buy biomethane in the open gas market. Customers can use the pipeline and are paying a distribution and transmission fee, which has currently been set at about US$1 per million BTU. Any company willing to produce biomethane can inject the biomethane in the Brazilian natural gas grids and sell to customers willing to buy.

More companies are looking for access to natural gas. The situation in Ukraine distorted the market to a degree, as companies were thinking about importing LNG and injecting it into the grid, but this was delayed. People then suddenly opened their eyes to the biomethane market, as after the Russian invasion, natural gas prices skyrocketed and investment into local biomethane production started to make sense. Today, landfills in Brazil are starting to become professionally managed to capture and sell the biomethane that is generated.

Can you tell us about Air Products' *'Third by 30'* initiative from the perspective of Brazil and Argentina?
Air Products' operations in Brazil and Argentina offer some inherent advantages with respect to the company's Third by 30 goal to reduce its CO2 emissions intensity (kg CO2/MM BTU) by one-third by the year 2030 from a 2015 baseline. In Brazil we are fortunate that the grid is already 84% green. In Argentina, we are buying 85% of our power from the Los Teros wind farm. By addressing how we buy power, we make significant progress in reducing CO2 emissions. ■

Industry Thoughts: Sustainability

MULTINATIONAL COMPANIES IN LATIN AMERICA DISCUSS CARBON EMISSION REDUCTION INITIATIVES

Gustavo Cienfuegos,
Managing Director – Latin America, Topsoe
"As markets mature, we have been introducing more projects for blue technologies, which we believe are key to decarbonization. The world is not yet fully prepared for green technologies, as many are still very expensive compared to traditional technologies. Therefore a transition through blue technologies is an important step forward. For example, there are a lot of a projects related to CO2 sequestration and underground storage."

José Magalhães Fernandes,
President, Honeywell Performance Materials & Technologies for Latin America
"We developed the Ecofining technology decades ago, and today have almost 30 licensed manufacturing plants around the globe producing more than 300,000 barrels per day (bpd) of renewable fuel. Honeywell strongly believes that Latin America is very well positioned to lead in this segment, given the availability of biobased feedstock in the region, including different vegetable oils and animal fats in countries such as Brazil, Argentina and Uruguay that can be converted into renewable fuels."

Adriana Nobre,
Managing Director - Latin America, Croda
"In Latin America we are driving significant reductions in carbon emissions, such as at our Brazil site now running 100% on renewable energy. Our carbon emission road map will support a reduction in our carbon emissions by 20% in 2022 compared to our 2018 emission numbers. Moreover, we are achieving this while increasing capacity. We have a clear roadmap for all our Latam sites to reduce carbon emissions by 50% by 2030 and to reach carbon neutrality by 2050."

Alejandro González D´Hyver,
CSR & Communications Manager – Latam North, Ecolab
"Within our operations, by 2030, we want to achieve a positive impact on water, reduce carbon emissions by half, with a goal verified by the Science Based Targets initiative, and achieve 100% of our energy consumption from renewable sources in all our operations around the world. Ecolab wants to save more than 300 billion gallons of water, equivalent to the drinking water needs of 1 billion people in a year."

MEXICO

"As many companies are looking to relocate their facilities to strengthen regional production, Mexico has become one of the options, and as more sectors decide to come to Mexico, they will need a more robust supply of chemical products."

- Miguel Benedetto,
Director General,
National Chemical Industry Association of Mexico (ANIQ)

Tulum, México Image courtesy of Spencer Watson.

APLA 2022

Mexico

A NATION WITH VAST POTENTIAL REQUIRES MORE SUPPORT FROM THE STATE

Image courtesy of Evonik

The paradox of Mexico's petrochemical and chemical industry is that its potential has arguably been elevated while the country's government has taken steps to actively weaken it. Tensions between the US and China have heightened, symbolized by Nancy Pelosi's visit to Taiwan in August 2022; freight rates from Asia remain high; and trade between Russia and the majority of Western nations has ground to a halt. Mexico has the idle petrochemical capacity to fill this void, an ideal location to supply both North and South America, and a young, skilled workforce. However, of all the major Latam markets covered for this report, the consensus of frustration with the government was most palpable in Mexico.

Energy sovereignty has been high on the agenda for the AMLO administration, headlined by a proposed constitutional reform to give more power to Mexico's Federal Electricity Commission (CFE). The bill was rejected by Congress in April 2022, but remains a priority for a government that has been unwilling to incentivize private investments. Limiting the supply of privately generated electricity has alarmed the country's industrial base, and from a chemical perspective, the failure to modernize the petrochemical facilities of State-run energy giant, Pemex, has resulted in a scarcity of domestically produced raw materials that negatively impacts competitiveness.

"In the global chemical sector, 60% of the costs of production represent either feedstock or electricity, which underlines the importance of being competitive in these areas," noted Miguel Benedetto, director general of the National Chemical Industry Association of Mexico (ANIQ), who revealed that, after the government's decision in April, ANIQ conducted a survey among its members which demonstrated that 75% of the chemical companies established in Mexico can produce their own electricity, or they have a private entity as a supplier, so only 25% of the industry demand for electricity is supplied from the State.

Discussing the potential damage the proposed electricity reform could cause, Benedetto commented that if it were to succeed, this would require that 75% of chemical companies in Mexico switch from their own or private production to CFE supply. "This would have two impacts – first of all, an estimated 3 billion pesos additional cost, which is a substantial amount; and secondly, we do not have the guarantee that the investments needed from CFE in order to support the growth of the industry would be made," he said, commenting that ANIQ has shared these concerns with the Ministry of Energy and the Ministry of the Economy.

Martín Toscano, president of Evonik Industries Mexico, underlined the importance of establishing more meaningful dialogue with Mexican authorities to adopt a common agenda and foster a more competitive chemical industry with the necessary raw materials and energy supply to keep pace with market growth. "It is important for authorities to realize the relevance of the chemical industry as a key driver of the economy, especially for exports," he stated, warning that if the current situation does not change it could represent an opportunity lost for Mexico considering the country's role in the China Plus One discussion in the US.

Abraham Klip Moshinsky, director general of Unigel Mexico, voiced his concern about the complaints raised by the US and Canada surrounding Mexico's compliance with the USMCA free-trade agreement. "If foreign companies see that Mexico is not respecting what they have signed and committed to, why would they consider investing more in the country?" questioned Moshinsky, stating that he hopes the government will react and change its path.

But damage to investor confidence will be difficult to restore anytime soon. "Private and foreign investment into the energy sector is currently being discouraged by the government as it intends to keep control, but this can be detrimental to the development of the hydrocarbons and green energies necessary for a more sustainable future," said Moshinsky.

Despite their worries over the direction of government policy, Benedetto, Toscano and Moshinsky all affirmed that the current global context and regionalization of supply chains present unique opportunities for Mexico's

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> **The polyethylene business is global and everything is connected, including factors such as the Chinese economy [...] Therefore, we must not react too quickly to increases and decreases of demand or inflation, but rather prepare the company to deal with any scenario.**
>
> *Stefan Lepecki, CEO, Braskem Idesa*

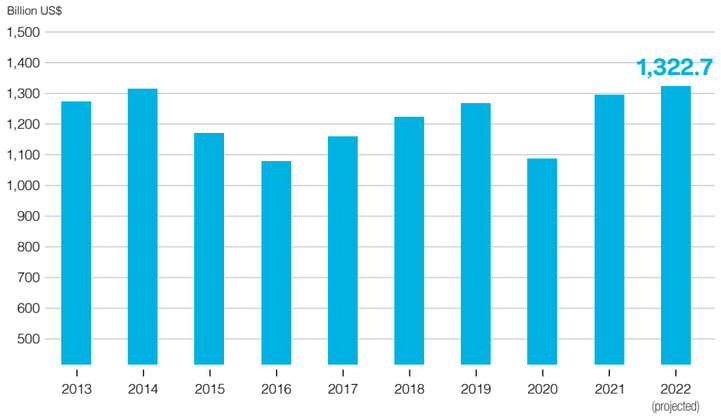
MEXICO AT A GLANCE

Source: IMF, data for 2022

CAPITAL
Mexico City
GDP
US$1,322.7 billion
GDP GROWTH
2.0%
HEAD OF STATE
President Andrés Manuel López Obrador
TOTAL INVESTMENT (% OF GDP)
21.9%
GROSS NATIONAL SAVINGS (% OF GDP)
21.3%
CURRENT ACCOUNT BALANCE (% OF GDP)
-0.6%

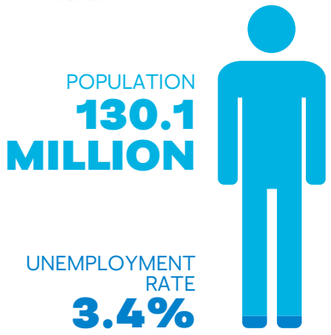
GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



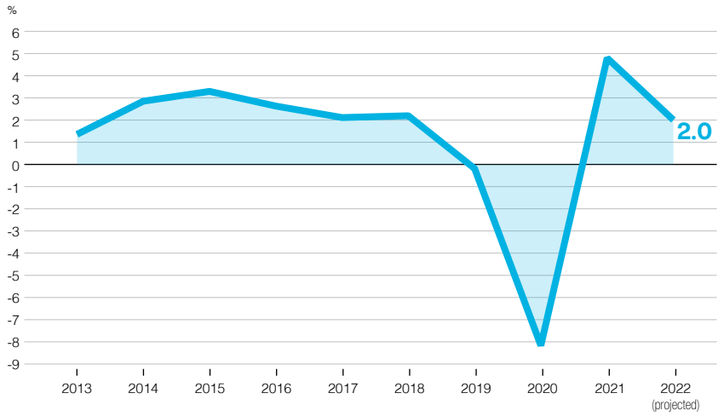
DEMOGRAPHIC DATA

Source: IMF, 2022 data



GDP GROWTH

Source: IMF



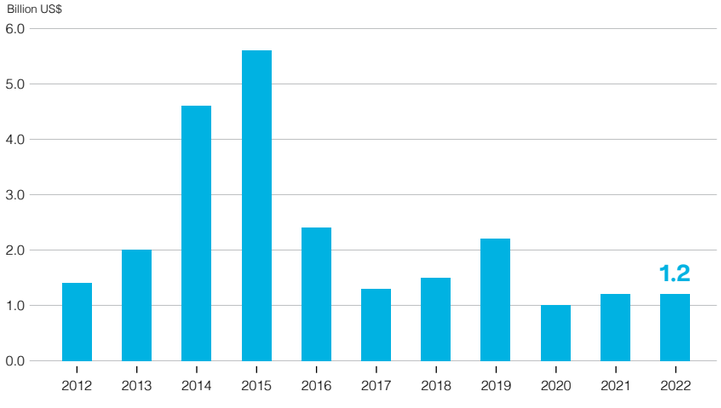
GDP PER CAPITA
US$10,118

GDP PER CAPITA (PPP)
US$20,867

INFLATION RATE
4.1%

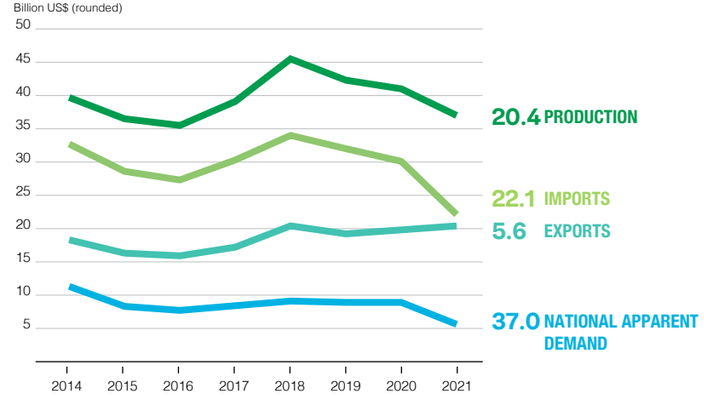
CHEMICAL INDUSTRY INVESTMENT

Source: ANIQ



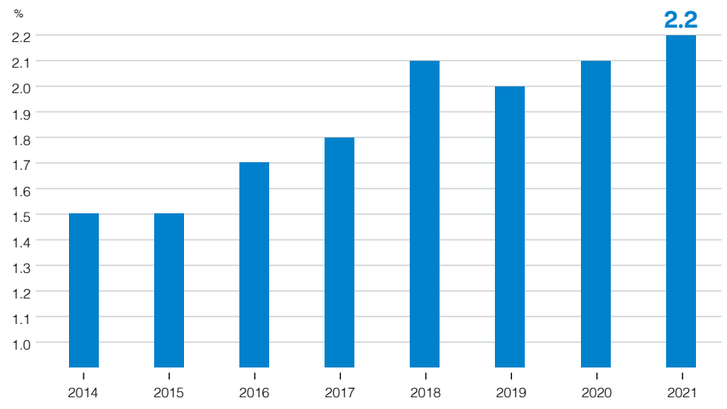
CHEMICALS PRODUCTION AND TRADE (2021)

Source: ANIQ



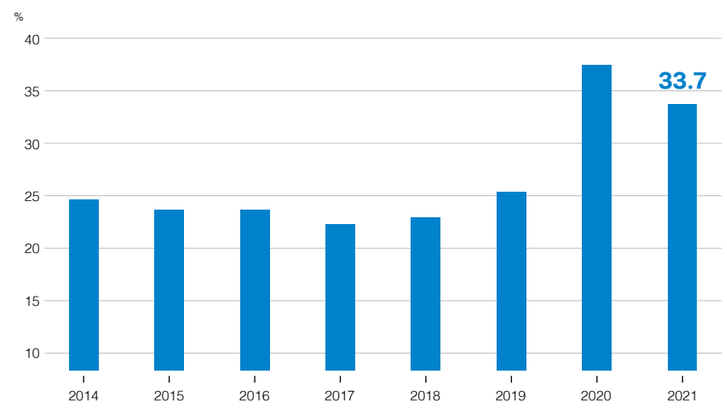
% PARTICIPATION OF THE CHEMICAL INDUSTRY IN THE GDP

Source: ANIQ



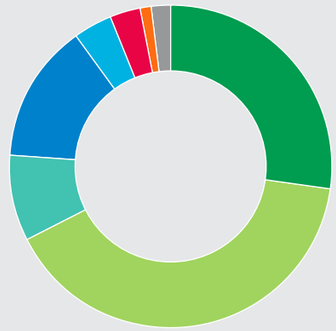
CHEMICAL INDUSTRY IDLE CAPACITY (%)

Source: ANIQ



CHEMICAL INDUSTRY BREAKDOWN (% SALES VALUE)

Source: ANIQ



	%
Petrochemicals	27.4
Synthetic resins	40.2
Agrochemicals	8.6
Inorganics	14.0
Industrial gases	3.7
Synthetic rubbers	3.2
Pigments and colorants	1.1
Adhesives	1.8

CHEMICAL INDUSTRY AT A GLANCE

Sources: ANIQ

PERCENT OF GDP
2.2%

IDLE CAPACITY
69.1%

INVESTMENT
US$1.2 BILLION

Miguel Benedetto

Director General
NATIONAL CHEMICAL INDUSTRY ASSOCIATION (ANIQ)

The industry is willing to economically support Pemex to further invest in infrastructure to increase the supply of raw materials.

What are the main benefits of Mexico from a nearshoring standpoint for chemical businesses?
As many companies are looking to relocate their facilities to strengthen regional production, Mexico has become one of the options, and as more sectors decide to come to Mexico, they will need a more robust supply of chemical products. ANIQ would like to play an instrumental part in this process, identifying the specific demand of chemical products to cater for this growth. We are working with the authorities and planning how we can jointly implement what needs to be done to develop this supply chain as efficiently as possible.

How significant for Mexico is the announcement that Braskem Idesa will build an ethane import terminal, and what is the latest dialogue with Pemex to stimulate investment into domestic raw material production?
The ethane import terminal project is extremely important for the Mexican chemical industry, and is the largest investment of its kind made in Latin America ever. If this alliance is successful, it opens the door for further public and private industry collaboration in other industries and projects.

ANIQ has offered programs for investment into Pemex facilities, but this proposal is still being evaluated. The industry is willing to economically support Pemex to further invest in infrastructure to increase the supply of raw materials. In the meantime, we are importing products from the US to fulfill downstream requirements.

In April, Congress rejected the proposed constitutional electricity reform. What would reforms in this area mean for the chemical industry?
In the global chemical sector, 60% of the costs of production represent either feedstock or electricity, which underlines the importance of being competitive in these areas. After the government's decision in April, we conducted a survey among ANIQ's members which demonstrated that 75% of the chemical companies established in Mexico can produce their own electricity, or they have a private entity as a supplier. If the reform proposal was to succeed, it would have required that 75% of chemical companies in Mexico would have to switch from their own or private production to CFE supply. This would have two impacts – first of all, an estimated 3 billion Pesos additional cost, and secondly, we do not have the guarantee that the investment needed from CFE in order to support the growth of the industry would be made. ANIQ has shared these implications with the Ministry of Energy and the Ministry of the Economy, to express our concerns of such proposed legislation.

To what extent is a shortage of ammonia for fertilizers impacting Mexico's agriculture and chemical sectors?
Currently, and partly due to the war in Ukraine, prices have increased by over 200%, which greatly impacted the agricultural sector. Nevertheless, in the last US Mexico meeting, there was an offer that Mexico can import some fertilizers from the US for special prices to support Mexican agricultural, which a key supplier of produce to the Americas.

Can you tell us about ANIQ's latest initiatives surrounding sustainability?
ANIQ has had a Responsible Care program for more than 30 years, and in recent years we have incorporated all the objectives of sustainable development into this program, including how to implement and enforce these goals. We have also participated in the development of sustainability and circularity legislation. In 2021, ANIQ published its first report on circularity in the chemical industry, specifically in the plastics and resins sector. We also published our first sustainability report 2021, with the second edition published in August 2022.

In 2021, ANIQ completed the implementation of SAICM (Strategic Approach to International Chemicals Management) at a 100% level in Mexico – we are one of the few chemical industries in the world to have achieved this. ANIQ continues to work with Congress and the Ministry of Environment on how to reduce carbon emissions. Once we have achieved this in Mexico, we will move on to creating a market amongst the three countries in North America. We are currently at a pilot stage with the full program, which is expected to be implemented in 2024. ■

Stefan Lepecki

CEO
BRASKEM IDESA

We have strengthened our relationship with Pemex and the government, and importantly, we will create an alternative to Pemex for ethane supply.

Has demand for Braskem Idesa's products kept up in 2022?
Inflation is creating a complex global situation and many countries are starting to talk about a recession. Braskem Idesa has not yet seen a strong decrease in demand for our polyethylene products in 2022 – both domestic and export markets have remained robust. We are, however, concerned about the future. Fortunately, the growth of polyethylene consumption is normally higher than the GDP, depending on the country. The petrochemical sector in general as well as Braskem Idesa had an excellent year in 2021. The polyethylene business is global and everything is connected, including factors such as the Chinese economy. We are aware of the circularity of the industry and therefore must not react too quickly to increases and decreases of demand or inflation, but rather prepare the company to deal with any scenario.

What is the status of Braskem Idesa's Puerto Mexico Chemical Terminal in Veracruz?
In 2021, we had an agreement with Pemex where we reviewed the commercial conditions of our contract, and established conditions for Braskem Idesa to implement the terminal. This agreement gives us the support of Pemex, Interoceanic Corridor of the Tehuantepec Isthmus (CIIT), and the port authorities to progress this investment, including the concession of the right of way in lands that belongs to Pemex. By obtaining the concession, we are allowed to implement our pier, and are currently in the process of buying the land from CITT and the port authority. We have strengthened our relationship with Pemex and the government, and importantly, we will create an alternative to Pemex for ethane supply, which will provide more feedstock for Pemex to produce their petrochemicals to supply the industry in Mexico. The Puerto Mexico Chemical Terminal in Veracruz will start operations in the second half of 2024.

Can you elaborate on your partnership with Alcamare for PCR (Post-Consumed Resin) products?
From a circular economy perspective, both chemical and mechanical recycling are relevant, but in the short term there is already great potential for mechanical recycling in Mexico. The most important piece of the puzzle in the recycling process is the collection of waste. Braskem Idesa has a partnership with Mexico's leading recycling company, Alcamare, which has a recycling plant in Querétaro, 17 collection centers across the country, and the technology to segregate and clean waste. They collect our resin, mix it with their recycled waste, and using our joint technologies and expertise, produce high quality post-consumed resin (PCR). In collaboration, Braskem Idesa and Alcamare will launch a high quality, FDA approved recycled resin for food content markets by the end of the year.

How can petrochemical producers balance increasing production and reducing greenhouse gas emissions?
We believe that plastic demand will continue to grow, and have the responsibility to produce plastic without affecting the environment. One of the steps we are focused on is finding opportunities to produce polyethylene more efficiently. In 2021, the company was able to reduce its emissions by approximately 100,000 tons by optimizing our power plant system. This is one factor on the path to achieving 50% CO_2 emissions reduction by 2028 and carbon neutrality by 2050. However, we also need technology development and a way to capture CO_2 emissions to transform into products that can be absorbed by the market. Braskem Idesa is therefore establishing agreements with technology companies working on emission reduction, carbon capturing, storage, and transformation.

What potential do you see for Mexico's petrochemical industry?
There is tremendous potential despite political issues and instability in the energy sector. Mexico has a strong domestic market, great availability of natural resources, proximity to important markets such as the US, free trade agreements, a competitive labor force, and logistic capabilities to export. The current global situation reinforces this importance of establishing investments in Mexico. ■

Patricio Gutiérrez

Chairman of the Board and CEO
GRUPO IDESA

How has demand for Grupo Idesa's different business units evolved in 2022?
The business unit which has performed best is our petrochemical division. We have seen good result in all our different products, especially in ethanolamines business. Grupo Idesa's logistics division, including our terminal in the Port of Veracruz, has been underperforming. We expanded this terminal to provide service for gasoline and diesel handling capabilities. Our distribution arm, Alveg, is having a more difficult year as we have seen a lot of competition from local and international competitors.

Demand for ethanolamines remains strong, but other products in our distribution business have slowed.

To what extent could private investment in Mexico's petrochemical sector improve the supply of feedstock?
There are significant opportunities for investment as Mexico still has a huge demand for chemicals, petrochemicals, and every type of raw material. It is critical to make investments upstream or the first steps of the value chain in terms of petrochemicals, as this will add value to Mexico's abundant natural resources such as oil and gas. Upstream development is a long-term goal, but in the meantime a mix of private and public investment is necessary. This can have a significant impact and decrease the deficit in the trade balance. In the near term, the focus is on infrastructure development for raw material imports.

Braskem Idesa is making a huge investment, which allows for the flexibility to source raw materials independently if Pemex cannot supply the requirements. Once this new terminal is up and running, it will allow the industry to start making proposals to Pemex to try to optimize their existing assets and operate at a higher capacity. There might be options for companies to invest in certain assets together with Pemex and increase the production of different products that Mexico needs, such as ethylene oxide. ■

Abraham Klip Moshinsky

Director General
UNIGEL MEXICO

What type of products does Plastiglas (Unigel's Mexican subsidiary) produce, and can you explain how the company produces recycled PMMA?
Plastiglas is the largest exporter of cell cast acrylics to the US – our product represent approximately 50% of all imports into the US and Canada. We recently started offering EcoGreen cell cast sheets, which are made of 100% recycled raw materials. Plastiglas has also started to produce some extruded sheets, but most of our business is really cell cast sheets.

We produce our own scrap when making cell casts and also collect our customers' scraps. We then reprocess this scrap with technology we have developed in-house. We later purify it so that it behaves like the virgin material. Purification is necessary as acrylic sheets are transparent and you want to keep that transparency even when using recycled raw material.

Can you speak of the construction of Unigel's first green hydrogen plant in Brazil?
When we produce our MMA and acrylonitrile, as a co-product we can generate ammonium sulfate, which is a fertilizer. When the Brazilian government, through Petrobras, decided to lease their agrochemical plants, it was obvious for us to participate and fortunately we won the bid. Every company is looking at growing in an environmentally sustainable way, and Unigel has found a very interesting niche to move into the green hydrogen and green ammonia process.

What needs to happen for Mexico to take advantage of nearshoring opportunities?
In terms of the new free trade agreement between Mexico, the US, and Canada, the US and Canada have issued some complaints which should still be addressed, and I am concerned that some companies and industries will lose faith and confidence in investing in Mexico depending on how these complaints are handled. Mexico is the obvious country to invest in, but the country first has to meet its commitments to create a favorable investment environment. ■

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chemical sector. The extent to which this will be capitalized upon remains to be seen, but Braskem Idesa's US$400 million investment into the Puerto Mexico Chemical Terminal in Veracruz, which is expected to start operations in the second half of 2024, suggests a path forward for the industry.

The Pemex situation has improved, but companies cannot depend solely on Pemex to supply their plants. The market is certainly there: PP demand has been growing at 6%-8% annually. We are expectant of the new refinery in Dos Bocas, if Pemex produces more raw materials, we could have more flexibility.

Alejandro Alanís, Commercial Director, Indelpro

A landmark petrochemical investment
In 2021, Braskem Idesa reached an agreement with Pemex to review the commercial terms of its contract and establish conditions for Braskem Idesa to implement the Puerto Mexico Chemical Terminal – a landmark project that represents the largest current petrochemical investment in Latin America.

"This agreement gives us the support of Pemex, Interoceanic Corridor of the Tehuantepec Isthmus (CIIT), and the port authorities to progress this investment, including the concession of the right of way in lands that belong to Pemex," elaborated Stefan Lepecki, CEO of Braskem Idesa, who explained that by obtaining the concession, Braskem Idsea is allowed to implement its pier, and is currently in the process of buying the land from CITT and the port authority, as it is an ideal location.

"We have strengthened our relationship with Pemex and the government and, importantly, we will create an alternative to Pemex for ethane supply, which will provide more feedstock for Pemex to produce their petrochemicals to supply the industry in Mexico," stated Lepecki, describing the project as a win-win-win situation for Braskem Idesa, Pemex, and the Mexican petrochemical industry.

Patricio Gutiérrez, chairman of the board and CEO at Grupo Idesa, remarked that, once this new terminal is up and running, it will allow the industry to start making proposals to Pemex to try to optimize its existing assets and so operate at a higher capacity: "There might be options for companies to invest in certain assets together with Pemex and increase the production of different products that Mexico needs, such as ethylene oxide, to mention one example."

Discussing how the relationship between Pemex and the Mexican petrochemical industry has evolved, Alejandro Alanís, commercial director at Indelpro, a joint venture between Mexico's largest private petrochemical group, Alpek, and LyondellBasell, ob-

served: "We are expectant of the new refinery being built in Dos Bocas, and if Pemex improves its operation and produces more raw materials, we could have more flexibility," said Alanís.

Although a stronger Pemex would undoubtedly benefit the Mexican chemical sector, its lack of investment into petrochemical production has created opportunities for vertically integrated distributors and traders to supply Mexico with the raw materials it needs.

N. Adriana Ramírez Millán, chemical sales director at HELM de México, revealed how seven years ago Pemex had a change of strategy regarding its production, meaning Mexico would need more materials such as styrene, and amines like glycol – for which the country's vast automotive industry had been particularly dependent on Pemex. "When Pemex decided to ramp down that production, we saw this opportunity, not only for the automotive industry, but also for many other applications like the formulation of some polyurethanes," detailed Ramírez, mentioning that it made sense not only from the demand in Mexico, but also because glycols is one of the largest global products for HELM and the company has very strong alliances with many producers around the world. ■

Agricultural production needs support to succeed. Crops need protection from pests, diseases and weeds [...] In terms of sustainability, we have to look for the best technologies with the lowest chemical load – an optimized handling of chemical products with organic and biological products.

Javier Valdés,
Managing Director, Syngenta Mexico

Martín Toscano

President
EVONIK INDUSTRIES MEXICO

We need a strong, robust, competitive and sustainable chemical industry in Mexico to capitalize on this regionalization and advantages such as the United States-Mexico-Canada Agreement (USMCA).

Has the strong demand experienced by Evonik in 2021 continued into 2022?
Things continue to be very positive for us in Mexico, and Evonik has experienced growth across the board reflected in sales numbers and volume in 2022. However, we are receiving mixed messages about how the market is developing, considering the uncertainties in Europe driven by the situation in the Ukraine. We have also started to hear about some slowdown in the US due to high inflation impacting businesses and rising transportation and energy costs. In Mexico, we have not seen that slowdown yet (as of July 2022), as demand is being driven by manufacturing value chains, either regionally or globally, for the export market. There have been a number of new projects in different segments where companies are either investing in new assets in Mexico or expanding existing assets, which is positive.

What are your views on the current business climate for chemical and petrochemical companies in Mexico?
The chemical industry in Mexico is currently running on 60% of its total installed capacity, mainly due to the lack of raw materials coming downstream from the petrochemical industry and the uncertainty and lack of competitiveness surrounding energy supply. Investment by the private sector is welcome to be able to import raw materials that were historically only available through the local supply of Pemex. I believe there is still a long way to go as the situation for the time being remains pretty much unchanged. This is concerning and could represent in an opportunity lost for Mexico considering that for the relocation of supply chains, nearshoring, the country will be one of the key elements of the *China Plus One* discussion in the US. We need a strong, robust, competitive and sustainable chemical industry in Mexico to capitalize on this regionalization and advantages such as the United States-Mexico-Canada Agreement (USMCA) and the renewal of the FTA with the European union. All our customers need a strong supply of ingredients for the different industries they participate in. It is important for authorities to realize the relevance of the chemical industry as a key driver of the economy, especially for exports.

Why do you think many chemical companies are moving towards the specialties space?
Today, being competitive depends on the solutions you can bring to the table in sustainability, green chemistry and green jobs. Specialty chemicals allow you to develop solutions that really contribute to this agenda. More companies moving into the specialties space might also be about the level of connection that you develop with customers and partners. You need a much higher degree of intimacy in the development of products and co-innovation process, since specialties are unique to the application of a final product.

Can you elaborate on the importance of plastic recycling from a sustainability standpoint?
Evonik has a growing number of next generation type of products, Next Generation Evonik, which are technologies and solutions that have a positive impact when it comes to sustainability, both in terms of footprint and handprint. Across all 15 of the company's business lines we consider the circular economy.

What are the advantages of Mexico's strategic location?
With the openness of Mexico for international trade it has been extremely advantageous to be located here, especially with regard to products coming from the US where we have good access and a competitive position from a logistics and supply chain perspective. I do not believe that we will totally move away from globalization in our industries and businesses, but we are going to see stronger regionalization, and Mexico should be a beneficiary of this.
In 2023 we hope to see the implementation of new projects and expansion of manufacturing capacities in the country. For this to happen, a closer and more meaningful dialogue is needed with the authorities to foster a more competitive chemical industry. ■

N. Adriana Ramírez Millán

Chemical Sales Director
HELM DE MÉXICO

HELM has a very ambitious growth strategy for its Chemicals business in the Americas, which includes both organic and inorganic growth.

Can you explain HELM de México's business model and the footprint the company has in Mexico today?
HELM has five divisions: pharmaceutics, animal nutrition, human nutrition, crop nutrition, and chemicals. Due the nature of the chemical business and its dynamic, diverse market, it is the largest division in volume and turnover, both in Mexico and worldwide for HELM. HELM de México's chemical division was born almost 18 years ago as a distributor, our first product being acetone. Since then our chemical portfolio has grown considerably to around 18 products where we have a leading position in the market. Several strategic smaller distributors in Mexico help us reach the depths of the market. Today, our core business is bringing large dimensions of products into Mexico and transferring from ships all the way down to totes through our distribution arms. That is why in Mexico HELM operates more as a marketing company than a classical small lot distributor. Our target customers are purchasing product in tanker trucks, and we have some solids where we partly sell smaller lot sizes too.

What are the main market drivers for glycol in Mexico?
When Pemex decided to ramp down production, we saw this opportunity, not only for the automotive industry, but also for many other applications like the formulation of some polyurethanes, and we started inquiring into PET and polyester fibers, and other markets that need glycol. The volume we have access to is mainly from the US, Mexico and Brazil, which allows us to reach agreements and have diversity of sources.

On the topic of resins, how has Helm's styrene business developed?
Styrene is one of the products no longer being produced in Mexico but the industry still has a demand for it, such as the the EPS plant in Altamira. Furthermore, as with glycol, we handle styrene in the all parts of the world as one of Helm's main products. Product handling must be done carefully regarding safety and the environment, from the loading to the delivery. That is why having the infrastructure, the controls, and working in high-level terminals with safety standards opens the door to business opportunities in this area.

What do you believe are the main challenges facing Mexico's chemical industry at the moment?
One of the challenges, but also an opportunity for companies like HELM, is to identify which products are needed whose demand cannot be met by national production. However, a lack of local production results in challenges surrounding lead times, especially in the last two years. Mexico has the advantage of having several entrances through different ports, whether a ship comes from China, Europe or Asia, but lead time delays can make a great business a terrible business in an instant. Prices can change in a week and if someone else can get in faster, it throws profits out of balance. Another challenge is storage capacity.

Could you give examples of circular economy initiatives Helm de México is involved in?
HELM is concerned worldwide to implement an environmental concept, not only in its chemicals division. We look to find chains and products of natural origin that can be implemented in the industry, such as biodiesel, but the market at the level of prices still needs some training and maturing, because those green products tend to be above the average price. Our clients producing polyethylene are very focused on green products, and HELM is aligned with this, but these concepts must continue to be developed before they receive widespread adoption.

What are Helm de México's priorities and vision for the next two years?
Our target for the next two years is to further increase our leading position in the Mexican chemicals market by increasing our top products as well as adding new products to our portfolio. HELM has a very ambitious growth strategy for its Chemicals business in the Americas, which includes both organic and inorganic growth. The recipe of focusing on scale and consolidation with clients, suppliers and terminals has worked well for us, synchronizing business strategies. Mexico sometimes has sudden changes regarding legal compliance, so it is important for all parties to be on the same page. ■

Alejandro Alanís

Commercial Director
INDELPRO

Can you provide an overview of the evolution of Indelpro and its role within the portfolio of Alpek?
Indelpro is a part of Alpek, the largest private petrochemical group in Mexico. The larger part of the business, which is about 80% of Alpek, produces polyester, fibers, and PET. Alpek is the main PET producer on the continent. Indelpro is a joint venture between Alpek and LyondellBasell, divided 51% and 49%, respectively.

What are your views on the issues surrounding a lack of feedstock being supplied by Pemex in Mexico?
The Pemex situation has improved, but companies cannot depend solely on them. The market is certainly there: PP demand has been growing at a rate of 6% to 8% a year. We are expectant of the new refinery being built in Dos Bocas, if Pemex improves its operation and produces more raw materials, we could have more flexibility.

How would you evaluate the opportunity for nearshoring for Mexican exports?
Mexico has a great opportunity to take advantage the conflict between the US and China, and from a logistics standpoint due to fluctuating container prices.

The main issue is determining how much of that opportunity Mexico can seize. The current political climate in Mexico involves uncertainties in important areas such as electricity provision and a lack of safety. Some investments have stopped, especially in electric power generation and clean energy. Mexico needs to take this chance by establishing clear rules, because this will benefit the country in the long term.

Can you speak to Alpek Group's approach to sustainability and ESG?
Alpek is probably the main PET recycler in the world. We want to be at the top of the industry when it comes to zero incidents and TRIR (accidents per man-hours worked). Indelpro intends to be net zero by 2050, reducing scope 1 and scope 2 emissions, and we are working hard on circularity topics. ■

Javier Valdés

Managing Director
SYNGENTA

In 2022 a global lack of fertilizer supply has been enflamed by the Russia-Ukraine crisis. To what extent has this impacted the market?
Considering that more than two thirds of Mexico's fertilizers come from Russia and Ukraine, the effect has been severe, with nitrogen-based fertilizers having more than doubled in price. Fortunately, the price of harvests has compensated for the costs of some supplies, which allows the producers' return on investment to remain. In June we noticed that prices went down slightly due to a reduction of demand, but they remain high.

How can agrochemicals with lower environmental impact improve agricultural yield?
In terms of sustainability, we have to look for the best technologies with the lowest chemical load – an optimized handling of chemical products with organic and biological products. We are doing this with the diverse protocols we have in the field. Resistance development is also very relevant. We genetically develop crops like tomatoes, peppers, and corns, looking to give them a natural resistance with the smallest chemical or biological products requirements possible. However, there are pests and diseases for which we must control.

We optimize the use of fertilizers through soil analysis, deciding what the best solution is in terms cost-benefit for the producer, as well as offering technical assistance.

What is Syngenta's vision and mission in Mexico for the years ahead?
We will continue to make crops more resilient to climate change while reducing production costs. One of the characteristics in Mexico is that we have more than 5 million production units; in order to reach those producers with new innovations, we need a robust training scheme. We are expanding our credit area to provide access to small producers. Currently, the number of farmers with access to credit is under 10%, so we are putting together financing programmes to broaden access to technologies and improve standards. ■

BRAZIL

"Brazil already has one of the cleanest energy matrices in the world and is still well positioned for its hydroelectric potential, the production and use of ethanol, the availability of biogas and bio-methane, in addition to the favourable conditions for wind and solar energy."

- André Passos Cordeiro,
Interim CEO,
ABIQUIM

Rio de Janeiro, Brazil. Image courtesy of Agustin Diaz Gargiulo.

APLA 2022
EDITORIAL

Brazil

POLITICAL RAMIFICATIONS IN LATIN AMERICA'S BIGGEST MARKET

Image courtesy of Port of Santos

2022 in Brazil has been dominated by arguably the most polarizing election in the nation's history, pitting incumbent right-wing populist Jair Bolsonaro's Liberal Party (PL) against left-wing Luiz Inácio Lula da Silva's Workers Party (PT). The disparaging ideologies of the two candidates also mirrors the Latin American trend away from the political center, with populations looking for something different than the status quo. However, in the case of Latam's biggest economy, despite the views each candidate stirs up in their supporters and detractors, neither is likely to dramatically change Brazil's economic model, and business opportunities will remain for a country with such considerable resources.

For instance, while corruption and a failure to invest in infrastructure under the previous Lula administration was an opportunity lost for Brazil during a time of growth, the decision to continue Fernando Henrique Cardoso's (the president who preceded Lula's first term) broad economic strategy reaped dividends for the country, making a mockery of suggestions that PT will lead Brazil into any form of communism.

On the other hand, although supposedly a business-friendly government, not all of the changes implemented under the Bolsonaro regime have helped the increase. "According to data from ABIQUIM, every 22 to 25 million m³/day of rich pre-salt gas can make investments in the order of US$6 billion in a global scale cracker viable, with a multiplier effect on the economy, considering job creation and salary increases, tax collection, trade balance, multiplication in related chains, etc.," he said, adding that this would generate a virtuous cycle, resulting in new investments and increased production.

From a renewable energy standpoint, Brazil already has one of the cleanest energy matrices in the world and is well positioned to capitalize on its hydroelectric potential, the production and use of ethanol, and the availability of biogas and biomethane, in addition to favorable conditions for wind and solar energy.

Balancing the old with the new

Each of the Brazilian petrochemical and chemical producers interviewed for this report were keen to showcase their range of sustainable, green products. For instance, when discussing Braskem's evolution since its creation 20 years ago, Edison Terra, VP olefins and polyolefins – South America, pointed to the launch of green polyethylene in 2010, producing ethylene from dehydrating sugarcane ethanol. "We have the target to reach 1 million tons of green ethylene and polyethylene by 2030," he added.

João Parolin, CEO of Indorama Ventures Limited's (IVL) oxides and derivatives (IOD) division for South America, explained how customer demand is stimulating R&D for greener products. He gave the examples of the detergents industry developing concentrated products to save on packaging and transportation to lower their scope three emissions, the paints and coatings industry moving more towards water-based solutions and products that have less hazardous air pollutants, and IVL's surfactants and solvents for crop protection that can be mixed into different solutions that are safer for farmers and the environment. "In chemical sector. For example, in May 2022 Brazil's chamber of deputies voted to end the REIQ (Special Regime for the Chemical Industry), a tax incentive created in 2013 which had allowed a reduction on the purchase of certain petrochemical raw materials. According to a study by Brazilian university FGV, the end of the REIQ is expected to cause losses to Brazil's chemical sector of R$11.5 billion in revenue and R$5.7 billion in added value, damaging competitiveness and creating an increased reliance on imports.

Another factor damaging the competitiveness of Brazil's large chemical sector is the cost of natural gas, which André Cordeiro, CEO of ABIQUIM, revealed is about three to four times higher than in countries with which the chemical industry competes. However, the country has the potential to produce a wide range of energy including gas, firstly by reducing the monopoly of state-giant Petrobras through the 'New Gas Market' regulations which were implemented in 2021, and secondly through the development of its vast array of natural resources, most notably the pre-salt reserves.

Cordeiro gave an illustration of the degree of potential competitiveness

collaboration with customers, we have developed products that help produce concentrates which use less water, less packaging, and have a lower carbon footprint," said Parolin.

Since the acquisition of Oxiteno by IVL closed on March 31st 2022, the company is now the largest producer of ethylene oxide in the Americas, revealed Parolin, who affirmed IVL's commitment to the science-based targets initiative (SBTi), which encompasses topics such as circular feedstock and carbon offsetting.

Elder Martini, CEO of Elekeiroz, mentioned that the company has identified renewable products based on soybean oil as a growth area, and highlighted the acquisition of Nexoleum, a soybean oil startup, as an example of this strategy. However, Martini's next comment was a reminder that the bulk of the chemical market remains inorganic: "That being said, the inorganic sector led by our agricultural sector has been performing the best due to the global supply chain shock in the fertilizer space. This has accounted for about half of our revenue and continues to grow at a steady pace."

There needs to be a program to extract ethane and direct it towards ethane crackers, which can rejuvenate the Brazilian chemical industry. The other possibility, particularly in Brazil, is for bio-materials to be used.

Charles Fryer, Senior Advisor, Tecnon OrbiChem

The fact that 'traditional' chemical products still account for the majority of global sales is important not to lose sight of, not only because these sales will fund ventures into greener products, but also due to the role chemicals and petrochemicals play in our day to day lives, from increasing food production to feed a growing population, to packaging that ensures produce lasts longer.

This was a point alluded to by Fabiano Bianchi dos Santos, executive director of Petrom Petroquímica Mogi das Cruzes S.A. (Petrom), the largest producer of phthalic anhydride in Latin America. Bianchi spoke of Petrom's strategy to evolve sustainably from a business standpoint, in small steps, producing materials that are valued by customers and final consumers. He elaborated: "We are already at a place where some customers are asking for more sustainable materials, but transitioning to a place where everything is green could take some time. In our industry it is important to give options to final users, and in time consumers will start to understand the importance of green products."

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André Passos Cordeiro

Interim CEO
ABIQUIM

If Brazil had a greater supply of natural gas from the pre-salt layer, the chemical industry could take advantage of many export opportunities that are emerging, especially in Europe.

What is the current situation of the chemical industry in Brazil?
From January to August 2022, apparent national consumption (CAN) decreased 1.4% over the same period last year, mainly reflecting the drop in the imported volume of chemical products for industrial use, which declined by 6.7% in the period.

The production index dropped 1.34% in the first eight months of the year, compared to the same period last year, while the domestic sales index showed a slight growth of 0.12%, in the same period. The exported volume dropped 5.7% between January and August 2022. As a result, the share of imported product reached 43% of the domestic market in the first eight months of 2022, against 45% in the same period last year. The installed capacity utilization rate was 72% on average between January and August 2022, just one point above the level of the same period last year. It is worth mentioning that, if Brazil had a greater supply of natural gas from the pre-salt layer, the chemical industry could take advantage of many export opportunities that are emerging, especially in Europe.

With the rise in prices in the international market, the deficit in the chemical products trade balance reached a new record, of US$62.06 billion in the last twelve months, a result US$16 billion greater than the deficit in 2021.

What is the greatest challenge facing the Brazil's petrochemical and chemical sectors?
The high costs of the main raw materials in the sector, which are either supplied by the international market or are referenced to markets that are not consistent with the characteristics of Brazil, undermine local production competitiveness. Furthermore, the country has registered growing and worrying levels of gas reinjection into pre-salt wells, while domestic demand has been supplied by gas imports from Bolivia and via LNG, at totally unfeasible prices.

In 2020, 224,000 tons of basic nitrogen fertilizers were produced in Brazil, an amount capable of supplying 4.3% of the demand in the same year. In 2010 the value was 20.7% and in 2000, 38.7%. If it used all its installed capacity in 2020, directing it to the production of basic nitrogen fertilizers, the Brazilian industry would be able to supply 17.6% of annual demand.

A study by the Federation of Industries of the State of Rio de Janeiro (Firjan), "Potential of Natural Gas: A New Cycle for Petrochemicals in RJ", pointed out that Rio has the potential to end the Brazilian dependence on imports of some petrochemical products, citing fertilizers as an example.

The study shows that the development of petrochemicals in Rio de Janeiro could lead to the annual production of 2 million tons of methanol and more than 5 million tons of urea, in addition to 725 thousand tons of ethylene and propylene. The volumes are sufficient to meet the current national demand for these products.

Currently, the cost of natural gas in Brazil is about three to four times higher than in countries with which the chemical industry competes.

Brazil already has one of the cleanest energy matrices in the world and is still well positioned for its hydroelectric potential, the production and use of ethanol, the availability that is now beginning to be more exploited of biogas and biomethane, in addition to the favourable conditions for wind and solar energy.

To get an idea of the degree of potential competitiveness increase, according to data from ABIQUIM, every 22 to 25 million m³/day of rich pre-salt gas can make investments in the order of US$6 billion in a global scale cracker viable, with a multiplier effect on the economy, considering job creation and salary increases, tax collection, trade balance, multiplication in related chains, etc.

What sustainability initiatives is ABIQUIM working on?
ABIQUIM has been working with its members for years towards an increasingly sustainable – and more circular – chemistry. Recently, Abiquim launched its public positioning for the circular economy, encompassing all industrial segments represented by the entity, which establishes basic principles for chemistry to move towards circularity: safety first; life cycle thinking; holistic approach to the value chain; and reduction of information asymmetry between the actors involved. ■

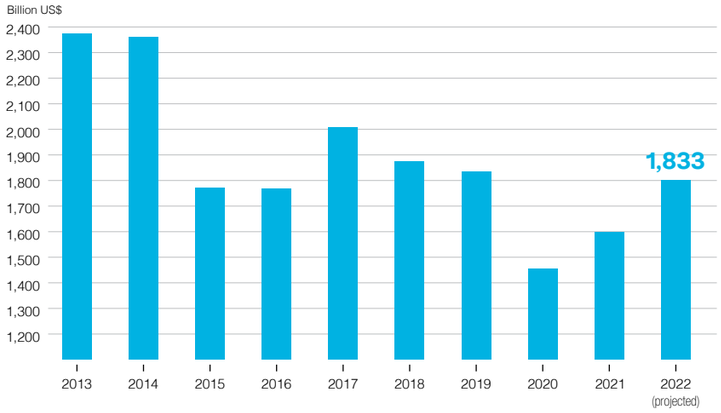
BRAZIL AT A GLANCE

Source: IMF, data for 2022

CAPITAL
Brasilia
GDP
US$1,833.3 billion
GDP GROWTH
0.8%
HEAD OF STATE
President Luiz Inácio Lula da Silva (starting 2023)
TOTAL INVESTMENT (% OF GDP)
17.1%
GROSS NATIONAL SAVINGS (% OF GDP)
15.6%
CURRENT ACCOUNT BALANCE (% OF GDP)
-1.5%

GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



DEMOGRAPHIC DATA

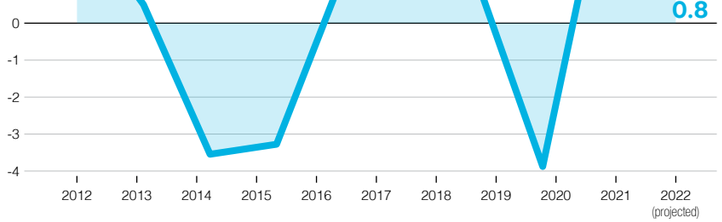
Source: IMF, data for 2019

POPULATION
213.9 MILLION

UNEMPLOYMENT RATE
13.7%

GDP GROWTH

Source: IMF



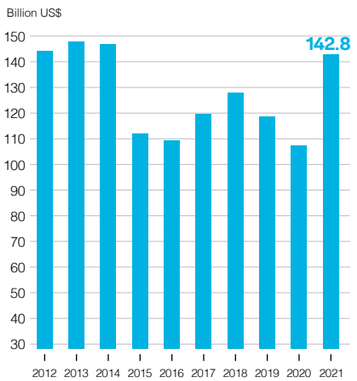
GDP PER CAPITA
US$8,570

GDP PER CAPITA (PPP)
US$14,739

INFLATION RATE
8.2%

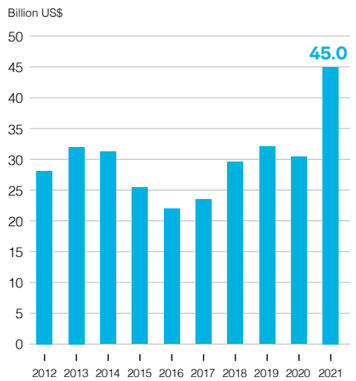
CHEMICAL INDUSTRY NET SALES

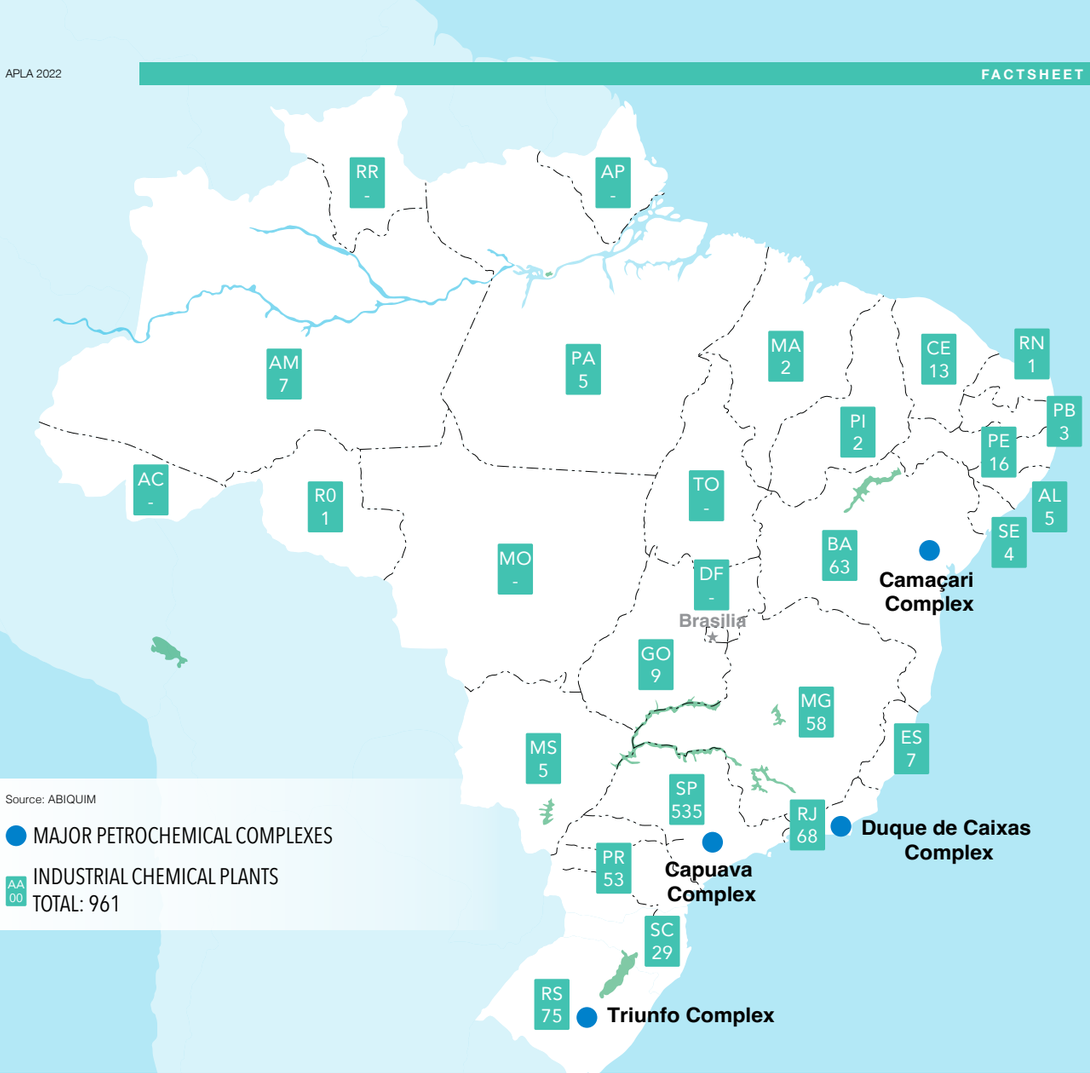
Source: ABIQUIM / MDIC / Secex



CHEMICAL INDUSTRY TRADE DEFICIT

Source: ABIQUIM / MDIC / Secex





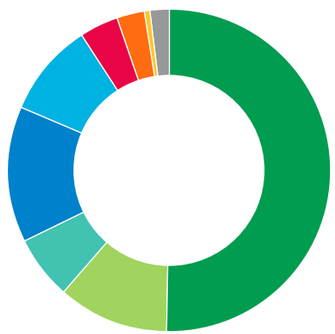
Source: ABIQUIM

MAJOR PETROCHEMICAL COMPLEXES

AA 00 INDUSTRIAL CHEMICAL PLANTS
TOTAL: 961

CHEMICAL INDUSTRY SALES BREAKDOWN (2021)

Source: ABIQUIM and other segment associations



	Sales (US$ billion)	Average annual growth since 1996 (%)
Industrial chemicals	**71.9**	5.3
Pharmaceuticals	**16.1**	3.1
Perfumes, cosmetics and personal care	**8.8**	3
Fertilizers	**19.8**	7.8
Crop protection	**13.3**	8.3
Cleaning-related products	**5.7**	2.9
Paints and varnishers	**3.7**	2.5
Man-made fibers	**0.9**	n/a
Other	**2.6**	2.3
TOTAL	**142.8**	4.9

CHEMICAL INDUSTRY AT A GLANCE

Sources: ABIQUIM / MDIC / Secex 2021

NET SALES
US$142.8 BILLION

PERCENT OF GDP
2.6%

DEFICIT
US$45 BILLION (+48%)

Edison Terra

VP Olefins and Polyolefins – South America
BRASKEM

Braskem's circular economy targets include selling 300,000 metric tons of products with recycled content by 2025, and 1 million metric tons by 2030.

How has Braskem's business evolved from a sustainability and recycling standpoint?
Since its creation 20 years ago, Braskem's milestones include the launch of green polyethylene in 2010, producing ethylene from dehydrating sugarcane ethanol. We have the target to reach 1 million tons of green ethylene and polyethylene by 2030. At the same time, we are developing other products from renewable source, such as our partnership with Topsoe on green energy.

In 2017, we defined that the circular economy should be part of the strategy of Braskem's plastics and chemicals business. Since then, we have been working on increasing our participation in the mechanical recycling market, first with small partnerships with recyclers where we would design the solution looking for residues and the recyclers were producing for us. In 2022, we inaugurated our own state of the art mechanical recycling facility in Indaiatuba, operated by Valoren, to create opportunities for a high-value mechanical recycled resins that can be used in sophisticated applications. We will improve the quality of the residue received, improve the screening process, and improve the washing line to remove impurities. We also acquired 61,1% of the capital of Wise Plastics, a leading company in mechanical recycling and expect to capture synergies among all our operations.

What are the company's circular economy targets and initiatives to advance this area?
Braskem's circular economy targets include selling 300,000 metric tons of products with recycled content by 2025, and 1 million metric tons by 2030.

We are aware that mechanical recycling only will not solve the problem of residues, and we need to also foster advanced/chemical recycling where you have the opportunity to bring residues back as feedstock. As advanced recycling technologies mature, we will be able to recycle things that are not able to be recycled mechanically and which can be put back into the chain as a feedstock.

Circular economy starts with consumption awareness and a change of behavior. Braskem has invested in education initiatives and is part of the Alliance to End Plastic Waste. In August 2022, we launched an innovation hub called Cazoolo with the idea to partner with brand owners, academia, associations, and other innovation hubs in order to foster the development of sustainable packaging.

What does the Braskem 360 platform aim to achieve?
In 2021, the company initiated Braskem Week, providing an opportunity for virtual meetings, presentations, and discussions with customer, suppliers and partners over three days. The idea for Braskem 360° is to create a single virtual environment where you can visualize all of our initiatives, such as a simulation of our plant in Indaiatuba and Cazoolo facility. Braskem 360°can also be used as a live interaction platform for meetings and visual presentations.

Can you elaborate on Braskem's investment with EDF Reweables into renewable energy sources in Brazil?
We have several initiatives in terms of having a more sustainable energy matrix, where we expect to cut approximately 1.5 million tons of CO2 emissions. We have established long term energy agreements and today already have 100 megawatts (MW) of solar and wind energy in our mix. We have two contracts with EDF Renewables, the first being an agreement to purchase the electricity generated by the Folha Larga Norte in Bahia state. This was a US$1.5 billion investment with a total installed capacity of 244 MW, and with this partnership, we expect to reduce 280,000 tons of CO2 during the 20 year contract. Secondly, Braskem recently signed a wind power purchase contract with EDF Renewables which will enable the construction of a wind complex in Bahia state and will allow us to obtain energy for 20 years, starting in 2024. With this contract, we expect emissions reductions of another 700,000 tons of CO2 equivalent.

What are the predominant themes you see impacting the petrochemical market in 2023?
In 2023, considering new capacities against demand growth, we will probably see a period in time where the margins will be lower than in previous years, but at the same time, I think that there are many aspects in the market which will lead to innovation and opportunities. ■

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Image courtesy of Braskem

Bianchi went on to describe the market for bio-based plasticizers, for which Petrom has the technology to use alcohols from green sources and soybean oil to make 100% green plasticizers: "There is a niche of customers that value this and use the bio-based products in their formulations of compounds and films, and this is an area of the business we see as having strong growth potential."

A sustainable supply chain
The service providers in Brazil's chemical supply chain are also advancing sustainable initiatives aligned with their clients in the petrochemical and chemical space. Ultracargo, part of the diversified Ultra group of companies, is the largest port terminal operator in Brazil with a footprint of 955,000 cubic meters spread across six ports along the coast, including their biggest facility at the Port of Santos.

Décio Amaral, Ultracargo's president, explained how the company has invested in reducing its fresh water use and in rain water capture solutions, including developing a method to reduce water consumption by more than 90% and eliminating waste when cleaning storage tanks. "Previously it was a process that carried some risk related to working at heights, we had by-products that had to be disposed and a lot of water was used in the cleaning process," he said, elaborating that innovation from Ultracargo's facility management staff reduced water use for tank cleaning from about 1,000 liters (L) to 80 L, and now only requires two people to operate. "Furthermore, the waste water produced is more treatable. Through education and showing your staff the importance of sustainability, a virtuous cycle is established where increased efficiency leads to an increase in productivity and profitability."

Ultracargo is expanding its tanking facility in Aratu in Bahia in response to increased petrochemical activities in the region, according to Amaral, who underlined the company's mission to provide solutions that reduce logistics costs, turnaround times and bureaucracy. ■

João Parolin

CEO South America – IOD Division
INDORAMA VENTURES LIMITED

Integration is running smoothly, and the expectation is that until 2025 we will have approximately US$100 million in synergies from the Indorama - Oxiteno merger.

The acquisition of Oxiteno by Indorama Ventures Limited (IVL) closed in March. How is the integration progressing?
Before closing we already started working on a set of different streams for manufacturing, procurement, sales and marketing, R&D, legal, and so forth. This was done respecting all the restrictions as the two companies were previously competitors, and we had consulting firms preparing the ground for us to start working on synergies immediately after the conclusion of the deal. Indorama had a big list of customers and good position in the US, whereas Oxiteno had a large list of customers and knowledge in the Latin American markets. Another area of synergy is related to procurement as we both used to buy the same raw materials.

Integration is running smoothly, and the expectation is that until 2025 we will have approximately US$100 million in synergies from this merger. We are now the largest producer of ethylene oxide in the Americas.

How do the products of IVL's Integrated Oxides and Derivatives area (IOD) contribute to sustainability?
Our IOD business unit serves markets like crop solutions, home and personal care (HPC), paints and coatings, and oil and gas. In all these markets we have seen customers transforming their businesses towards a more sustainable profile. For example, the detergents industry has been developing concentrated products where they can save on packaging and transportation to lower their scope three emissions and carbon footprint. In collaboration with customers, we have developed products that help produce concentrates which use less water, less packaging, and have a lower carbon footprint. The paints and coatings industry is moving more towards water-based solutions and paints that have less hazardous air pollutants. We recently launched a coalescing agent which is environmentally friendly and will enable customers to produce a more sustainable paint. In terms of crop solutions, we offer surfactants and solvents which can be mixed into different solutions that are safer to the farmers and the environment.

Oxiteno alone has launched approximately 130 new products over the last five years, and now that we are part of the IVL team our sustainability efforts have multiplied and the results of our R&D and innovation will be even faster.

Can you elaborate on IVL's sustainability plan for 2030?
This year IVL launched its vision 2030, whose ambition is to grow organically and develop its industrial leadership in sustainability towards 'net zero', and supported by three main pillars: Future Ready Organization, Decarbonize Our Operations and Innovative & Sustainable Products.

To support these pillars, IVL has 11 strategic priorities connected with the United Nations Sustainable Development Goals (UN SDGs) and its targets considering a recycling commitment to leverage circular economy and reduction of waste disposal in landfills; water, energy consumption and GHG emissions reductions; employee's safety and health; and a sustainable product portfolio through increased use of renewable raw materials.

Recently IVL's has committed to the "Science - Based Targets" initiative (SBTi) strengthening the company's Climate Change Strategy which includes Circular Feedstock – replacing fossil fuel-based feedstock with circular (bio-based and recycled) feedstock; Green Projects - Invest in operational & energy efficiencies to reduce GHG emissions; Renewable energy and Coal Phase Out; Mechanical and advanced recycling; Decarbonatization Technologies – Exploring opportunities for Carbon Capture; And Natural Capital Solutions - Invest in carbon offsetting projects.

Which business lines and final markets in Latam is IVL interested in?
In both Latam and North America, the two companies had similarities in terms of final markets. For instance, Oxiteno has been strong in crop solutions products for major customers. Our agriculture business has now grown even bigger with the merger. Another important market for both is HPC. In addition, Oxiteno has always been strong in the paints and coatings market in South America, which is beneficial for IOD as we can now roll out these technologies in the North American market as well. One of IOD's important markets in Australia is mining and these technologies can now also be deployed in Latin America. ■

Elder Martini

CEO
ELEKEIROZ

The inorganic sector, led by the agricultural sector, has been performing the best due to the global supply chain shock in the fertilizer space.

What have been the standout milestones achieved by Elekeiroz in the last 12 months?
The chemical industry as a whole has been going through a remarkable time, achieving year on year growth of 33%. The last quarter of 2021 in particular was terrific for Elekeiroz, and we carried this momentum into the first quarter of 2022. There are still challenges, such as a commercial balance deficit and foreign competition, in addition to ongoing global supply chain, freight and logistics disruptions. However, these disruptions have helped the domestic producers like Elekeiroz become more competitive.

Demand was expected to fall in Q2 2022 due to inflation, but we have not registered that decline yet. Elekeiroz is still forging ahead with strategic plans, including the recently completed acquisition of Nexoleum, a soybean oil startup.

Elekeiroz has two main product lines which have both performed well – our organic range, which is mostly fossil raw material based but also has renewables coming from soybean oil, and our inorganic line, which serves several segments like agricultural, chemical, etc. The inorganic sector, led by the agricultural sector, has been performing the best due to the global supply chain shock in the fertilizer space. This has accounted for about half of our revenue and continues to grow at a steady pace.

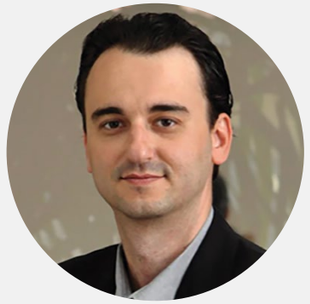
Can you comment on the rumour that private equity H.I.G intends to sell Elekeiroz, and what this could mean for the company moving forward?
A private equity firm's business is buying and selling companies, and in the current market we are seeing a lot of deals happening and large companies changing hands, such as the Indorama-Oxiteno deal. Three years ago our ownership changed hands, and we expect the boom our industry has experienced to stimulate more M&A or transactions between private equity shareholders in the future.

As Elekeiroz is a well-established company, a new owner would not necessarily mean a major shift in business operation or overall strategy.

What would you say have been the biggest challenges faced by Brazil's chemical sector recently?
The world has been facing the impact of inflation recently, but this is not a new phenomenon for Brazil. The Brazilian Central Bank saw what was happening in Europe and was able to anticipate and react beforehand. However, the effects of inflation are acutely felt by the everyday worker, which will lead to decreased consumption.

The next biggest challenge has been judicial stability, particularly under the highly polarized political climate in the country. The current government has made some interesting reforms, but more fiscal and judicial reforms are necessary. As an example, first and second generation chemical industry businesses had access to an incentive called the REIQ (Special Chemical Industry Regime) that was canceled by the current administration. Starting next year this fiscal incentive will no longer exist. The policy was created to put the local chemical industry on an equal playing field with our counterparts in Europe and the US, and losing this incentive will damage competitiveness. The industry is working on lobbying efforts on all levels to be able to safeguard the interests of the market.

Now Brazil's new gas law *(New Gas Market)* has been implemented, what changes have you noticed?
Although the new gas market is a positive step, we have experienced challenges and obstacles at every phase with these new regulations. Petrobras is still the dominant player in the market and is also able to readily import supply when necessary. Moreover, the energy crisis in Europe and war in Ukraine has made the transition difficult due to the rise in prices. The first tangible steps towards the new gas market have been taken but currently the biggest beneficiaries are the gas concession holders. We have contracts with regional suppliers buying on the new gas market but our contract prices are based on Petrobras and where Brent is trading. There is also a debate happening around the quality of this gas, but this still has to be looked into. ■



Fabiano Bianchi dos Santos

Executive Director

PETROM PETROQUÍMICA MOGI DAS CRUZES S.A.

How have the past 12 months been for Petrom?
2021 was a good year for Petrom as the local supply chain became stronger. Moving into 2022, there was significant uncertainty, and it was difficult to make predictions, but Petrom performed well in the first half of the year, and we are optimistic that we will have the same volume of production and sales as 2021 – one of the highest in the company's history.

In the export market, Petrom mainly exports renewable alcohols to North America and Europe and Phthalic Anhydride to Latin America. 2022 has been a good year, as not only are we exporting, but our resilient customers are also still exporting, driving good results for the entire value chain.

Despite the challenges in recent years, there are currently great opportunities for local producers and because of the size of the country there is also the capacity to take advantage of these opportunities.

Are you concerned that the recent economic slowdown and rising inflation could impact demand?
This has not yet impacted demand, but increasing interest rates in Brazil, US, and Europe will definitely impact the construction sector, which is our main market. We expect to see a slowdown in the rhythm of the economy as well as volume demand for chemicals in the short term.

We have seen the effects of inflation on commodities, feedstocks, food and energy. For instance, our feedstocks are double the value that they were one year ago. Fortunately, we source the majority of our feedstock locally from Braskem, but rising prices have been unavoidable.

What are the main steps for Petrom's aim to achieve energy and hydro self-sufficiency?
Petrom, within its Environmental Management System following the guidelines of ISO 14001, established itself as one of the first industries in Brazil to reach the level of Zero Effluent with 100% reuse of water, not discarding any type of wastewater into rivers and reducing the consumption of water.

To achieve energy self-sufficiency some investments will be made to use our self-generated thermal energy as the primary source for the other types of energy we consume.

Can you explain how Petrom makes bio-based plasticizers and what their benefits are?
Bio-based plasticizers are produced using soybean oil, which is a renewable material, and alcohols from renewable sources. Petrom has the technology to use alcohols from green sources and soybean oil to make 100% green plasticizers. There is a niche of customers that value this and use the bio-based products in their formulations of compounds and films, and this is an area of the business we see as having strong growth potential.

How has the business climate in Brazil evolved in the last two years for petrochemical producers?
The good demand we are seeing is driven by our customers localizing supply chains and exporting to their headquarters, rather than using Asian manufacturers. Some American companies are using Brazil as a production hub to attend to their demands in the US, as the logistics situation importing from Asia has become unviable. This is bringing demand to Brazil and demonstrates the great potential of the country.

It is now the time for Brazil to focus on infrastructure, fiscal and taxing laws, and things that could create a better environment for companies and industry in general.

How do you see Petrom's business developing over the next five years as the transition to green products gathers pace?
Petrom has the strategy to evolve, but this will be done sustainably from a business standpoint, in small steps. We have to produce materials that are valued by customers and final consumers. We are already at a place where some customers are asking for more sustainable materials, but transitioning to a place where everything is green could take some time. In our industry it is important to give options to final users, and in time consumers will start to understand the importance of green products. ■

Petrom has the technology to use alcohols from green sources and soybean oil to make 100% green plasticizers.

Décio Amaral

President

ULTRACARGO

Can you introduce Ultracargo and the company's capacity and footprint in Brazil?
Ultracargo is part of the diversified Ultra group of companies. We have been in the market for 56 years and have a long history of terminals and road logistics operations. Today, Ultracargo focuses solely on managing port terminals. We are the largest independent port terminal operator in Brazil with a presence in six of the relevant ports along the coast, and a footprint of 955,000 cubic meters (m^3) spread across these different locations. Our largest terminal is at the Port of Santos – a multi-cargo terminal handling corrosives, chemicals, fuel and bio fuels with a footprint of 297,000 m^3. The Port of Aratu in Bahia is our second largest terminal, followed by the Port of Suape. Our newest terminal is in Vila do Conde, Pará, a state that lacked storage capacity for liquids. Alongside our Terminal in Itaqui, in the state of Maranhão, which contains a vital rail connection, we have extended our reach throughout the North and Northeast of the country. We have also led the way in investments in the sector with over R$1 billion spent over the last five years in expanding capacity, renovations, modernization, security, automatic detection systems, fire systems and automation.

Which of the company's bulk storage, logistics and supply chain solutions cater to the chemicals sector?
In terms of chemicals specifically, we renovated part of our park to better handle large volumes of phosphoric acid, due to a large demand for it to go into food production and animal feed. In 2021, chemical products accounted for about 56% of movement our terminal in Aratu, 29% at Suape and 16% at Santos. Large clients like Braskem are a good example of the type of companies that Ultracargo can support, as they operate across the country and we are able to integrate their operations with ours across the different areas they serve.

At Aratu, Ultracargo is expanding its tanking facility in response to increased petrochemical activities in the region. We are also certified as an authorized economic operator which facilitates imports and exports for our clients by reducing turnaround times for customs and other bureaucratic processes at the ports.

On the topic of sustainability, can you explain how Ultracargo has managed to decrease water use?
We have invested in reducing our fresh water use and invested heavily in rain water capture solutions, including developing a method to reduce water consumption by more than 90% and eliminate waste when cleaning storage tanks. Previously it was a process that carried some risk related to working at heights, we had byproducts that had to be disposed and a lot of water was used in the cleaning process. One of the things we are most proud of was that the idea of this new method, which reduced water use for tank cleaning from about 1,000 liters (L) to 80 L and only requires two people to operate, came from our facility staff. Furthermore, the waste water produced is more treatable.

What is the company's mission and vision for the next three years?
Ultracargo is in the process of migrating from being a storage provider to becoming a logistics solution provider. Our goal is to understand our clients challenges and logistics chains, be it in chemicals or fuel, and help them unlock value. This means not being limited to terminals but being able to operate in the interior of the country. In order to accomplish this, we will continue making the necessary investments to reduce logistics costs, encompassing everything from loading and unloading systems to the new pier at Aratu for larger ships. This will allow us to receive larger vessels thus driving down costs by increasing volume. Connecting our terminals to more efficient transportation modes is also important in our strategy. Rail connections, for instance, allow us to help our clients to supply central areas of the country in a more effective and sustainable way. That is why we plan to build a rail extension in Santos, connecting our terminal to the main railway line that reaches Brazilian Midwest. ■

We are the largest independent port terminal operator in Brazil with a presence in six of the relevant ports along the coast, and a footprint of 955,000 cubic meters (m^3).

ARGENTINA

"We believe that the petrochemical industry can add significant value to gas. It industrializes gas in polymers, fertilizers and chemicals. The opportunity is there, the competitivity is there, but further investment is needed for Vaca Muerta to develop into a regional hub that sustainably fuels the whole region."

- Gabriel Rodríguez Garrido,
Executive Director,
Argentine Petrochemical Institute (IPA)

Rio Negro, Argentina. Image courtesy of Emilio Luján.

Argentina

HIGH ENERGY PRICES HIGHLIGHT THE URGENCY TO DEVELOP VACA MUERTA

Image courtesy of Petrocuyo

Of the all the major markets in Latin America, Argentina has been the most affected by rampant inflation in recent years. Even before the pandemic, the Argentinian Peso (ARS) had devalued from a rate of ARS4 to US$1 in 2012, to ARS60 to US$1 in January 2020. By August 2022, it took over ARS130 to buy US$1 officially, with the unofficial 'blue' rate reaching a staggering 290 to 1. You do not have to be an economist to realize the impact such figures have on purchasing power, both from a consumer standpoint, and for a chemical industry that relies to a large extent on imported raw materials.

In July 2022, the Fernández government named its third Minister of the Economy in the space of a month, with lower house speaker, Sergio Massa, outlining his plan to boost dollar revenues and rein in inflation in an attempt to support a public suffering economic hardship. The severity of the situation facing Argentina, while highly unfortunate in the short term, could help stimulate the level of public and private investment necessary for the country to leverage its vast reserves of natural resources, from copper and lithium in the northern provinces of San Juan and Salta, to non-conventional gas in Neuquén.

Argentina is famous for the quality of its beef, but investment into another type of 'dead cow' holds the key to revitalize its petrochemical industry. "In 2022 there has been renewed interest in the opportunities of developing Argentina's Vaca Muerta natural gas reserves, which had dimmed for a few years, but has come into focus considering the war in Ukraine and increased commodity prices," commented Gabriel Rodríguez Garrido, executive director of the Argentine Petrochemical Institute (IPA), who pointed to the recent tendering of a gas pipeline in the region as an example.

Rodríguez explained how the petrochemical industry can be a multiplier to monetize Vaca Muerta – the second largest non-conventional gas reserve in the world – industrializing gas into polymers, fertilizers and chemicals, as well as developing local industry and creating employment opportunities. He highlighted the role of gas as a protagonist in the effort to reduce carbon emissions, and the relief that pipelines can bring by reducing imports.

Jorge de Zavaleta, executive director of the Argentine Chamber of the Chemical and Petrochemical Industry (CIQyP), echoed the sentiment that investment is needed for Vaca Muerta to develop into a regional hub that sustainably fuels the whole region, with an estimated regular gas supply of more than 100 years. He provided details of the pipeline tendered that in its first stage would join Neuquén to a distribution center in the south of Buenos Aires: "We expect that for the second half of 2023 we will be able to move more gas, and for 2024 to 2025 increase Argentina's transport capacity by 25%. As a consequence, we expect a second wave of investment in the upstream to supply the extra volume, which would also be tied to gas liquifying. We believe Vaca Muerta could really take off in two or three years."

Argentinian State-run energy giant YPF has been the pioneer of pushing and promoting the development of Vaca Muerta as one of the country's strategic lines for growth, according to Martina Azcurra, executive manager – chemicals at YPF QUÍMICA. "Throughout the years, the company has improved its knowledge of Vaca Muerta, and as a consequence, has advanced in the optimization of its operations, focusing investments in the most profitable areas," said Azcurra, a statement illustrated by the level of investment YPF plans for Vaca Muerta in 2022: US$2.6 billion of the company's US$3.8 billion total planned investments for the year, representing an increase of approximately 40% with respect to 2021.

Azcurra went on to discuss YPF QUÍMICA's projects aimed at adding value to Vaca Muerta gas for fertilizers, plastics and methanol. "Through our JV with Profertil, we are assessing the expansion of their plant by adding an additional production train of approximately 1.4 million tons a year (t/y), which will help supply a growing regional market that is currently demanding over 8 million t/y of fertilizers."

There has been an important change in recent years, whereby the full supply chain is expected to collaborate to reduce the carbon footprint, instead of working in siloes like before – there is no point in having efficient plants if the product will be distributed unintelligently.

Andrés Gerschenson, General Manager, Mesucan

Stimulating recycling for a circular economy

The need to stimulate recycling was one of the priorities highlighted by Argentina's petrochemical producers, each with their own initiatives to increase the circularity of their products. Javier Sato, CEO of Petrocuyo, suggested that the biggest challenge in this transition is the lack of education for residue separation, which is a cultural process that takes time to evolve. "That is why we are working with clients and their clients to support any initiative to use post-industrial and post-consumption plastics," he said, commenting that at the moment, people demand the same properties from recycled plastics, but are not willing to paying a little more than plastics from virgin material. "If we do not want residues to end up in landfills, governments must be ready to invest in the infrastructure and education to see those residues recycled."

Ariel Stolar, commercial manager – petrochemicals at Pampa Energía, revealed that the company's petrochemical division is where they have the strongest focus on sustainability, mirroring the comments of Sato that recycling requires a cultural shift and education to demonstrate both economic and environmental value. He added: "We have been taking action to obtain PCR (post-consumer recycled resin) to reprocess. One of the focus areas of this is making social cooperatives that try to separate the product before it reaches the garbage. Once separated, it can be taken to a reprocessing plant to turn into pellets and then transformed into a useful product."

Petroquímica Rio Tercero (PR3), the Argentinian petrochemical company that produces more than 130,000 t/y of diversified products from its Rio Tercero plant, is focusing on implementing a new vision for the company to ensure long-term sustainability, according to CEO, Juan Pablo Ceballos. Acknowledging that plastics are at the front of the recycling agenda, Ceballos underlined that the foam business is not foreign to this world's need to enter a circular economy: "There are a large number of developments to recycle mattresses, rigid foams and every kind of foam to reuse them. These practices are not significant in the region, but it is our responsibility to introduce them".

When discussing carbon reduction targets, the hurdle for many working in heavy industry centers around Scope 3 emissions – those that are not produced or controlled by the company itself. However, service companies are adapting to align with their clinets' goals, a point highlighted by Andrés Gerschenson, general manager of Argentinian logistics firm, Mesucan. "There has been an important change in recent years, whereby the full supply chain is expected to collaborate to reduce the carbon footprint, instead of working in siloes like before – there is no point in having efficient plants if the product will be distributed unintelligently," said Gerschenson, adding that Mesucan is working on migrating from diesel to more efficient fuels like CNG (compressed natural gas) and LNG, and moving to more efficient transport means. ■

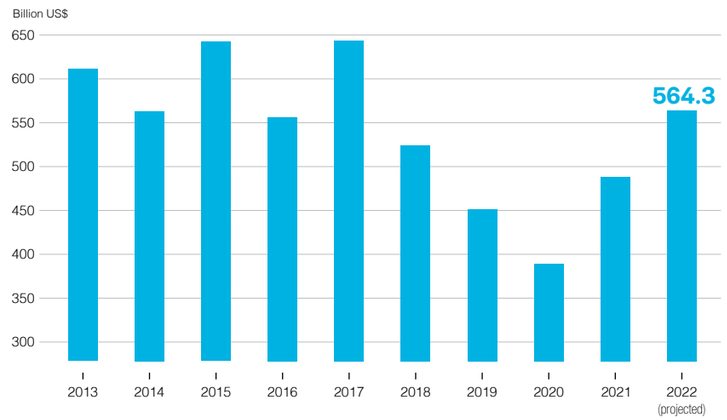
ARGENTINA AT A GLANCE

Source: IMF, data for 2022

CAPITAL
Buenos Aires
GDP
US$564.3 billion
GDP GROWTH
4.0%
HEAD OF STATE
President Alberto Fernández
TOTAL INVESTMENT (% OF GDP)
19.6%
GROSS NATIONAL SAVINGS (% OF GDP)
20.1%
CURRENT ACCOUNT BALANCE (% OF GDP)
0.5%

GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



DEMOGRAPHIC DATA

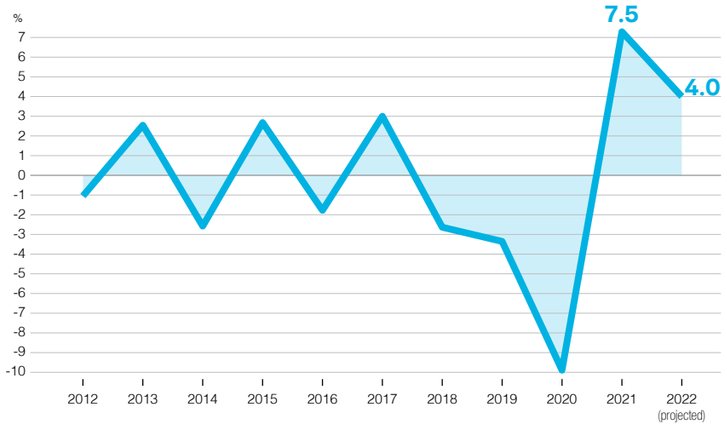
Source: IMF, 2022 data

POPULATION
46.3 MILLION

UNEMPLOYMENT RATE
9.2%

GDP GROWTH

Source: IMF



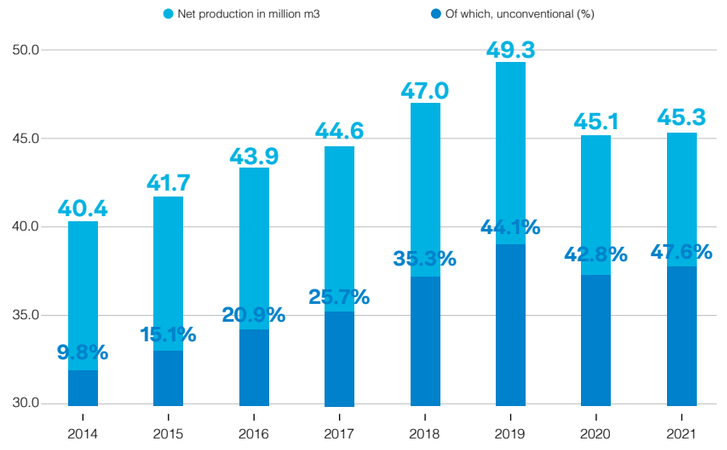
GDP PER CAPITA
US$12,190

GDP PER CAPITA (PPP)
US$22,117

INFLATION RATE
51.7%

NATURAL GAS PRODUCTION

Source: IPA



Main Petrochemical Poles

Source: IPA

1 Bahía Blanca Area
- PBBPolisur S.A.
- PROFERTIL S.A.
- UNIPAR INDUPA S.A.I.C.

2 Ensenada Area
- MAFISSA
- PETROCUYO S.A.
- YPF S.A.

3 Gran Buenos Aires Area
- INDUSPOL AISLACIONES S.R.L.
- PETROQUÍMICA ARGENTINA S.A.

4 Campana - San Nicolás Area
- BUNGE ARGENTINA S.A.
- CABOT ARGENTINA S.A.I.C.
- CARBOQUÍMICA DEL PARANÁ S.A.
- DAK AMERICAS ARGENTINA S.A.
- PAMPA ENERGÍA S.A.

5 San Lorenzo - San Martín Port - General Lagos Area
- ARAUCO ARGENTINA S.A. (Chemical Division)
- EVONIK METILATOS S.A.
- ENOURYON CHEMICALS S.A.
- PBBPOLISUR S.A.
- PAMPA ENERGÍA S.A.
- STYROPEK S.A.
- VARTECO QUÍMICA PUNTANA S.A.

6 Rio Tercero Area
- ATANOR S.C.A.
- FÁBRICA MILITAR RIO III
- PR. III S.A.

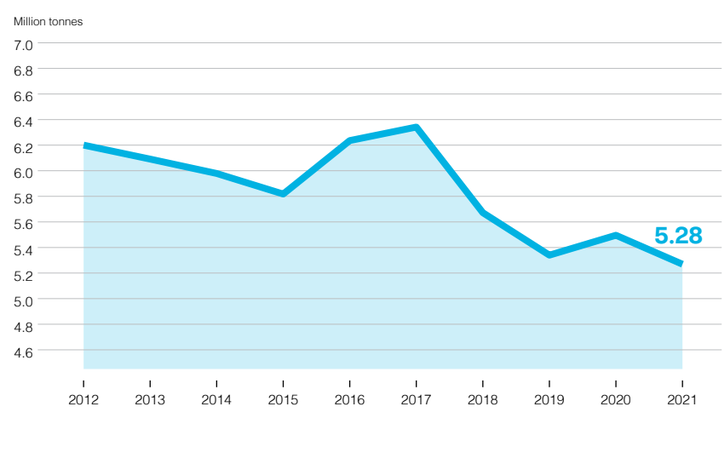
7 Área San Luis
- Frío Industrias Argentinas S.A.
- RESIGUM San Luis S.A.

8 Luján de Cuyo Area
- PETROCUYO S.A.I.C.
- YPF S.A.

9 Plaza Huincul Area
- YPF S.A.

EVOLUTON OF PETROCHEMICAL PRODUCTION VOLUMES

Source: IPA



PETROCHEMICAL PRODUCTION

Source: IPA 2021

	million tonnes	%
Basic	2.161.200	40.9
Intermediate	679.700	12.8
Final	2.447.200	46.3
TOTAL	**5.288.100**	

Jorge de Zavaleta

Executive Director
ARGENTINE CHAMBER OF THE CHEMICAL AND PETROCHEMICAL INDUSTRY (CIQYP)

We expect a second wave of investment in the upstream, which would also be tied to gas liquifying. Vaca Muerta could really take off in two or three years.

How have the Argentine chemical and petrochemical sectors performed in the last 12 months?
The petrochemical industry had a production almost 10% lower in 2021 than in 2020, mostly due to programmed stops of petrochemical plants with high production volume. In spite of this, local sales in 2021 increased by 27% and exports increased by 24% with respect to 2020.

In 2022, the numbers are still positive. When we compare the first four months, we see production has increased by 16%, local sales by 43% and export sales by 68%. The main things contributing to this increase are thermoplastic resins, fertilizers and agrochemical products. Argentina is a great producer of agricultural products, international prices are on the rise, and more phytosanitary products and fertilizers are consumed.

What progress has been made at Vaca Muerta?
Natural gas makes up more than 50% of Argentina's energy matrix. This demand is satisfied mostly by local production from Neuquén and in the south of Argentina in Chubut, as well as the off-shore resources in Tierra del Fuego. The rest is covered by imports from Bolivia. During winter peaks, in which residential demand is tripled or quadrupled, it is covered by LNG. There are two re-gassing ships in strategic points of Argentina. Gas oil and fuel oil are also consumed to produce electric power. There is a big opportunity in natural gas, which we have to remember, is considered a transition fuel in all the challenges against climate change.

It is estimated that Vaca Muerta has reserves capable of supplying 100 years of regular gas supply. It is not an issue of geology but engineering. Non-conventional production of gas has grown significantly, but the issue is the transportation needed to move the gas from Vaca Muerta to the market. A new pipeline was tendered that, in its first stage, would join Neuquén to a distribution center in the south of the Buenos Aires. We expect that for the second half of 2023 we will be able to move more gas, and for 2024 to 2025 increase Argentina's transport capacity by 25%. As a consequence, we expect a second wave of investment in the upstream to supply the extra volume, which would also be tied to gas liquifying. We believe Vaca Muerta could really take off in two or three years.

What steps are being taken to increase domestic fertilizer production in Argentina?
The project for the expansion of urea production in Argentina was being analyzed before the conflict between Russia and Ukraine. Local demand for urea for 2020 and 2021 was almost 2.4 million tons (t). If we consider Profertil produces 1.3 million t, a little more than 1 million t are imported. That signals a possibility to expand in this market. The most important thing is that our neighbor Brazil is the biggest importer of Urea in the world. I think we will have news from Profertil in the coming months.

Which initiatives regarding the circular economy has the Chamber been working on?
One of the biggest challenges for the petrochemical industry is the collection and recycling of plastic. We brought together organizations in the plastic value chain (including the chambers, IPA and producers) to consolidate one voice to speak to all the stakeholders. We joined the Argentine Plastic Industry Chamber with the Argentine Chamber of Plastic Recycling (CAIRPLAS) and ECOPLAS, a nonprofit association working on the circular economy. All of us make up an association called EURECA – Joint Entities Reaffirming Circular Economy in Argentina. Argentina has a few laws regarding plastics, and ahead of us there is a proposed a bottling law, a producer's extended responsibility law, and one on single-use plastics that will be addressed soon in congress. Local initiatives to incorporate recycled plastic resins to virgin products have been presented, companies are working actively, and these developments are just starting. ■

Gabriel Rodríguez Garrido

Executive Director
ARGENTINE PETROCHEMICAL INSTITUTE (IPA)

The fuels of the energy transition will be petrochemicals: ammonia, methanol and green hydrogen all have direct petrochemical components.

What have been the most evident trends in the Argentinian petrochemical market in the last 12 months?
In 2022 there has been renewed interest in the opportunities of developing Argentina's Vaca Muerta natural gas reserves, which had dimmed for a few years ago, but has come into focus considering the war in Ukraine and increased commodity prices. A gas pipeline was recently tendered to bring more development to the region, for example. The petrochemical industry is a multiplier, not only for investments, but also for local industry and workforce. Hence, IPA is working to develop talented professionals to support development.

We are working on one of the most critical challenges facing the industry – the circular economy of plastics. IPA had a central role in developing a consortium for the development of chemical recycling of plastics. A new law is being considered which would provide more incentives for industries to recycle. IPA, in association with ECOPLAS and CONICET, is leading this group to develop these disruptive technologies.

How could the development of Vaca Muerta improve energy sovereignty in Argentina?
Argentina has the second largest non-conventional gas reserve in the world, which has enormous potential value. Gas will be a protagonist in reducing climate change. The world clearly requires more energy, especially sustainable energy, and in the transition towards renewable energy, which is the end goal, gas is a natural resource with a lower carbon impact than coal and oil. Gas pipelines also bring relief by reducing imports. Argentina has the resources, the only thing missing are the correct macroeconomic and investment conditions.

We also believe that the petrochemical industry can add significant value to gas.

What role can the petrochemical industry play in the energy transition?
The fuels of the energy transition will be petrochemicals: ammonia, methanol and green hydrogen all have direct petrochemical components. However, in the energy transition, the sector has two big challenges. The first is the circularity of plastics. The advantages of plastics are clear, but we all have a responsibility to give plastic that have already fulfilled its lifetime another lifetime, so it does not end up in the environment. Industries need to see plastic waste as a source of feedstock. We also need to achieve a neutral or even negative carbon footprint. The industry is working towards that, such as talk surrounding net-zero crackers. Renewable energies are being introduced to petrochemical sites, and Argentina has advantages in this area with wind in the south and sun in the north.

In June 2022, you led a panel at Austral University on the subject of talent development in the petrochemical sector. What were the main points covered in the discussion?
One of IPA's main areas of focus has been to develop strategic alliances in education, for example, with Austral University we developed a certification course for the petrochemical businesses, which in August 2022 runs its third installment. The other alliance we have developed is with Plapiqui, a well-renowned institution in Bahía Blanca's petrochemical town where we developed a whole platform of virtual courses, named P-virtual, which serve as a platform to train plant workers in the industry.

The discussion revolved around how in this new scene, we prepare to attract, retain, and develop talent. We talked about how professionals can develop their abilities and accelerate knowledge so they can improve practices in the plants.

IPA has also developed a diversity and inclusion network for the chemical and petrochemical industry that we invite all companies to take part in. We began with all the companies associated to IPA, but more companies from the value chain are now coming in. This network aims to foster a culture that is fundamental to attract and retain talent. New workers need to know they are working in a good company and a good industry to stay in it. It is the industry's responsibility to be inclusive with every minority, not just regarding gender, but also sexual orientation and ethnicity. We can see this initiative paying off already. ■

Martina Azcurra

Executive Manager – Chemicals
YPF QUÍMICA

Can you provide an overview of YPF QUÍMICA's recent performance?
In H2 2021, chemical prices were trending up as a consequence of post-pandemic recovery, which contributed to robust performance. We have a production of 900,000 t/y. In the first half of 2022, that market trend remained, and we closed with a production increase of 12% and an equivalent sales volume. As for milestones achieved, YPF QUÍMICA grew regionally focusing on Brazil's chemical market, where we increased sales by approximately 20%. From an innovation standpoint, we made field tests of oil and gas products with successful results with the technological support from Y-TEC, which we hope we can soon produce on an industrial scale.

Another important issue for YPF QUÍMICA is sustainability and circular economy. In 2022 we will start operating a modular pyrolysis plant to transform plastics. The main objective of this module is to get to know the technology and how to integrate it into productive processes, using in a first stage the plastics that YPF generates from its operations as a raw material. We are also taking part in a consortium for the construction of a recycling plant at an industrial level, moving forward with feasibility studies to advance this project.

How are rising energy prices highlighting the importance of Vaca Muerta?
Throughout the years, the company has improved its knowledge of Vaca Muerta, and as a consequence, has advanced in the optimization of its operations, focusing investments in the most profitable areas. To illustrate this importance in 2022, YPF plans to invest US$3.8 billion, out of which US$2.6 billion are planned for the development of Vaca Muerta. This represents an investment increase of approximately 40% with respect to 2021.

What are the plans at Profertil to increase urea and ammonia production?
YPF QUÍMICA studies projects aimed at adding value to the production of gas from Vaca Muerta, not only for fertilizers but also plastics and methanol. Through our JV with Profertil, we are assessing the expansion of their plant by adding an additional production train of approximately 1.4 million t/y, which will help supply a growing regional market.

What are the highlights from YPF QUIMICA's 2022 sustainability report?
In 2022 YPF QUÍMICA will publish its first sustainability report including the performance of 2020 and 2021. In this report, we highlight the search for opportunities and resources for the energy transition with a long-term horizon and a commitment to contribute to a carbon neutral power matrix. YPF's operational excellence policy expresses our responsibility with people's safety and the care of the environment through the reduction of our carbon footprint.

As an industry we are faced with the global challenge of reducing chemical waste, for which we are developing chemical recycling projects. We also have a focus on diversity and equality, with a specific plan for a detailed follow-up of these issues, and the participation of members of our team in a women's leadership program called LiFe. Finally, we are working with community integration initiatives, such as the La Plata nursery industrial complex.

How are you working with Y-TEC on renewable energy?
Y-TEC is the leading company in technological solutions for sustainable energy in the region. It is working along with YPF on plan for the reduction of greenhouse emissions in operations based on a profitable growth of the renewable energy market. One of our initiatives is the hydrogen consortium, a collaborative space to promote the hydrogen economy.

What are YPF QUÍMICA's vision and priorities for Argentina's petrochemical industry in the years ahead?
We want YPF to become a reference for sustainability and circular economy by creating projects that position us a leading pioneer for plastic recycling. Our vision is of a petrochemical industry that monetizes the growth of natural gas production at Vaca Muerta for the benefit of Argentina, stimulating investment into innovation that enables competitive and sustainable business. ■

» We want YPF to become a reference for sustainability and circular economy by creating projects that position us a leading pioneer for plastic recycling. «

Javier Sato

CEO
PETROCUYO

Last year, 72% of the energy consumed by our plants was renewable; at times we have reached 100%, depending on availability.

What is the Petrocuyo's production capacity today?
Today, Petrocuyo is the sole producer of polypropylene (PP) in Argentina. At the company's two operations, Mendoza and Ensenada, we have two plants with different technologies. At the Ensenada operation we have also a third plant for polypropylene compounds dedicated mainly to the automotive industry. Petrocuyo has an annual capacity of 320,000 t/y of PP and 30,000 t/y of compounds.

The construction industry for items such as tubes; the non-woven industry, because of its sanitary applications like disposable medical clothes and facemasks, and raffia fabric, mainly for one-ton bags, have driven demand in recent years. Other markets include food packaging, where PP has replaced cellophane, and the injection of buckets, carbonated drink cups, plastic bottles and home appliances like plastic housewares.

How does Petrocuyo source its feedstock, and how have rising logistics prices for imports impacted this?
We mostly obtain our feedstock from refiners. Petrocuyo buys every propylene molecule available in the country, taking all the flow of propane-propylene (RPG) coming from five refiners. We also get some chemical propylene (CGP) and ethylene from Dow's ethylene cracker located in Bahía Blanca. Ethylene is the comonomer used to produce PP copolymers.

We import catalysts and some additives used in production. This was affected by the worldwide increase in freight rates and scarce availability of ships. Despite the restrictions on imports arising from the shortage of hard currency in our country, we have been able to operate our plants normally.

Looking further ahead, the development of Vaca Muerta is fundamental for Argentina's petrochemical sector to obtain more raw materials. Both for ethylene and propylene, more ethane and propane from Vaca Muerta is needed. We now have a huge deposit of hydrocarbons with no connection to any production center. The gas pipeline and polyducts still must be constructed to be able to take all the materials out of the resource.

Which macro factors would you say are having the biggest impact on the business climate in Argentina?
The scarcity of foreign currency flowing into the country plus very high inflation rates have the biggest impact. The country lacks clear and permanent rules to attract direct foreign investments and facilitate businesses development.

What steps have been taken to ensure minimal environmental impact from Petrocuyo's plants?
We have secured renewable energy for our plants, including contracts with eolic and solar farms. Last year, 72% of the energy consumed by our plants was renewable; at times we have reached 100%, depending on availability. Beyond that, we also aim for plastic circularity. The biggest challenge to work with plastic circularity is the lack of education for residue separation, which is a cultural process that takes time.

How can recycling be stimulated in Argentina?
The fundamental point is education so that users of plastic goods become conscious that their correct disposal is essential for recirculation. Waste must go where it can be separated and reused. The second focus of this education should be on the separation of these residues among glass, plastic, metal, paper, and organics, so that once they are separated, reusing them becomes easier. Right now, people demand the same properties from recycled plastics, but are not willing to paying a little more than plastics from virgin material.

What is your vision for Petrocuyo's growth in the years ahead?
Petrocuyo is always looking for opportunities to grow, and this depends to some extent on the availability of raw materials in Argentina. Today, we do not have those possibilities, but the developing of operations at Vaca Muerta offers a path for growth in the future.

As a company, we will continue with our sustainability projects such as supporting plastic circularity, creating jobs in the regions we work, and focusing on an efficient, sustainable and conscious use of energy. ■

Juan Pablo Ceballos

CEO
PETROQUÍMICA RÍO TERCERO (PR3)

The Covid pandemic years have been excellent for foams because of the boom in demand for home-related items. We do not foresee 2022 to be as good, but demand should be steady.

Can you tell us about the production capacity and main activities of Petroquímica Rio Tercero (PR3) today?
Originally, PR3 was known for its production of toluene diisocyanate, TDI, primarily for flexible foam applications. Today, we have a capacity of 27,000 t/y, but we also have many subproducts used as supplies for the chemical industry, such as caustic soda, hydrochloric acid, PAC (a product for water purification), and sodium hypochlorite, and together, we produce more than 130,000 t/y at our Rio Tercero plant. More recently, the company has transformed towards a more diverse focus on the products and services the company can provide.

Since assuming the role of CEO in November 2021, what have been your priorities for the company?
We are focusing more on the client and strengthening our marketing team. We have created three commercial business units. One of them is foams, to centralise everything related to TDI and foam production. The next one is the water treatment business unit, where our star product is PAC, but we also have other developments and products for water purification, and everything related. Lastly, a business unit called industrial solutions with every other product, for which clients are diverse companies that require chemical supplies as raw materials or production supplies.

Together with all these changes we have also launched a new brand image, which reflects the new spirit of the company with a fresh style that still keeps PR3's main historical values.

Where does the company source its raw materials, and how could the supply of feedstock for petrochemical companies in Argentina be improved?
Most of the raw materials in PR3's value chain are national. We have ammonia and nitric acid from Profertil and Fabricaciones Militares. We also have energy for chloralkali processes in our chlorine/soda plant, natural gas and toluene from YPF. In each case we have a solid supply, work together with our suppliers, share problems, and collaborate if needed. We have some imported feedstock like alumina for PAC production, which we buy from Brazil, and we transform into aluminium polychloride, but we have a solid and reliable supply.

Looking at the future of feedstock in Argentina and South America, Vaca Muerta is a very important opportunity for the entire petrochemical sector in the region. We could benefit from it ensuring our supply of ammonia, but we do not have any complaints about Profértil, our ammonia supplier, which is standing strong. Many applications in the petrochemical industry that could be produced in Argentina which could see a huge jump in quality, quantity, sustainability and competitivity through the development of gas reserves at Vaca Muerta.

How has demand for products that PR3 produces evolved in recent years?
The Covid pandemic years have been excellent for foams because of the boom in the demand for home-related items. We do not foresee 2022 to be as good as the previous years, but demand should be steady. In chemical products we are just making incursions into many new developments, so, our sales grow according to what we develop.

How is the theme of sustainability impacting the way the company operates?
Even if plastics are at the front of this, the foam business is not foreign to this world's need to enter a circular economy. There are a large number of developments to recycle mattresses, rigid foams and every kind of foam to reuse them. These practices are not significant in the region, but it is our responsibility to introduce them. At the same time, there is a great movement for renewable energies in Argentina, especially wind and photovoltaic energies, and PR3 has started to consume more renewable energy.

Where would you like to see the company by the end of 2023?
I would like our three new business units to have formed and consolidated teams, with developed markets, products and solutions for each of these units. I want our clients to prefer us not only because of our products but also because of how we listen to them, follow their evolution and adapt to their needs. ■

ANDEAN REGION

"Chemical products are essential for everyday life, and I am optimistic that these markets will remain strong. In Colombia, the climate for investment is more concerning, as companies are holding off on capital expenditure to expand capacity or product portfolios before first seeing what happens with the new government and the tax reform."

- Daniel Mitchell,
President,
Acoplásticos

Antofagasta, Chile. Image courtesy of Andrés Ulysses de Salis

Image courtesy of james Wheeler

Andean Region

THE 'PINK TIDE' INCREASES UNCERTAINTY IN AN INTERCONNECTED MARKET

The so called 'pink tide' in Latin America began with the rise of leftist leaders in Mexico and Argentina in 2018 and 2019, but in the last two years it has been most apparent in the Andean region, with the appointment of Pedro Castillo in Peru followed by Gabriel Boric in Chile, and most recently Gustavo Petro in Colombia. For the business community in these countries the new governments bring about uncertainty from an investment standpoint, but it is also important to note that these political changes can impact chemical players in the region even if they are based in a neighboring country. Domestic markets in nations such as Chile, Peru and Ecuador do not have the scale of Brazil or Mexico, and therefore companies often serve multiple countries.

For example, Chilean polypropylene producer Petroquim sells approximately one third of its 80,000 t/y production in Chile, with the rest mainly sold along the Andean coast in Ecuador, Peru and Colombia, as well as small amounts in Argentina and Brazil, according to general manager, Jorge Garcia. He affirmed his optimism that the cyclical nature of the industry will lead to recovery, and in the meantime companies should reconsider how things are done, from costs to people and training. "We have made adjustments to redefine and optimize the distribution of tasks to create a more sustainable business."

Demonstrating how trade within the Andean region is connected, Garcia detailed how the availability of freights from Chile to Peru, Ecuador and Colombia has been deeply affected in the last two years. "We had clients, particularly in Peru, who were used to handling almost zero inventory. Suddenly, we had to handle delays of up to 40 days. We had to manage our own distributors and hire third-party distributors to support the production of our clients during this period," he revealed, before adding that while freights remain expensive, fortunately the situation has improved.

Peruvian distributor Químicos Goicochea had been considering expanding internationally, but is taking a cautious approach due to the political and economic backdrop the region is facing, according to commercial manager, Jaime Villanueva. "Who would have thought that Chile, a country with a long-running sustained economic policy, would elect a president like Boric; or that a previously fast-growing country like Colombia would elect Petro," he said, but commented that politics, like natural resources markets, are cyclical, and there will always be opportunities for companies with experience and expertise.

Werner Watznauer, president of the Chilean Chemical Industry Association (ASIQUIM), noted that Chile's chemical sector has seen strong growth in the industrial gases, adhesives, pigments, mining, pulp and paper and construction segments in the last two years, but inflation and supply chain disruptions have caused many materials and logistics to become extremely expensive. "For example, two and a half years ago, shipping a 40-foot container from China to Chile was approximately US$2,000, whereas today it can cost from US$12,000 to US$15,000 if you want it express," he said, adding that raw material price increases and volatility in the selling price of the final products had generated overpriced inventory. Furthermore, for a country used to around 2% or 3% inflation rates, the 10% inflation reached in 2022 has been a shock.

Although volatility in the last two years has created challenges, it has also provided opportunities in certain areas, particularly for local producers who could reap the benefits of Asian imports becoming more expensive. Christophe Jacob, CEO of Chilean company Austral Chemicals, noted that the bigger companies that have high volume requirements and mainly source from Asia were far more affected by increased logistics and raw materials prices. He added: "Our purchasing focus changed slightly as we had to start importing some raw materials from Brazil and China. However, this has been beneficial for us as we are now purchasing directly from the supplier and not through a distributor, resulting in savings of between 30% to 35 % on many of our raw materials."

> **We understand that politics, like natural resources markets, are cyclical, and there will always be opportunities for companies with experience and expertise. We want to continue growing organically, selling more in different markets, and perhaps create a subsidiary in another Latam country in the future.**
>
> *Jaime Villanueva,*
> *Commercial Manager, Químicos Goicochea*

Colombia enters a new era

On August 7th, 2022, Gustavo Petro officially took office, ushering in a new era for Colombia as the country's first left-wing president. While it is too early to predict exactly how the new government will impact the country's petrochemical and chemical sector, discussions surrounding tax reform have suggested 25 trillion Colombian Pesos (approximately US$6 billion dollars) will be required, which will impact many businesses, depending on how the reform is rolled out.

"Chemical products are essential for everyday life, and I am optimistic that these markets will remain strong. The climate for investment is more concerning, as companies are holding off on capital expenditure to expand capacity or product portfolios before first seeing what happens," remarked Daniel Mitchell, president of Acoplásticos.

Detailing the performance of Colombia's chemical sector, Mitchell revealed that 2021 and 2022 had been positive, with growth rates above 15% for plastics and for other chemicals products in the first semester of 2022. He also highlighted the country's potential for increasing its chemical imports, which grew substantially in 2021.

Felipe Trujillo, manager – petrochemicals and products at Ecopetrol, revealed that the past 12 months have been the most successful in the history of the company's petrochemicals division, growing 49% in 2021 compared to 2019 results, and an estimated growth of a further 14% in 2022.

Regarding the new government, Trujillo commented that if campaign promises of an emphasis on sustainability materialize, Ecopetrol may be favored because it has several initiatives aiming for circular economy and the energy transition. "We are working on a very ambitious project which has brought great results, developing and testing the incorporation of postconsumption low density polyethylene plastic in asphalt with one of our business partners," he said, adding that Ecopetrol hopes that the incorporation of plastic in asphalt in four to five years is equivalent to the company's production of plastic, which would warrant a cycle closure of 100%. ■

Werner Watznauer

President
CHILEAN CHEMICAL INDUSTRY ASSOCIATION (ASIQUIM)

How has Chile's chemical industry performed in the last 12 months?
ASIQUIM was fortunate to see good performances in 2020 and 2021 for the chemical industry in Chile. Increased oil prices related to Covid and the crisis in Ukraine brought some challenges to the market, but companies have been resilient and are performing as strongly as they did pre-pandemic.

In terms of COMEX 2021, importations show an increase of 59% in US$ compared with 2020, with a total close of US$12.550 million, which represents 13% of Chilean total imports. Exports also increased 39% compare with 2020, to a total of US$3.425 million, which represents a 4.8% of Chilean total exports.

According with the statistics of the Chilean Central Bank, the chemical industry contributed 2% of Chile's total GDP in the first quarter of 2022.

Inflation and supply chain disruptions have caused many materials and logistics to become extremely expensive. For example, two and a half years ago, shipping a 40-foot container from China to Chile cost approximately US$2,000, whereas today it can cost from US$12,000 to US$15,000, if you want it express. In addition, raw materials in general have shown an increase along with volatility in the selling price of the final products, which often generate an overpriced inventory. Today in Chile, inflation is over 10%, whereas it was normally around 2% or 3% at the maximum. These cost increases and inflation are passed down to clients but fortunately have not resulted in noticeably decreased demand yet.

Which sub-segments of Chile's chemical industry have been most resilient in 2022, and which have the strongest potential for growth in 2023?
We have seen strong growth and development in industrial gases, adhesives, pigments, and especially construction chemicals. There has also been growth in the mining and pulp and paper segments. We do, however, expect a decrease in growth in some sectors in the years to come due to inflation.

Can you give details regarding ASIQUIM's latest sustainability-related initiatives and focus on Responsible Care?
ASIQUIM works with Responsible Care, the global chemical industry's environmental, health and safety (EHS) initiative to drive continuous improvement in performance. We are proud to say that in the last year, not one of our member companies incurred any major issue or incident. We put in the effort to get information to our members and encourage safety protocols and measures to be put in place in line with our focus on Responsible Care. Chile has high safety standards that are audited and monitored regularly. ASIQUIM has also implemented a university course on Responsible Care that over 500 students of six Universities have passed, and we intend to grow these figures.

Do you think there are misconceptions about the modern chemical industry in Chile, and what could be done to start changing outdated views?
In 2021, ASIQUIM, in collaboration with CADEM, made a study on how people see our chemical sector. The feedback demonstrated that people in Chile associated chemical companies with negatives concepts, such as pollution and accidents. Subsequently, ASIQUIM has started a campaign to let society know what we are doing and the advantages of the chemical industry so they can better understand the importance of the sector.

The campaign comprised of four stakeholder groups – leaders, authorities, industry and public. This also included the industry workforce and interestingly, although they have a much higher appreciation of the industry than the public, there were still some workers who had a negative opinion, especially from an environmental performance of their own companies, compared with other chemical companies in Chile. The industry workforce should be our ambassadors, and if they do not have a good opinion about something in the industry, we cannot ask the public to have a good opinion. Therefore, we hope that our campaign will allow both public and industry workers to understand the sector better and see the benefits it brings to the Chilean economy and society. ■

» The industry workforce should be our ambassadors. If they do not have a good opinion about something in the industry, we cannot ask the public to have a good opinion. «

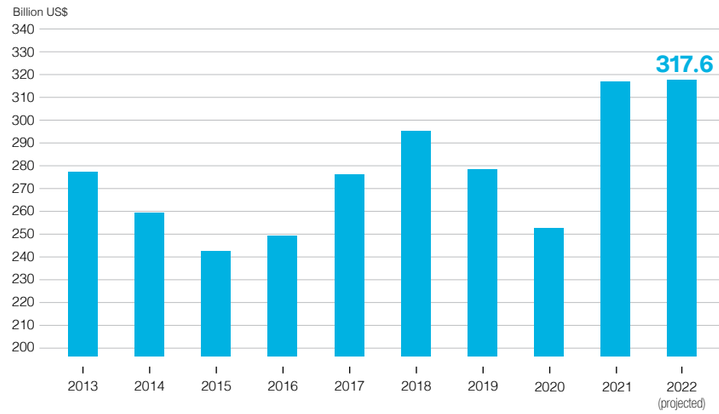
CHILE AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Santiago
GDP
US$317.6 billion
GDP GROWTH
1.5%
HEAD OF STATE
President Gabriel Boric
TOTAL INVESTMENT (% OF GDP)
26.6%
GROSS NATIONAL SAVINGS (% OF GDP)
22.2%
CURRENT ACCOUNT BALANCE (% OF GDP)
-4.5%

GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



DEMOGRAPHIC DATA

Source: IMF, 2022 data

POPULATION
19.9 MILLION

UNEMPLOYMENT RATE
7.0%

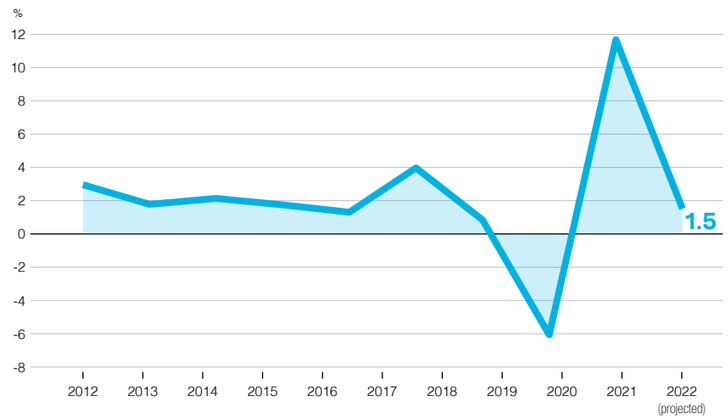
GDP PER CAPITA
US$15,940

GDP PER CAPITA (PPP)
US$24,433

INFLATION RATE
7.5%

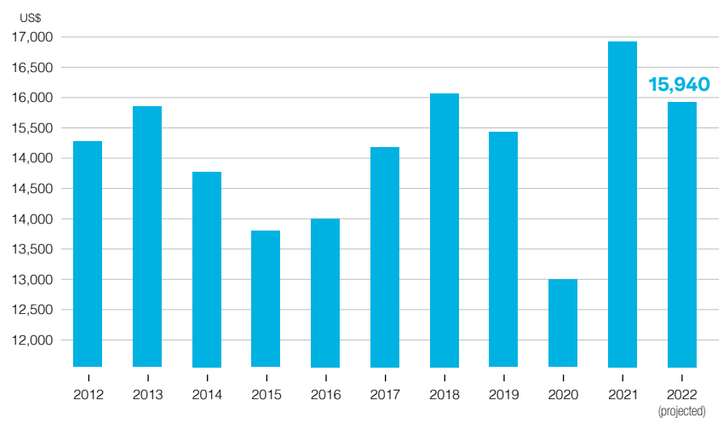
GDP GROWTH

Source: IMF



GDP PER CAPITA IN US DOLLAR VALUE

Source: IMF



Daniel Mitchell

President
ACOPLÁSTICOS

Colombia has great potential for increasing exports in the chemical sector as we have competitiveness in terms of inputs and raw materials.

How would you evaluate the last year for Colombia's chemicals and petrochemicals sectors?
Growth rates were high compared to 2020. Basic chemicals saw 1.5% growth in 2020, but 27.7% growth in 2021. The other chemical products market grew by 14.5% in 2021, with plastic products seeing an increase of 21.8% in that same year. We continue to get good signals from the market. 2022 has also been positive with high first semester growth rates above 15% for plastic and for other chemicals products.

Which macro factors are stimulating a rise in Colombian exports?
Colombia has great potential for increasing exports in the chemical sector as we have competitiveness in terms of inputs and raw materials. Also, the Colombian peso is currently a devaluated currency, which opens an oppprtunity for local companies to increase exports to new markets, in addition to our traditional trading partners such as Brazil, Mexico and the US.

In 2021, plastics raw materials exports increased from US$840 million to US$1.4 billion, basic chemical substances from US$230 million to US$300 million, other chemicals such as fertilizers from US$370 million to US$440 million, soaps and detergents from US$550 million to US$618 million, and plastics products from US$480 million to US$624 million.

To what extent could the election of Gustavo Petro impact the country's business climate for chemicals?
The new government took over on August 7, 2022, so it is early to say what the outcomes will be. There are currently discussions about a tax reform, as the government, from their analysis, requires approximately 25 trillion Colombian Pesos – approximately US$6 billion dollars. This is an extremely large amount and will impact many businesses, depending on how the tax reform is rolled out.

The climate for investment is concerning, as companies are holding off on capital expenditure to expand capacity or product portfolios before first seeing what happens with the new government and the tax reform.

What were the main themes of the ColombiaPlast conference?
We had a great commercial exhibition – machinery, molds, raw materials, services, equipment – with everything related to the plastics industries, including an area for 3D printing and one for startups in the recycling and circular economy sectors. Sustainability, the environment, and the advances of industry 4.0 were key themes.

In collaboration with APLA, we organized a sustainability-focused event for the chemical and plastics sectors, focusing on how we can develop the recycling markets to transition into an integrated circular economy.

How is Acoplásticos working to stimulate a circular economy?
In June 2022, Colombian Congress passed the single-use plastics act to provide a framework in terms of new materials, for products such as straws and plastic bags, and promote more sustainable reusable plastic products. For packaging – a big portion of plastic waste – we have specific goals within the extended producer responsibility framework.

Acoplásticos is focused on five aspects in our efforts to promote sustainability and a circular economy. Firstly, we want to promote eco design, which leads to better characteristics in terms of recyclability of products. Secondly, we focus on consumer awareness – communications campaigns, school programs, and clean-up initiatives to generate greater awareness. The third revolves around regulation, especially in a waste management system that is currently based on landfills, but must transition to a system based on recycling. The fourth pillar is creating dynamic recycling markets – working closely with entrepreneurs and companies, promoting investments, businesses, crowd funding initiatives with the Colombian stock market, financing rounds, and networking within the sector to promote the use of recycled materials. Lastly, one of the key issues we have in Latin America is a lack of information about the recycling markets as they are usually informal. We do studies on how prices evolve, supply and demand, key players in the market, and how the sector is growing, and then publish all this information. ■

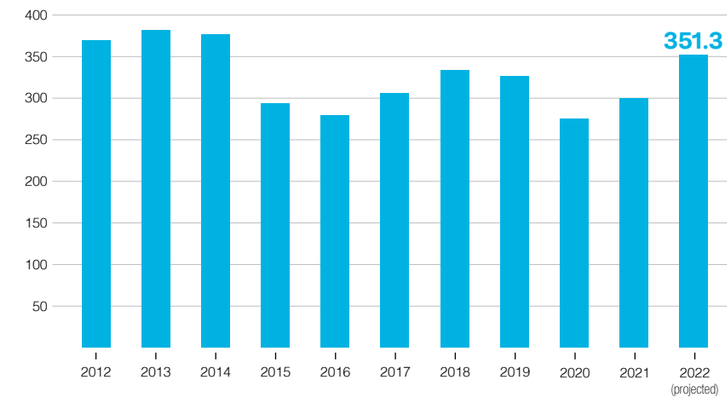
COLOMBIA AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Bogotá
GDP
US$351.3 billion
GDP GROWTH
5.8%
HEAD OF STATE
President Gustavo Petro
TOTAL INVESTMENT (% OF GDP)
19.0%
GROSS NATIONAL SAVINGS (% OF GDP)
15.6%
CURRENT ACCOUNT BALANCE (% OF GDP)
-3.3%

GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



DEMOGRAPHIC DATA

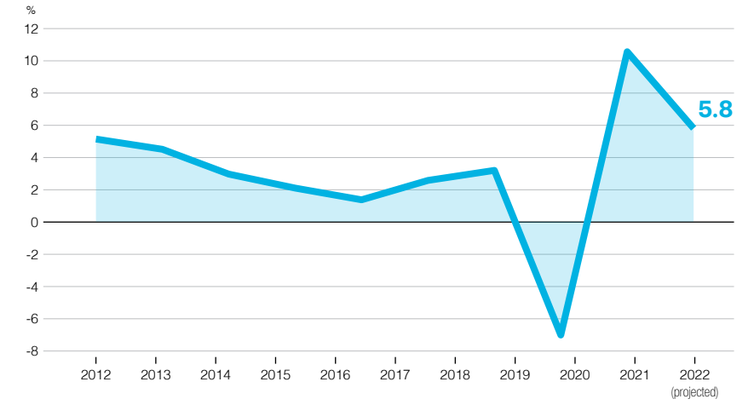
Source: IMF, 2022 data

POPULATION
51.6 MILLION

UNEMPLOYMENT RATE
11.9%

GDP GROWTH

Source: IMF



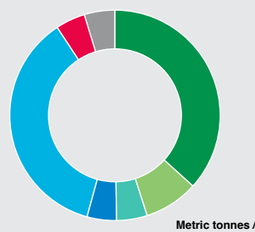
GDP PER CAPITA
US$6,810

GDP PER CAPITA (PPP)
US$15,610

INFLATION RATE
7.7%

INSTALLED PETROCHEMICAL CAPACITY

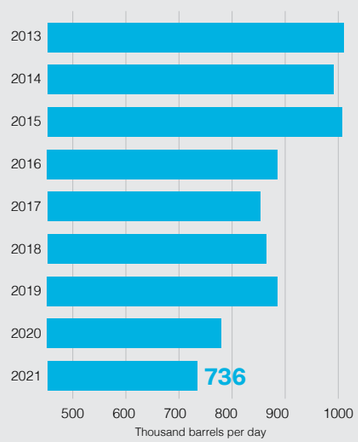
Source: Acoplásticos



Metric tonnes / year	
Polyvinyl chloride (PVC)	502,000
Polystyrene	110,000
Low density polyethylene	66,000
Polyethylene terephthalate (rPET)	60,000
Polypropylene	500,000
Unsaturated polyester resins	65,000
Other plastic resins (polyols, polyethers, polyurethane, polycaprolactone, phenolic resins)	62,000

OIL PRODUCTION

Source: ANH



Jorge García

General Manager
PETROQUIM

In Petroquim's case, as well as most petrochemical companies, we grow when the refiners that supply us grow.

How has Petroquim's production capacity and focus evolved in recent years?
Almost 10 years ago, Petroquim reached a production of 115,000 t/y, due to the raw material availability that ENAP, the Chilean State refiner, could provide. Unfortunately, the availability of this feedstock went down due to the closure of the Naphta Cracker in 2014. This made our average production range between 80,000 to 90,000 t/y since then.

Petroquim's main focus is to develop products like polymers that comply with the requirements of heterophasic copolymers and random copolymers. Although we would still like to have more raw materials available, which is a variable that is not likely to change in the short term, we are very happy with our results.

Can you expand on your polypropylene products and the end markets Petroquim supplies?
About one third of the 80,000 t/y of polypropylene products which Petroquim manufactures is sold in Chile, with rest mainly sold along the Andean coast, meaning Ecuador, Peru, Colombia, and in very small amounts in Argentina and Brazil. Its main uses are those common to a homopolymer, raffias, thermoform, and films.

Can you tell us about Petroquim's innovations and the use of LyondellBasell's Spheripol technology?
What we are seeing is that many of the plants entering the market are fed by propane dehydrogenation plants. A big part of that new capacity entering the market will come from plants that can only produce PP homopolymers. That is why the effort we have made with some of our chemical suppliers to replace the effect of ethylene as a copolymer to achieve it with the blend of ethylene and propylene has been very important. We are the pilot that will allow many plants coming into the market to supply a wider range of PPs than was traditionally done with homopolymers only.

To what extent have logistics challenges impacted your business?
The availability of freights to Peru, Ecuador and Colombia has been deeply affected in the last two years. We had to manage our own distributors and hire third-party distributors to support the production of our clients during this period. Fortunately, the situation has improved considerably; although there are still issues like expensive freights, they are no longer at the historic levels of H2 2021.

We expect to see a gradual improvement, in both ships, containers and route availability. In 2023 I believe there will still be periods with peaks and standstills, particularly in Asia and the ports of the Pacific in the US that will affect the times of the ships coming from Chile. However, clients now understand this, which forces the whole chain to work with higher inventories than usual. A strong deceleration happening in China and a market almost in recession such as the in the US will help accelerate all adjustments, which is already apparent.

What are your expectations for the following years regarding the chemical market and Petroquim?
We believe the industry in Chile and South America in general is under stress due to the low level of investment, partly because the region is characterized by political instability. In Petroquim's case, as well as most petrochemical companies, we grow when the refiners that supply us grow. In Chile, our monomer supplier shows no sign of growth, meaning we expect to maintain current production levels for several years.

I have been in this industry for more than 20 years, and I am not pessimistic. I have learned these are cycles and we happen to be in the lower side of one, but at some point, we will recover, and things will get back to normal. In the meantime, we can use this time to reconsider how we are doing things: costs, people, training; do we have the human capital?, do they have the training required? We have made adjustments to redefine and optimize the distribution of tasks to create a more sustainable business. ■

Felipe Trujillo

Manager Petrochemicals & Products
ECOPETROL

Ecopetrol is the most important supplier of raw materials for Colombia, accounting for 100% of the national demand of BTX, 33% of polyethylene, 30% of propylene, 100% of asphalt and 70% of lubricant bases.

How have the last 12 months been for Ecopetrol's petrochemical division?
The last 12 months have been the best and most successful. In 2019, we set out to double Ecopetrol's petrochemical business with no additional capex or opex, only through our understanding of the market and reconfigurations of different logistical and commercial topics. By the end of 2021, the growth of the petrochemical business was 49% compared to 2019; measuring against pandemic years, the growth is even bigger. In 2022, we expect growth of approximately 14% compared to 2021, even after billing in 2021 what we had planned for 2023. We believe this growth is sustainable, which will allow us to double the business or even more by 2025.

Which petrochemical business lines is Ecopetrol investing in to increase capacity and improve operations?
Ecopetrol's petrochemical business has two components: the first is strictly related to refiners in Barrancabermeja and Cartagena; and the other is Esenttia, our sister business where we are expanding the capacity for imported raw materials. Esenttia imports 70% of its propylene while the rest is supplied by Ecopetrol. We are improving the supply reliability of our plants in areas of raw materials, equipment and maintenance. Some of our plants are working excellently, such as aromatics production at BTX, and we want other operations such as our polyethylene plant to increase capacity and value add.

We are currently studying the role of Ecopetrol's petrochemical business as we move forwards. Should we think about converting some gasoline plants into aromatics or think of polyolefins plants or a propane dehydrogenation plant? That is something in development and we shall have conclusive results by the end of this year on whether to invest several million dollars on certain transformations.

Can you elaborate on the circular economy initiatives that Ecopetrol is currently working on?
We are working on a very ambitious project that has brought great results, developing and testing the incorporation of postconsumption low-density polyethylene plastic in asphalt with one of our business partners. We produce PG64-22 or 60-70 asphalt, which is required for more specialized and demanding applications like freeways and high urban traffic driveways. These asphalts are usually modified with an imported polymer. Our initiative producers low-density polyethylene, and in a first approach with a Colombian plant that produces various degrees of post-consumption plastic, we managed to incorporate and replace that imported polyethylene with post-consumption polyethylene.

We hope that the incorporation of plastic in asphalt in four to five years is equivalent to Ecopetrol's production of plastic, which would warrant a cycle closure of 100%. This translates into a huge social impact for recycling groups, and on the environmental side, every ton of plastic that we incorporate into asphalt not only improves its quality, but is also a ton of plastic that does not end up in landfills, rivers, seas.

What impact could the election of Gustavo Petro as Colombia's new president mean for Ecopetrol?
In the petrochemical business I am optimistic and we anticipate opportunities. We believe that if campaign promises of an emphasis on sustainability materialize, we may be favored because we have several initiatives aiming for circular economy and the energy transition. Ecopetrol is the most important supplier of raw materials for Colombia, supplying 100% of the national demand of BTX, 33% of polyethylene, 30% of propylene, 100% of asphalt and 70% of lubricant bases.

Can you tell us about the green hydrogen production Ecopetrol is developing in Colombia?
This is a fascinating topic and an important focus of the company, being led by Ecopetrol's gas vice-presidency. It started with a pilot plant operating in our Cartagena refinery, followed by a well-recognized vehicle brand, which initiated tests with green hydrogen in Cartagena. Ecopetrol's expectation is that from this pilot, the production process can be replicated on an industrial scale in a short timeframe, generating subproducts that the country has a deficit of. That is why we are not only aiming towards a transition through green hydrogen, but we are also starting production of other raw materials currently been imported. ■

PERU AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Lima
GDP
US$240.3 billion
GDP GROWTH
3.0%
HEAD OF STATE
President Pedro Castillo
TOTAL INVESTMENT (% OF GDP)
25.1%
GROSS NATIONAL SAVINGS (% OF GDP)
23.6%
CURRENT ACCOUNT BALANCE (% OF GDP)
-1.5%

DEMOGRAPHIC DATA

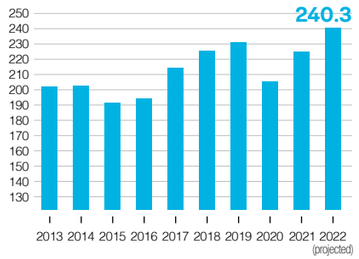
Source: IMF, data for 2019

POPULATION
34.2 MILLION

UNEMPLOYMENT RATE
9.3%

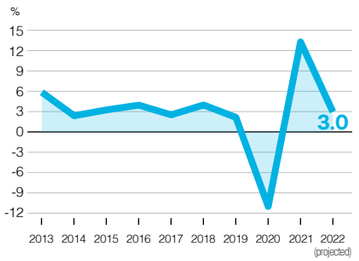
GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



GDP GROWTH

Source: IMF



GDP PER CAPITA
US$7,030

GDP PER CAPITA (PPP)
US$12,878

INFLATION RATE
5.5%

ECUADOR AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Quito
GDP
US$115.5 billion
GDP GROWTH
2.9%
HEAD OF STATE
President Guillermo Lasso
TOTAL INVESTMENT (% OF GDP)
25.7%
GROSS NATIONAL SAVINGS (% OF GDP)
28.6%
CURRENT ACCOUNT BALANCE (% OF GDP)
2.9%

DEMOGRAPHIC DATA

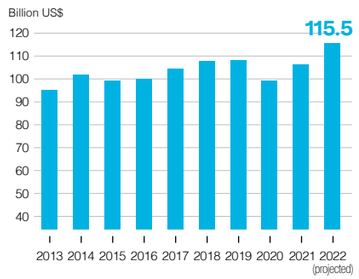
Source: IMF, data for 2022

POPULATION
18.0 MILLION

UNEMPLOYMENT RATE
4.0%

GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



GDP GROWTH

Source: IMF

GDP PER CAPITA
US$6,410

GDP PER CAPITA (PPP)
US$10,847

INFLATION RATE
3.2%

BOLIVIA AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Sucre
GDP
US$41.0 billion
GDP GROWTH
3.8%
HEAD OF STATE
President Luis Arce
TOTAL INVESTMENT (% OF GDP)
21.4%
GROSS NATIONAL SAVINGS (% OF GDP)
14.1%
CURRENT ACCOUNT BALANCE (% OF GDP)
-1.5%

DEMOGRAPHIC DATA

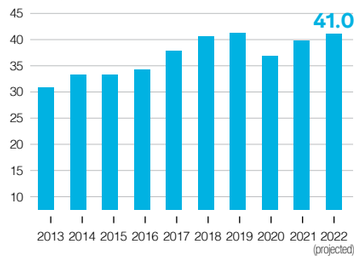
Source: IMF, data for 2019

POPULATION
12.0 MILLION

UNEMPLOYMENT RATE
4.5%

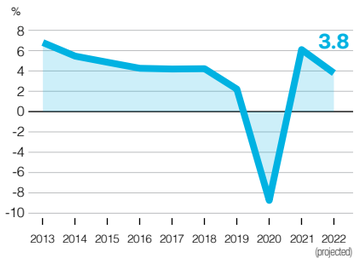
GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



GDP GROWTH

Source: IMF



GDP PER CAPITA
US$3,430

GDP PER CAPITA (PPP)
US$8,442

INFLATION RATE
3.2%

VENEZUELA AT A GLANCE

Source: IMF, 2022 data

CAPITAL
Caracas
GDP
US$49.1 billion
GDP GROWTH
1.5%
HEAD OF STATE
President Nicolás Maduro
TOTAL INVESTMENT (% OF GDP)
n/a
GROSS NATIONAL SAVINGS (% OF GDP)
n/a
CURRENT ACCOUNT BALANCE (% OF GDP)
n/a

DEMOGRAPHIC DATA

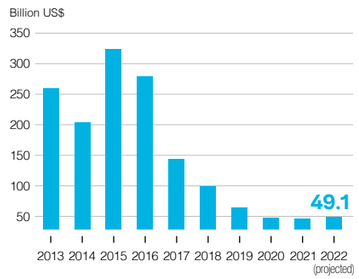
Source: IMF, data for 2022

POPULATION
26.9 MILLION

UNEMPLOYMENT RATE
n/a

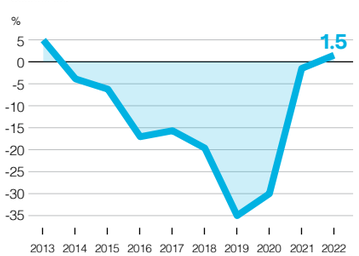
GDP EVOLUTION IN US DOLLAR VALUE

Source: IMF



GDP GROWTH

Source: IMF



GDP PER CAPITA
US$1,820

GDP PER CAPITA (PPP)
n/a

INFLATION RATE
500.0%

CHEMICAL DISTRIBUTION

"Consolidation in the chemical distribution industry in Latin America will most likely continue as it is still very fragmented [...] Economies of scale in supply chain, logistics, information technology, technical capabilities, training and purchasing power are necessary to add value and lower total cost in a competitive and sustainable fashion."

- Eugenio Manzano,
Executive Director,
Pochteca

Image courtesy of Topsoe

Chemical Distribution

MARKET CONDITIONS AND FRAGMENTATION FOSTER A CLIMATE RIPE FOR CONSOLIDATION

Latin America has the ideal petrochemical and chemical market for distributors. A scarcity of local production, a dynamic sociopolitical environment, volatile currencies and complex logistics all require local knowledge and capacity. Furthermore, many international producers want to sell to Latam's large consumer market, but do not want the risks associated with long-term capex investments. For these reasons, a wide variety of distributors are active in the region, from the largest multinationals to local specialists. However, the financial strain placed upon companies that lack liquidity, storage capacity or economies of scale over the last two years is pushing a fragmented market towards consolidation.

The three biggest chemical distributors in the world, Brenntag, Tricon Energy and Univar Solutions, according to 2021 sales figures from ICIS, all have a significant presence in Latin America. When speaking to GBR, all three of them mentioned how current market conditions have heightened the potential for M&A in the distribution and chemical business in the region.

German Torres, CEO of Brenntag Latin America, evaluated the challenges facing the industry: "Working capital management is a huge issue for everyone – distributors, customers, suppliers. The concern is not due to demand growing, but rather because pricing, which has significantly increased over the past couple of years. High logistics and supply chain costs leaves little room for flexibility, and businesses that do not have liquidity are suffering."

German company Brenntag, which posted record financial results in 2021 headlined by operating gross profit of over €3.37 billion, not only has the liquidity to weather turbulent conditions, but also to take advantage of M&A opportunities. Torres mentioned that the Latam region offers "tremendous opportunities for consolidation and growth," especially in the biggest geographies such as Mexico and Brazil, but also Colombia, Argentina and Ecuador. "The challenge is choosing which opportunities offer the most value," he added, revealing that Brenntag has been working to extend chemistries and portfolios well developed in North America to the entire Americas, which has led to opportunities to amplify distribution agreements, such as the deal announced in March 2022 with Arkema to distribute waterborne resins in Mexico.

Working capital management is a huge issue for everyone – distributors, customers, suppliers. The concern is not due to demand growing, but rather because pricing, which has significantly increased over the past couple of years.

German Torres,
President, Brenntag Essentials Latin America

Jorge Buckup, Univar Solutions' president for Latin America, suggested that there is high potential for growth as no one player has a large share of the total market in the region, and the share of total distribution within the chemical industry is still small as compared to the US and Europe. Commenting that consolidation has always been a lever for Univar to grow the company, Buckup gave the example of the December 2021 acquisition of distributor Sweetmix in Brazil to expand Univar's food ingredients and CASE (Coatings, Adhesives, Sealants and Elastomers) portfolio. "We continue to look at bolt on acquisitions where we can find both commercial and cost synergies, and in markets where we can grow above average economic growth rates and that are less

cyclical. In general, this tends to be, but is not limited to, the specialties markets such as personal care, food, CASE and pharma," he said.

Rafael Gerlein, Americas lead for plastics at Tricon Energy, pointed to the company's plastics and fertilizers business lines as the two contributing most to growth in Latin America. Describing Latin America as the backyard for US-based plastics producers, Gerlein weighed in on the factors that strengthen the case for M&A: "New entrants, an abundant supply of product, global supply chain challenges, a more conservative financial sector, and a downturn on the economic cycle will all lead to a more competitive environment, and this will open up opportunities for consolidation."

Tricon's business in the region covers trading and distribution across four main product lines; chemicals 33%, fertilizers 25%, plastics 21%, fuels and others 21% (based on volumes in 2021), with Latin America representing approximately 20% of the company's global annual revenue in 2021, detailed Gerlein.

Pochteca has been one of the active chemical distribution players in Latin America in recent years, with its 2020 acquisition of Ixon Latam adding Colombia, Peru, Chile and Argentina to a regional footprint, which already included Mexico, Costa Rica, El Salvador, Guatemala and Brazil. Eugenio Manzano, Pochteca's executive director, commented that the company is currently enjoying organic and profitable growth integrating the recently acquired or created business units, like environmental and third-party logistics, working to replicate successful segments from one country to another and growing its supplier and customer base. He added that Pochteca is always interested in looking at opportunities that can bring synergies or complementary regions or segments to its portfolio.

Nowadays, anyone can access international markets via just an email or even a text. That has increased competitivity, but understanding businesses at a regional level and having only one interlocutor for suppliers and clients is very important. Consolidating trust is one of the main sources of growth for companies.

Martin Font, General Manager, MCassab Argentina

Alanlyzing the Latam distribution segment, Manzano said: "Low trade barriers, increased regulation and customers and suppliers seeking to reduce the number of channel partners present an ever-greater challenge to smaller and medium size firms that are not highly specialized. Economies of scale in supply chain, logistics, information technology, technical capabilities, training and purchasing power are necessary to add value and lower total cost in a competitive and sustainable fashion."

One of the notable M&A transactions to take place in 2022 was the sale of distributor GTM to Dutch specialties group Caldic, which closed on March 1st. Rodrigo Gutierrez, former CEO of GTM and now Latam CEO for GTM Caldic, revealed that talks to merge the two companies began in early 2021, as synergies were identified to GTM's capacity in Latin America's industrial markets to Caldic's strength in the life sciences end markets. "We have been able to transfer knowledge, have more volumes to negotiate, consolidate logistics, and optimize in a way that we were not able to do before," said Gutierrez, noting that the GTM Caldic brand will be used until the end of 2022, with the Caldic brand adopted from January 2023.

The merger has not stopped the company from making further acquisitions, including the move to buy Active Pharmaceutica in Brazil in June 2022. "Latin America is a very fertile market for growth with significant opportunities," stated Gutierrez, commenting that GTM looks for companies that are strong in their niche markets and can add value, with a particular focus on (but not limited to) the life sciences segment. He added: "In spite of political changes in Latam, we believe in the region for the long term and will continue making acquisitions."

Brazilian distributors expand internationally

Of all the Latin American markets, the largest country in the region, Brazil, has the domestic market, complexity of logistics, and specific conditions (such as being the only country in the region to speak Portuguese) to require a vast array of distributors. Over time, a number of these distributors have started to branch out within the region and further afield.

Química Anastacio was founded in 1941, and has since created an international trading arm to its business, Anastacio Overseas, which initially expanded through Latin America, and has recently opened two new offices in Nigeria and South Africa to penetrate the African market. Matthias Vorbeck, managing director, revealed that Anastacio Overseas expects to increase its turnover from US$175 million in 2021 to US$250 million in 2022, citing the financial strength of the group that allows the company to purchase materials upfront as a factor in its success.

Jan Krueder, CEO of Química Anastácio, elaborated on the company's strategy to serve 18 different segments, each with their own strategy, technical team and marketing budget, launching 10 new products per month to achieve an annual target of 15% growth. "If one segment runs into crisis, there are other segments that can compensate. For example, the construction and home care markets are experiencing lower demand, but there is growth in the agriculture, food ingredients and pharma markets."

The model of establishing a distribution network in Brazil and then replicating this business strategy abroad has been adopted by MCassab, a family company established in 1928. "15 years ago we began developing MCassab's Latin American project in Argentina, and then expanded to Colombia in 2019 and Paraguay in 2020. We also have a subsidiary company in China," said Martin Font, general manager of MCassab Argentina.

Font explained that the company's continuous growth in Brazil has been the foundation of its regional expansions, and pointed to the US$35 million investment in a 55,000 m² distribution center in Jarinú in São Paulo state as an example of MCassab's focus on creating capacity to serve the animal nutrition, animal health and human nutrition segments. ■

German Torres

President
BRENNTAG ESSENTIALS LATIN AMERICA

Our commitment is to be well prepared for macro-economic challenges such as exchange rate fluctuation and inflation while managing supply chain disruptions and price corrections.

How has Brenntag restructured its business model?
Brenntag has a new operating model with two divisions – Brenntag Essentials and Brenntag Specialties. Brenntag in Latam is particularly strong in serving material sciences industries, including cleaning products, coatings, construction, lubricants, polymers, and rubber, as well as in general the personal care markets. Our presence is solid in the Latin American agribusiness, the oil and gas/energy component are unique offerings that sets our business model apart from competition. We are proud of providing a full-line portfolio of industrial and specialty chemicals and ingredients as well as tailor-made application, marketing and supply chain solutions, technical and formulation support, comprehensive regulatory know-how, and digital solutions.

Can you speak about Brenntag's business development in Latin America?
The Latam region offers ample opportunities, especially in the biggest geographies such as Mexico and Brazil. There is still a lot of fragmentation in the different industry segments. The pandemic, as well as other factors have once again shown the tremendous opportunities for consolidation and growth. For example, we have been working to extend chemistries and portfolios well developed in North America to the entire Americas, which led to the opportunity to amplify distribution agreements.

What steps has Brenntag taken to securing product inventory and ensuring reliable delivery during a time of continued chain disruptions?
Working capital management is a huge issue for everyone – distributors, customers, suppliers. The concern is not due to demand growing, but rather because pricing, which has significantly increased over the past couple of years. High logistics and supply chain costs leaves little room for flexibility, and businesses that do not have liquidity are suffering. Brenntag has the financial capacity to deal with such issues, but certain factors remain difficult to manage in areas that are not under our control. Planning, being close to the markets, and closely engaging with customers have become paramount to mitigate supply chain challenges. I believe this will remain a challenge for at least another year.

Can you elaborate on Brenntag's sustainability approach?
In April, Brenntag introduced its new ESG Strategy that sets ambitious sustainability targets such as "carbon net zero" by the year 2045. In line with this strategy, by 2025, we want to have a genuine sustainability footprint and are therefore implementing several initiatives in Latin America. For instance, some of our sites are fully operated with solar panels generating electricity, such as our Neuquén site in Argentina. In the South of Brazil, we are also investing in renewable power generation.

What is Brenntag's approach to attract and retain a diverse pool of talent?
Attracting and retaining talent is not only about the attractiveness of the industry we operate in and of the Brenntag brand, but also about what the new generations want. Over the past two years the working environment has changed significantly; best talent and professionals are looking for more flexibility in the workspace and remote work as well as career opportunities. It is our responsibility to demonstrate that industry, work, and company cultures can evolve to meet expectations and align with a cleaner and greener approach.

What is Brenntag's vision for the Latin American chemical sector in 2023?
Our clear commitment is to be well prepared for macro-economic challenges such as exchange rate fluctuation and inflation while managing supply chain disruptions and price corrections. Our performance and business development in the past have shown that we are well positioned for key themes such as efficient operations to assure sustainable growth. Over the past two years, Brenntag in Latin America has developed key projects to make the company more agile, to be able and prepared to respond to challenging times and volatile market conditions. ■

Jorge Buckup

President - Latin America
UNIVAR SOLUTIONS

Univar Solutions grew double digits in 2021, both top line and bottom line. In Latin America it was no different, as we increased EBITDA by approximately 45% and revenue grew by almost 27%.

How could consolidation in the Latin American chemical distribution market take shape, and if Univar Solutions were to participate in M&A, what qualities do you look for in target companies?
For Univar, there is high potential for growth as no one player has a large share of the total market in Latin America, and the share of total distribution within the chemical industry is still small as compared to the US and Europe. Consolidation has always been a lever for us to grow the company. In fact, in December 2021 Univar acquired leading distributor Sweetmix to expand our food ingredients and CASE (Coatings, Adhesives, Sealants and Elastomers) portfolio in Brazil. We continue to look at bolt on acquisitions where we can find both commercial and cost synergies, and in markets where we can grow above average economic growth rates and that are less cyclical. In general, this tends to be, but is not limited to, the specialties markets such as Personal Care, Food, CASE and Pharma.

On a global level, Univar Solutions had the third biggest sales of all distributors in 2021, according to ICIS. Which markets contributed most to this performance?
Univar Solutions grew double digits in 2021, both top line and bottom line. In Latin America it was no different as we increased EBITDA by approximately 45%, and revenue grew by almost 27%, representing the largest percentage growth for any region within Univar Solutions globally. In terms of volume, the company has seen growth in all of the markets. Specialties represents approximately 50% of our portfolio in the region, and we have seen great growth within this market segment.

I would like to emphasize that our focus on customer experience and detailed management of growth plans with our suppliers has really driven growth. The competitive advantages that Univar Solutions bring to the market have contributed significantly, based on commercial excellence, streamlined processes, dedicated and talented teams, broad portfolio of products, and great partnerships with suppliers. Last but not least, we have been making investments into our digital strategy, which is beginning to show results.

Can you explain how Univar Solutions accelerates growth for customers with its Destination: Innovation online hub?
We have global solution centers, such as Houston and Chicago in the US, Paris and Essen in Europe, in addition to what we call Super Solution Centers, such as the one in Mexico City and one in Sao Paulo. These centers can be used for application assessments, analytical testing and development of formulations and recipes. Univar Solutions leverages knowledge, processes and R&D for cross-region collaboration. For example, Brazil is known as a strong market for Beauty and Personal Care, specifically in the hair treatment industry, and from here we share technologies and trends so that other centers can bring these solutions to customers around the world.

What are some of Univar's latest sustainability-related initiatives in Latin America?
From an environmental standpoint, we are working to reduce our greenhouse gas emissions and have embarked on an initiative to look at incorporating alternative fuel vehicles into our truck fleet. For example, in Brazil we have ethanol as an alternative to gasoline and we are also investing in an electric fleet. Univar Solutions is investing in solar solutions and has already installed solar panels at our sites in Los Angeles, Brazil, and Spain. In terms of waste, we are implementing processes that ensure we recover and reuse material from the whole supply chain, both internally and with customers. Our ChemCare business delivers tailored end-to-end sustainable waste management solutions. From a social standpoint, safety is a paramount value of ours and we are working hard to keep site incidents at an all time low level and improve focus on behavior-based safety.

Univar Solutions also has inclusion, equity and diversity initiatives with global employee networks in Brazil, Mexico, US, Canada and Europe, where our people can dialogue and increase attention to underrepresented populations to ensure that all perspectives are included, heard and have opportunities. We are very proud that on June 1st, 2022, we were certified in Mexico for being a great place to work for women. ■

Rafael Gerlein

Americas Lead for Plastics
TRICON ENERGY

We created a new product line focused on renewable, circular, and low carbon products this year, and we see Latin America as a key market to grow here.

Can you provide an overview of Tricon Energy's presence and activities in Latin America?
Latin America has been instrumental in the growth of Tricon Energy since the foundation of the company in 1996, and continues to be a strategic market. Our activities started with the trading of caustic soda and quickly diversified into other chemicals (aromatics chain). In 2004, we started our plastics activities and several years later we expanded into ethanol, fuels, and more recently into fertilizers. Our business in the region covers trading and distribution across four main product lines; chemicals 33%, fertilizers 25%, plastics 21%, fuels and others 21% (based on volumes in 2021). Tricon's business activities in Latin America represented approximately 20% of our global annual revenue in 2021.

Our current footprint includes local offices in Mexico, Colombia, Peru, Ecuador, Chile, Argentina, Brazil and Central America.

ICIS ranked Tricon the second largest chemical distributor in the world and leader in Latin America in 2021. Which product lines and markets have contributed to the company's growth in recent years?
Our Plastics Business line is one of the main product lines that have contributed to our expansions in Latin America. Tricon's plastics business includes PE, PP, PVC, PET, PS and engineering resins. We are also complementing the product lines by incorporating circular products such as recyclable and sustainable materials into our portfolio.

We launched Tricon's fertilizer business in 2017, which has also contributed to our growth in the Latin American market. Although today it is relatively small in terms of revenue compared to our plastics and chemicals business lines, it has had tremendous growth in volumes, and we are dedicating resources to expand this line.

What potential do you see for consolidation in the Latin American plastics market?
In recent years there have been major capacity expansions in North America for plastics, especially PE. Latin America is the backyard for US-based producers and, as a result, we have seen new entrants coming into the plastics business in the region. With new entrants, an abundant supply of product, global supply chain challenges, a more conservative financial sector, and a downturn on the economic cycle will all lead to a more competitive environment, and this will open up opportunities for consolidation and M&A activity.

How is the company dealing with logistics and supply chain challenges?
On the liquid side, Tricon is one of the world's largest chemical trading and distribution houses and adopted a centralized logistics strategy, including investing in and partnering with a brokerage and logistic expert in Lighthouse Chartering (starting in 2016). Lighthouse assembled a team of highly skilled logistics professionals with offices in USA, Europe and Asia, which gives 24/7 coverage and allows Tricon to leverage economies of scale, for example, by combining cargoes and ports for lower freight or improving use of tanker space or even booking the full vessel. This is combined with our strategy in selecting service providers to achieve the safest, highest quality and most efficient and economical logistic solutions.

What were the highlights from Tricon's first sustainability report published in April 2022?
We see this as a moral and societal responsibility to 'create good together,' which is Tricon's theme for 2022. To achieve this, we established three pillars – social and economic inclusion; climate & environment; and circular economy – supported by a foundation of governance.

We accelerated this in 2021 by conducting a materiality and risk analysis to understand what issues to focus on, putting in place policies and processes, such as our Sustainability Policy and Responsible Sourcing and Product Stewardship Standard, and starting to measure our impact, getting a baseline on environmental, social, and governance data. Then we put goals and targets and a workplan for how we can achieve those. This allowed us to reach Platinum status with EcoVadis, recognizing our sustainability program in the top 1% of companies assessed.

We created a new product line focused on renewable, circular, and low carbon products this year, and we see Latin America as a key market to grow here. ■

Eugenio Manzano

Executive Director
POCHTECA

We are focusing our efforts on replicating successful segments from one country to another and growing our supplier and customer base.

How significant is Pochteca's footprint across Latin America?
The Ixom Latam acquisition in 2020 added Colombia, Peru, Chile and Argentina to our regional footprint, which already included Mexico, Costa Rica, El Salvador, Guatemala and Brazil. Pochteca is now present in 10 countries in Latin America, including the most recent operation in Ecuador, with 52 distribution facilities serving more than 26,000 customers with a portfolio of more than 11,700 products from more than 200 world class suppliers. This regional expansion allows us to better serve customers and suppliers that require regional solutions and are looking to consolidate the number of channel partners that they deal with.

During first half of 2022, 49% of Pochteca´s sales were in Mexico and 51% in the rest of the countries.

Which countries and business lines have shown strong demand in 2022?
We have had healthy growth in all the countries where we operate and are proud of the way our team has incorporated the new operations. The synergies that we had identified in supply chain, economies of scale in IT resources, as well as a more robust value proposition to employees, customers and suppliers are materializing as expected. New customers, products, suppliers and comprehensive value propositions that leverage our capabilities and footprint have been key to growth in sectors such as mining, construction, water treatment, food, personal and home care.

To what extent does the trend of nearshoring and onshoring offer opportunities for Mexico's chemical industry, and what must be done to capitalize on these opportunities?
Mexico´s geographic location, abundance of natural resources, productive and young workforce, as well as it´s free trade agreements with dozens of countries, make it an ideal place for the nearshoring initiative being followed by North American companies. The chemical industry and the more than 40 downstream segments that it serves can certainly benefit from this opportunity if raw materials and energy are available and competitive. Such competitiveness and availability can occur with cooperation between the public and private sectors in key areas such as oil and gas and electricity generation. Promoting private investment is key for achieving this goal.

How could consolidation in the Latin American chemical distribution segment help the sector?
Consolidation in the chemical distribution industry in Latin America will most likely continue as it is still very fragmented. Low trade barriers, increased regulation and customers and suppliers seeking to reduce the number of channel partners present an ever-greater challenge to smaller and medium size firms that are not highly specialized. Economies of scale in supply chain, logistics, information technology, technical capabilities, training and purchasing power are necessary to add value and lower total cost in a competitive and sustainable fashion. Pochteca is currently enjoying organic and profitable growth integrating the recently acquired or created business units, like environmental and third-party logistics. We are focusing our efforts on replicating successful segments from one country to another and growing our supplier and customer base. However, we are always interested in looking at opportunities that would bring synergies or complementary regions or segments to our already diverse portfolio.

Can you speak to the importance of sustainability?
Our sustainability strategy is based on three pillars: commitment to our people and communities, commitment to our customers and suppliers, and commitment to the environment. We have ratified our certification of ANIQ´S *"Comprehensive Responsibility Management System"* with a 94.47% rating and were the recipients of this year´s recognition for best practices in the category of Comprehensive Waste Management. Our Sustainable Solvent Recovery (SSR) program reduces costs and environmental impact for customers by returning materials to their supply chain so that they can be re-used without compromising their quality.

Moreover, we continue to grow our environmental solutions business unit offering various services including downstream coprocessing, remanufacturing of waste or by-products and responsible disposal of dangerous products. Finally, in recent months we have installed 2,170 solar panels in our facilities' rooftops capable of generating 1,394.66 MWh annually. ■

Rodrigo Gutierrez

CEO Latam
GTM CALDIC

> **In spite of political changes in Latam, we believe in the region for the long term and will continue making acquisitions.**

more acquisitions. We have been mapping companies like Active for a long time and are looking for companies that are strong in their niche markets and can add value for us. We will have a higher focus on the life sciences segment, but this does not mean that we will not keep acquiring companies in other markets. In spite of political changes in Latam, we believe in the region for the long term and will continue making acquisitions.

Can you speak to the importance of sustainability and ESG to GTM Caldic?
GTM Caldic is focused on taking care of the environment, and we have invested significantly to ensure that we do not contribute to any negative incidents. As a result, in the last year we had no leaks, environmental issues or lost time incidents. The company is silver certified by EcoVadis, and our plan is to become known in the region for sustainability. We have the target of becoming carbon neutral by 2024, as well as focusing on sustainable products for our customers. Over the past year, we have built a New Product Introduction program where sustainability factors have a strong weight when evaluating if a new product becomes part of our portfolio. In terms of diversity, we already have more women than men working in the company.

Can you provide details of the merger between GTM Holdings and Caldic?
We stared analyzing the opportunity to merge with Caldic, a global player in specialties, early in 2021, and identified significant positive synergies between the companies. Caldic had zero operations in Latin America and GTM zero operations outside of Latam; Caldic was strong in the life sciences end markets with approximately 70% of their business in this sector, whereas our company had less than 30% business within this sector, and we were stronger in the industrial market. The merger made sense as an investment theory for our shareholders, and we are now a bigger company with a global footprint. We have been able to transfer knowledge, have more volumes to negotiate, consolidate logistics, and optimize in a way that we were not able to do before. We believe we are building a unique company in terms of culture. From a branding point of view, we will keep using GTM Caldic until the end of this year, and adopt Caldic as a brand from January 2023.

What are GTM Caldic's plans for further consolidation, such as the June 2022 announcement of the acquisition of Active Pharmaceutica in Brazil?
Latin America is a very fertile market for growth with significant opportunities. We did a lot of M&A from 2014 to 2017, whereafter we organized and improved ourselves and integrated the companies. In 2020 we made another small acquisition and realized that we were ready to continue with

What are your views on the current supply chain and logistics disruptions?
From a logistics and supply chain perspective, 2022 is worse than it has ever been, even compared to 2020 and 2021. These disruptions are affecting everyone as lead times and costs have increased significantly. As a consequence, we have had to increase our inventories to guarantee supply. We do not foresee that the situation will change much before the end of year, so financial strength is currently very important.

Do you have a final message?
GTM Caldic is changing the way in which we approach the market, turning into an end market-focused company that wants to ensure customers they will have the proper focus and utmost care from us. Our philosophy is that if our customers and partners are successful, we will be successful. We also want to be the employer of choice in this industry, and are investing in professional development, as well as creating an environment that is politics free. We want to be seen as a big company which thinks like a small company in terms of agility, client relationships, and care for our team. ■

Jan Krueder & Matthias Vorbeck

JK

MV

JK: CEO **QUÍMICA ANASTACIO**
MV: General Manager **ANASTACIO OVERSEAS**

> **The company is expanding outside of Latam, opening two new offices in Nigeria and South Africa to penetrate the African market.**

What would you say have been the biggest challenges faced by Química Anastacio and Anastacio Overseas recently?
JK: Forecasting has been a challenge since 2020 and is still complicated in today's environmental due to variables such as capacity and demand coming back, commodity markets fluctuating, the impact of the pandemic and the situation in Ukraine. Government incentives also created some artificial demand that is not sustainable. However, during the pandemic we ensured that we kept strong relationships with partners and suppliers, made alternative plans in the over 60 countries we supply to and source from, put effort into logistics, and stocked higher inventories to ensure continuous operations and consistent supply to our customers. This model worked well in 2020 and 2021, and 2022 thus far has been successful.

MV: From the perspective of Anastacio Overseas, 2020 was a challenging year, but industries and businesses adapted and rebounded quite quickly. The main issue of logistics disruptions remains a challenge in the trading business – there are still delays from 6 to 12 weeks, so calculating distribution lead times is difficult. However, from a gross perspective, all our main segments such as polyurethanes, polymers, styrene, and special raw materials are growing. Furthermore, the financial strength of our group allowed us to purchase materials upfront, which was not always possible for our competitors.

How is the topic of ESG is influencing Química Anastacio's approach to business?
JK: Customers are increasingly concerned with sustainability and want proof that their suppliers are environmentally responsible. We are communicating with suppliers to ensure that we obtain the necessary sustainability certificates. We already have the RSPO (Roundtable on Sustainable Palm Oil) certification and do regular audits on suppliers to ensure their ESG indexes comply with our standards and values.

On the governance side, we have monthly board meetings to check our own indexes and the diversity inside our company.

What is your outlook for the Latin American chemical sector in 2023 and targets for the year ahead?
MV: The economies of Latin America have continued with their post-pandemic rebound, but as global financial conditions are tightening and commodity prices are reversing their upward trend, we question if the demand for chemicals will maintain the uptrend. The chemical sector in particular faces significant challenges such as persistent inflation and energy insecurity. Russia-Ukraine conflict is still affecting the supply of some raw materials such as Maleic Anhydride and Acetone. Logistical bottlenecks keep freight rates high and the clogging of terminals spread the congestion affecting the main Latin American ports, so the logistical problems are still far from being solved.

MV: However, due to Anastacio Overseas' business segment diversity, I believe we will continue to see growth and expect for Anastacio Overseas, the trading business of Anastacio Group, a U$S 250 million turnover in 2022, compared to the U$S 175 million in 2021. This will depend on maintaining the current quantities and adding more products to our portfolio.

What is the strategy to grow the two companies organically?
JK: Química Anastácio operates in 18 different segments. We understand that to fully service a segment, we should treat it as an individual company with its own strategy, technical team and marketing budget. The company intends to keep growing through launching 10 new products per month, which we believe will allow us to achieve our annual 15% growth target. If one segment runs into crisis, there are other segments which can compensate.

MV: We recently hired a professional with 20 years' experience as head of our agribusiness, one of the key growth markets in Latin America. We launched our own brand of TiO2 for the coatings market in 2019, which we believe will bring substantial growth. The company is also expanding outside of Latam, opening two new offices in Nigeria and South Africa to penetrate the African market. In the polyurethane business – one of the main business lines of the company – we are deeply convinced we can go global in the next year given the experience we accumulated in-house during almost a decade. ■

LOGISTICS

"This state of VUCA (volatility, uncertainty, complexity, and ambiguity) appears to be the new normal and we do not foresee things going back to as they were in the past. Companies must adapt to this new environment and pro-active management requires interaction with all partners, customers, and stakeholders in the supply chain."

- Martin Sack,
Regional Head – Americas,
Leschaco

Image courtesy of Port of Santos

Logistics and Services

ALMOST THREE YEARS SINCE COVID STARTED, ARE LOGISTICS DISRUPTIONS THE NEW NORMAL?

Almost three years on since the first lockdowns in China took place, with delays still prevalent and containers still in short supply, is it fair to ask if such turbulence could be considered the new normal?

"This state of VUCA (volatility, uncertainty, complexity, and ambiguity) appears to be the new normal and we do not foresee things going back to as they were in the past," stated Martin Sack, Leschaco's regional head for the Americas, commenting that companies must adapt to this new environment and be pro-active in their interaction with all stakeholders throughout the supply chain. "Traditionally in Latin America there has been a focus on doing quick and spot business, which is not conducive to consistent volumes. Therefore, the region needs to focus on planning business better, meanwhile space allocation on the vessels remains tight," added Sack, commenting that factors such as inflation, the Russia-Ukraine war and a possible global recession make it difficult to forecast for 2023.

As a counter point, Fabiano Machion, NewPort Tank's general manager for South America, remarked: "I refuse to say that what we have experienced since the pandemic started could be the new normal, because it is simply impossible to work like this in the long term."

Machion reflected on a context where significant effort is required just to put a tank on a vessel, rather than working on the logistics itself, but he observed that some improvements have been evident in 2022, especially in terms of space availability.

Helio Coelho, director of global solution sales – Latam at BDP International, commented that the logistics and supply chain scenario in 2022 has been very similar to 2021, with shippers and importers facing challenges due to the lack of space, equipment, and port congestion which dramatically impacts the flow of goods, creating backlogs. "Many companies in Latin America have been facing challenges, especially with their intra-regional supply chains […] It is very important that a common agenda between major economies in the region is established in order to improve rail and road infrastructure. I believe it is also key to reduce intra-country bureaucracy in order to attract private sector investment."

Expanding on the specific issues facing Latin America's logistics network, Héctor Midolo, Bolloré Logistics' CEO for Latin America, noted that currently in Argentina approximately 95% of cargo is moved by trucks, 1.5% through fluvial modes, and the other 3.5% via train. "Latam countries have the opportunity to transport via rivers and trains, but the challenge is that some rail systems were built approximately 30 years ago and have not been upgraded and can thus not be utilized," he said, reflecting that there is huge opportunity for the private sector to invest in the rail systems in countries such as Brazil and Mexico, which would reduce internal logistics costs within these countries as well as increasing sustainability.

Sustainable logistics: From hydrogen to ISO tanks

In 2022, the alignment between the whole supply chain to an increasingly green agenda has been apparent, with rhetoric backed up by investments in a variety of sustainability-related ventures, from green hydrogen to logistics solutions with less environmental impact.

In March 2022, a memorandum of understanding (MoU) was signed between Stolthaven Terminals and the Pecém Industrial and Port Complex in Brazil to explore a green hydrogen export hub in Ceará. Marcelo Schmitt, Stolthaven Terminals' general manager for Brazil, revealed that the company had been tracking the possibilities for Brazil to become one of the sourcing countries for green hydrogen since 2021, and approached the Pecém Port in Ceará as they had already advanced green hydrogen initiatives. Schmitt praised the business-friendly approach of Pecém port complex, which is 30% owned by the Port of Rotterdam, and has a project to build an industrial zone for the production of green hydrogen. Furthermore, the state of Ceará in north-eastern Brazil has tremendous renewable sources, such as sun and wind, to produce green electricity 24 hours a day.

In addition to the agreement with Pecém, Schmitt revealed that Stolthaven had signed NDAs with six potential energy companies for different stages of the project to produce green hydrogen by electrolysis, adding that these companies are in the process of securing the water and electricity required with the plan to build electrolysis plants of different sizes over the next three to four years. "They will produce the hydrogen then convert it to ammonia, as so far, green hydrogen is not viable for storage and shipping long distances. We are also working with the port to look at the possibility of developing a green terminal for storing the ammonia and transporting it from the port to its final destination."

Heidi Herzog, director of commercial and business development – Americas at Vopak, elaborated on the company's new strategic agenda, including an approach to new energies and sustainable feedstocks that focuses on four primary pillars – hydrogen and hydrogen carriers; CO2 infrastructure; low carbon and sustainable feedstocks; and long duration energy storage. "With regard to hydrogen and hydrogen carriers, we are focused on enabling the development of the hydrogen economy and new hydrogen supply chains, including hydrogen carriers such as ammonia. In the Americas we are actively working on developments to enable new hydrogen supply chains through infrastructure development," she said.

> **Many companies in Latin America have been facing challenges with their intra-regional supply chains due to constraints such as capacity and container availability. It is very important that a common agenda between major economies in the region is established in order to improve rail and road infrastructure.**
>
> *Helio Coelho, Director of Global Solution Sales – Latam, BDP International*

On the topic of low carbon feedstocks, Herzog commented that Vopak has years of experience storing the feedstocks for both bio and renewable fuels in the US, Mexico, Colombia and Brazil, so it is a natural progression to add low carbon fuels such as renewable diesel and sustainable aviation fuel across the company's portfolio as there is already significant demand for these new products.

While investments into new production chains take shape, the logistics industry has been investing in solutions that support carbon emission reduction. Christopher Sandler, managing director at Eurotainer, affirmed the company's commitment to a sustainable low-carbon future as part of the Ermewa Group, noting that the company's equipment, rail cars and tank containers fit into a green vision with minimal carbon impact, such as using containers that are 100% reusable.

On the equipment side, Sandler gave the example of Eurotainer's investment into different types of lighter carbon fiber-type containers that provide cus-

tomers with a more sustainable option. "Many of our containers are now fitted with telematics technologies not only for tracking the equipment, but also to enable customers to measure temperature, pressure, and impacts to the container during the supply chain," he said, explaining that the aim of such initiatives is to connect what Eurotainer does into its customers' full supply chains, enhancing the way in which information is shared with customers and suppliers.

Demonstrating how modern equipment can increase sustainability in the transportation and storage of goods, NewPort Tank's Fabiano Machion detailed how an ISO tank can be used for approximately 20 years, and then be refurbished to use for another 20 years. "If you are using the right suppliers for the decontamination, cleaning, and testing, the process can be done fast, and an ISO tank can be used up to 10 times per year," added Machion, underlining the importance of selecting the proper suppliers that comply with local and global regulations in terms of disposal and safety. "In terms of shipping bulk products, I do not see any better option than ISO tanks, from both a cost and sustainability standpoint."

Port services and partnerships

The international network of ports that serve as hubs for products to be stored and pass through are the gatekeepers of the global chemical and petrochemical industry. As such, their efficiency is central to the competitive flow of industrial trade. From a port perspective, South American is not yet as advanced as North America, Europe or Southeast Asia, but a number of private investments and partnerships are demonstrating the benefits of modernizing infrastructure.

The Port of Santos in Brazil is particularly relevant for the petrochemical and chemical sectors, handling 16 million t/y of product and 40% of the petrochemical volume in the country, according to CEO of the Port, Fernando Biral.

In recent years the Port of Santos has been going through a privatization process that has centered around investments into brownfield areas that will expand capacity from 160 million t/y to 240 million t/y for all cargo by 2040. A number of private companies interviewed for this report mentioned the noticeable improvements at the port, particularly from a technology standpoint. Biral gave examples of the digital transformations at Port of Santos which have brought agility: "We developed partnerships with start-ups to design and implement new systems around our workflow. For example, in return cargo, we can make sure that trucks that leave the port to drop off goods do not return empty."

Notable investments from private companies at the Port of Santos include Ageo developing a new berth for boats; Vopak working on an expansion plan for chemical product importation, including three new planned jet-lines to improve performance and reduce dock operations times; and Ultracargo doubling static capacity in five years, increasing from 152,000 m³ to 297,000 m³.

Collaboration between foreign and Latin American ports was one of the topics highlighted at APLA's 24th annual logistics meeting in São Paulo, June 2022. Among the attendees were representatives from the Port of Antwerp-Bruges and Port of Houston to explain how partnerships are increasing trade between regions, and describing some of the operational improvements that have reduced bottlenecks in their jurisdictions.

Matheus Dolecki, Port of Antwerp-Bruges' representative for Latin America, spoke to GBR about the partnership between Port of Antwerp-Bruges International (PoABI) and Prumo Logística at the Port of Açu, located in the north of Rio de Janeiro state in Brazil. "PoABI is not only a shareholder but also actively supports Açu in its development by sharing its expertise and global network," he explained, reinforcing the PoABI's long-term commitment to the Brazilian market as an important trading partner for a port with the largest integrated chemical cluster in Europe.

Expanding on PoABI's partnerships in Latin America, Dolecki pointed to the MoU signed with the Chilean Ministry of Energy at COP26 in Glasgow: "The aim is also to collaborate on the important strategic issue of setting up a corridor between both countries to ship green hydrogen or derivatives produced in Chile and received at Port of Antwerp-Bruges for further distribution in Europe."

Moacyr Pedro, Central and South America representative for the Port of Houston, outlined how the largest port on the Gulf Coast and the biggest port in Texas acts as a strategic gateway for cargo destined for Latin America, with the chemical and petrochemical sectors being the top markets for the port. He detailed how the port had been able to reduce the average waiting time for containerships to 2.9 days in June 2022, significantly under the global average of approximately 7 or 8 days at the time. "We are enlarging the channel (from 160 m to 240 m), developing the terminals, creating more berth for vessels, and reducing the time containers need to wait inside the terminal," said Pedro, adding that optimizing the trucking routes inside the port has also helped significantly to avoid heavy traffic in the terminal. ■

Martin Sack

Regional Head Americas
LESCHACO

> **The company is expanding its footprint in Latin America and opened a new office in Peru in February.**

In 2021, Leschaco experienced good business volume in the three countries it operates in Latam – Mexico, Brazil and Chile – to what extent has this strong demand continued in 2022?

Leschaco has been able to maintain good volumes in Latin America in 2022, and the first half of the year was above expectation in comparison to our budgeted figures. Despite of external economic and logistics turbulences, the company is expanding its footprint in Latin America and opened on February 01, 2022 a new office in Peru, which is an exciting new market for us and aligns with our plan to further grow the business in the region. Looking ahead, we have not experienced any decline related to the external environment yet but are concerned about the development towards 2023.

How are the themes related to logistics disruptions impacting the industry?

For Leschaco, this state of VUCA (volatility, uncertainty, complexity, and ambiguity) appears to be the new normal and we do not foresee things going back to as they were in the past. Companies must adapt to this new environment and pro-active management requires interaction with all partners, customers, and stakeholders in the supply chain. Traditionally in Latin America there has been a focus on doing quick and spot business which is not conducive to consistent volumes. The region needs to focus on planning business better, meanwhile space allocation on the vessels remains tight.

To what extent could the re-regionalization of supply chains benefit Latam nations?

The US in particular sees Mexico as the perfect location for opening more and more production facilities. Although labor in Mexico is not as cheap as in Asia, the cost saving from short-distance logistics routes is significant.

On the other hand, logistics is currently a great challenge and regretfully, the Mexican government is not focusing enough on taking advantage of Mexico's favorable geographical position. More investment from both the government and the private sector is necessary to really take advantage of this huge opportunity.

What is Leschaco doing to reduce emissions and move products with less environmental impact?

In our Big Picture 2030, Leschaco has a strategic outlook with the aim of being CO2-neutral in 2030.

Our other focus is on the whole supply chain where we do not have full control, but where we can influence and take decisions when it comes to being environmentally responsible. For example, when deciding on new trucking partners, we review their fleet and make decisions with their environment impact in mind. Another example is the Emissions Calculator on our website. This is an easy-to-use digital tool that helps our customers calculate and optimize the emissions of their shipments. They can select either one main mode of transport or several modes to compare and modify the environmental impact of different transport chains.

Which technologies can help the logistics industry?

At Leschaco, we are implementing a new TMS (transportation management system) software this year which will allow for a new setup when it comes to the global management of our products and freight forwarding operations. We also see the need to get more inter-connected with our customers and partners along the supply chain to improve productivity through the intelligent use of existing data.

Considering the uncertain macroeconomic climate, what is Leschaco's strategy for ensuring resilience?

To be resilient you need to know and understand your business. Operational excellence is core for Leschaco, especially in the environment we are living in. Establishing a learning culture within the company is key for us. Collaboration forms part of resilience – if you can interact transparently and collaboratively with stakeholders, the chances of finding the right solutions are much better.

Leschaco has a culture which looks to the future in an optimistic way – not being afraid of change but adapting to it. On one hand Leschaco is investing in the development of our people and their skill sets, and on the other hand investing in infrastructure and software to ensure that we keep pace. ■

Heidi Herzog

Director of Commercial & Business Development – Americas
VOPAK

> **In the Americas we are actively working on developments to enable new hydrogen supply chains through infrastructure development.**

How significant is Vopak's presence in the Americas?
In the Americas, Vopak operates in six countries – Canada, US, Mexico, Panama, Colombia and Brazil. Globally, we have 79 terminal locations and 20 of these are located in the Americas. In Mexico, we have three terminals – Altamira, Veracruz, and Coatzacoalcos – where we handle products that range from chemicals, vegetable oils, and also fuels. In Panama, under our joint venture with Chevron, we operate Chevron's terminal, which supports their array of products as well as our independent bunker oil hub on the Atlantic Coast. In Colombia we are located in Barranquilla and Cartagena where we store products including vegetable oils, chemicals and ethanol. Vopak is present in Aratu and Alemoa in Brazil, where we serve largely petrochemical and fuels distribution customers.

Can you summarize Vopak's new strategic agenda and priorities?
Vopak rolled out its new strategy in June 2022. With global decarbonization and the energy transition at the front of our minds, the company has taken a comprehensive look at its business to determine how we can continue to support customers. For over 400 years we have been storing vital products with care, and our new strategy shapes how we will continue to support our customers for the next generations. We have unparalleled access to growth opportunities in the sectors where we are focused – energy and manufacturing – and we have put ourselves in a solid position to pursue the growth we want to achieve by improving portfolio performance, remaining committed to ESG, and following a disciplined capital framework.

What does Vopak's approach to new energies and sustainable feedstocKs entail?
The company has a focus on four primary pillars in new energies – hydrogen and hydrogen carriers; CO2 infrastructure; low carbon and sustainable feedstocks; and long duration energy storage. With regard to hydrogen and hydrogen carriers, we are focused on enabling the development of the hydrogen economy and new hydrogen supply chains, including hydrogen carriers such as ammonia. In the Americas we are actively working on developments to enable new hydrogen supply chains through infrastructure development.

In terms of CO2, we are working on developing infrastructure that will help our customers reduce their emissions and at the same time enable blue ammonia and hydrogen projects. For example, we have announced together with partners a project in Rotterdam that is focused on providing the critical infrastructure for the handling, aggregation, and the ultimate offshore storage solution for CO2.

With regard to low carbon feedstocks, we have years of experience storing the feedstocks for both bio and renewable fuels in the US, Mexico, Colombia and Brazil, and it is a natural progression to add low carbon fuels such as renewable diesel and sustainable aviation fuel across our portfolio as there is significant demand for those new products. New to our portfolio is recycled plastics.

Vopak has also made several investments in technology companies that are focused on developing new technologies for flow batteries with the goal of supporting the electrification transition and the growing demands on utilities to manage green electricity with long duration energy storage.

Which countries in Latam do you see as having strong potential for growth for Vopak?
We continue to see extremely strong demand and interest at Vopak's locations in Brazil and Mexico where we support the chemical industries, and this will continue to be an important area of our business going forward. Anything that is related to the energy transition, low carbon feedstocks and sustainable feedstocks, is currently a big focus, and we continue to get many requests within this space.

Do you have a final message?
No one solution is going to meet the global challenges we are facing today with regard to emissions, global warming and climate change. Vopak is striving to ensure that we have positioned ourselves to be able to support all of our customers' endeavors and all of the varied and different new products that are going to come out of the energy and feedstock transitions, so that we can continue to play an important role in supporting all of these evolving supply chains and help global commerce succeed sustainably. ■

Fabiano Machion

General Manager – South America
NEWPORT TANK

How will the investments NewPort is making into digitalization transform the company?
In 2021, we implemented our new IT system in a phased approached, learning how the system would behave and how the data would be integrated and connected. We then went 100% live with this intelligence system in February 2022. With this in place, we do not want to be seen as only a tank container company, but rather an IT company that sells logistics.

How have you seen logistics challenges evolve in 2022, and could delays in recent years be the 'new normal'?
I refuse to say that what we have experienced since the pandemic started could be the new normal, because it is simply impossible to work like this in the long term. Companies are putting in significant effort to be able to put a tank on a vessel, rather than to work on the logistics itself. Instead of developing a better logistics overview, create solutions, the focus has been on getting vessels loaded so customers are able to ship their products.

On the positive side, we have seen some improvements in 2022, especially in terms of space availability. However, it is still challenging from an operational perspective – When raw materials and goods become more expensive, it creates a difficult economic scenario for the full chain, impacting final users. As a logistic company we must adapt to the situation, but we are certainly looking forward to things improving so the processes can be driven on quality rather than cost.

What expectations do you have for the annual APLA meeting in Cancun in November?
This year's APLA event will be special as it is the first one since 2019 in person, and personal interaction is always better for networking and talking about opportunities. ■

Héctor Midolo

CEO – Latin America
BOLLORÉ LOGSITICS

What are Bollore's priorities and roadmap for 2022 and 2023 including investments in technology?
We are currently deploying our new "ONE TMS" platform across the region, based in CargoWise, and aligning our customers in such a way to prepare them for this new tool. CargoWise enables logistics service providers to execute highly-complex transactions in areas such as freight forwarding, customs clearance, warehousing, shipping, tracking, land transport, e-commerce, and cross-border compliance, thus allowing to manage their operations on one database across multiple users, functions, countries, languages and currencies. The implementation is in progress with the aim of having all six Latam countries aligned by the end of 2023.

Another of our priorities is to open new strategic markets in Latin America, such as in Peru and Panama, as well as investing in expanding our services in the markets we already operate in such as in Colombia, Brazil and Mexico. Finally, we want to increase North American trade product between Mexico and the US.

Can you speak to the relevance of sustainability?
Bolloré has committed to reducing its greenhouse gas emissions globally by 43% by 2027. In 2018, the company launched the "Powering Sustainable Logistics" initiative with carbon emission reduction in mind. We have eight green hubs around the world. Our Miami facility has become the platform for the Americas in both terms of sustainability and innovation. The company also has initiatives such as biodegradable plastic film for packaging. We also have a CSR manager for the Americas region focused on developing sustainable initiatives.

Every year, we ask our companies in each country we operate in to come up with new ideas through our ACTOGETHER program to strengthen our performance and unite our employees around our sustainable development issues. Employees are invited to carry out environmental, social, ethical or societal actions and this program is a tool for advancing and measuring each country's CSR performance. ■

Christopher Sandler

Managing Director
EUROTAINER

> **Many of our containers are fitted with telematics technologies, not only for tracking the equipment, but also to measure temperature, pressure and impacts to the container during the supply chain.**

How has Eurotainer dealt with supply chain disruptions to meet demand in the Americas?
A lot of our equipment is built in China, so getting products to customers has been a big challenge. Working with third parties has really helped in this regard, and we have been able to keep up with deliveries. With the higher oil prices we have experienced increased demand for Eurotainer's oilfield products, which we had previously forecast and prepared for so we could meet the supply requirements. Another area which has seen significant growth is the food segment for which Eurotainer has dedicated food fleets.

In Latin America we have seen particularly robust demand from Mexico, Colombia, Brazil and Uruguay. The company's diverse fleet of over 150 types of tanks and customized solutions has been a big advantage during challenging times.

To what extent is the topic of sustainability impacting the logistics industry and Eurotainer's business?
Our equipment, rail cars and tank containers fit perfectly into this green vision as we have very little carbon impact in what we do, and the containers are 100% reusable. The Ermewa group has received a gold rating from EcoVadis for sustainability, and we are also part of the NASDAQ Sustainable Bond network, which provides transparency to investors about our long-term sustainability strategy.

Eurotainer is working on new developments in lighter weight materials, working with suppliers on safety components, and we are responsible for the end of life practice of all of our assets. This is a collaborative focus with customers and suppliers to reduce carbon footprints.

Where is Eurotainer investing in smart logistics solutions and technology?
Many of our containers are now fitted with telematics technologies, not only for tracking the equipment, but also to enable customers to measure temperature, pressure and impacts to the container during the supply chain. The aim is to connect a lot of what we do into our customers' full supply chains. We are also investing internally in software that enhances the way in which we can share information with customers and suppliers.

Can you give examples of Eurotainer's work in Latam in recent years?
Due to the challenges faced in the last three years, we have not only used our containers for transportation, but also for the storage of buffer stock in case supply chains are not meeting the critical demands they have. For the chemical sector, which supplies raw materials to so many industries, this is crucial. Eurotainer was also pleased to be able to help the medical community in South America by supplying oxygen tanks during the pandemic, as well as getting food products into areas where they were most needed.

Logistics disruptions have characterized the last three years. How has the situation evolved in 2022, and when do you expect the situation to start easing?
It is still hard to envision supply chain bottlenecks and inflationary pressures easing anytime soon, including in the early parts of 2023. By the second half of 2023, I believe that we will see some governmental pressure on the container lines, increased focus on easing port congestions, and maybe some easing of logistics pricing.

Where could infrastructure investment in Latin America be directed to make the most tangible difference?
I would say investment into rail and into building port to rail infrastructure is key. In places like Port of Santos in Brazil, if you had better connectivity you could avoid the treacherous roads going up and down the mountains, it would be safer and more cost effective, especially as you are moving these cargoes long haul.

What is the company's growth strategy in the coming years?
Organic growth is a big part of Eurotainer's strategy, and we are evaluating expansion of our distribution areas in Latin America in 2023. The company recently opened an office in Dubai to support our Middle East, India, and Africa region, and opened an office in Czech Republic to focus on Eastern Europe. We are looking at opportunities to grow with potential acquisitions, where there is a strategic fit. ■

Marcelo Schmitt

General Manager
STOLTHAVEN TERMINALS, BRAZIL

To what extent has the price of oil in Brazil impacted Stolthaven Terminals' business?
For Stolthaven Terminals in Brazil, because local prices of diesel and gasoline have been lower than the international price, it has led to customers not importing fuels, which has reduced trade volume.

Our experience handling a wide variety of products means we have been able to diversify to compensate for the lack of imported fuels. Due to the good work we do transporting ethanol and specialized chemical products, Stolthaven Terminals was able to set up short-term contracts for specialty chemicals, vegetable oils and biofuels exports, as it is a niche in which we are particularly strong.

Can you tell us about the memorandum of understanding (MoU) signed between Stolthaven Terminals, Pecém Industrial and Port Complex to explore a green hydrogen export hub in Ceará?
Since 2021, we have been tracking the possibilities for Brazil to become one of the sourcing countries for green hydrogen. We approached the Pecém Port in Ceará as they were already advanced in green hydrogen, and it was a good fit as the Port of Rotterdam has 30% shares in the Port of Pecém. Pecém is an extremely business-friendly port, and they have a project to build an industrial zone for the production of green hydrogen. Ceará has tremendous renewable sources, such as solar and wind, to produce green electricity.

We have also signed NDAs with six potential energy companies for different stages of the project to produce green hydrogen by electrolysis and study the possibility to store and transport green ammonia with us. These companies are in the process of securing the water and electricity required with the plan to build electrolysis plants of different sizes over the next three to four years. They will produce the hydrogen then convert it to ammonia, as so far, green hydrogen is not viable for storage and shipping long distances. We are also working with the port to look at the possibility of developing a green terminal for storing the ammonia and transporting it from the port to its final destination, mostly Europe and North America. Stolthaven Terminals expects to be the first logistics company in Brazil to provide our customers with green hydrogen storage and shipping services.

Can you elaborate on Stolthaven Terminal's latest sustainability initiatives at the Santos facility?
In addition to the green hydrogen project and storage in Santos of vegetable oils for biofuels, we have a new project with Linde, signed in July 2022, where we are starting a nitrogen pressure swing adsorption (NPSA) plant to produce nitrogen. Through this, we will reduce CO2 emissions as we do not need to truck nitrogen, and 100% of the nitrogen will be produced through green electricity sources. We are working on the electrification of all vehicles in the terminal and hope to have achieved this goal in two years' time. Our electricity supply at Stolthaven Santos is 100% green, coming from only renewable sources since 2021.

Which investments do you think would make the most difference to reduce logistics bottlenecks in Latam?
Latin American countries need a more stable and solid regulatory ecosystem to eliminate uncertainty and increase capital investment. These investments must then be used for infrastructure upgrades such as ports, airports, railways and roads. There should also be more space for the private sector to invest. Privatization or public/private partnerships are key to developing infrastructure, reducing logistics bottlenecks and increasing investment in innovation and digitalization. ■

Matheus Dolecki

Representative – Latin America
PORT OF ANTWERP-BRUGES

> **We have the ambition of becoming the first global port that reconciles economy, people and climate.**

After the merger between the Ports of Antwerp and Zeebrugge, what scale is the Port of Antwerp-Bruges?
The merger will immediately make us the largest export port of Europe with 147 million t/y, but most important than that, is the fact the merger will allow us to have an even stronger position in the international logistics chain and to take a leading role in the energy and digital transition. We have the ambition of becoming the first global port that reconciles economy, people and climate.

Today, the unified port provides no fewer than 74,000 direct and 90,000 indirect jobs and with an added value of nearly €21 billion or 4.5% of Belgian GDP, is by far the largest economic engine of the country. Port of Antwerp-Bruges will also be the largest throughput port for vehicles, the largest integrated chemical cluster and one of the leading container ports in Europe. In total we handle 289 million t/y. We will capitalize on the strengths of both port locations, focusing on containers, breakbulk, RoRo traffic and chemicals.

Can you provide details of the alliances made between Port of Antwerp-Bruges and Latin American ports, such as the partnership signed with Porto do Açu in Brazil?
Considering Brazil is the biggest economy in Latin America, our subsidiary Port of Antwerp-Bruges International (PoABI) holds a strategic partnership together with Prumo Logística at the Port of Açu. PoABI is not only a shareholder but also supports actively Açu in its development by sharing its expertise and global network.

Can you give examples of the type of investments being made into infrastructure at the Port?
In order to face the new market demands and ensure the long-term sustainable growth of the port and to pave the way to a greener future, the Port of Antwerp-Bruges has an ambitious investment plan of close to 4 billion euros for the next two decades. The major projects are:

- The Extra Container Capacity Antwerp (ECA), which will not only provide the construction of a new tidal dock, but also develop and optimize land within the existing port area. The ECA project ensures that Port of Antwerp-Bruges will have an extra container capacity of 7.2 million TEU at its disposal by 2030.
- The New Lock Zeebrugge, which will provide a second nautical access to the inner port. It is also foreseen the construction of a new road which will improve mobility in and around central Zeebrugge.
- And the adaptation of the port infrastructure to deal with the new green and renewable energy sources, enabling the port to become an energy hub in the future.

What is the Port's participation in the Hydrogen Import Coalition and how does this involve Latin America?
It is a cooperation agreement signed by us and different industrial players such as Deme, Engie, Exmar, Fluxys and WaterstofNet. It's an on-going joint study that aims to map the financial, technical and regulatory aspects of the entire hydrogen import and transport chain from countries with abundant wind and sun, which is the case of Chile and Brazil for example, to Belgium, a country without such sufficient natural resources to generate renewable electricity to produce green hydrogen. Last year, at COP26 in Glasgow, we signed a Memorandum of Understanding with the Chilean Ministry of Energy. The aim is also to collaborate on the important strategic issue of setting up a corridor between both countries to ship green hydrogen or derivatives, produced in Chile and received at Port of Antwerp-Bruges for further distribution in Europe.

How does the Port of Antwerp-Bruges intend to strengthen ties with the Latam region in the years ahead?
By enhancing the trade relationship with the main countries in Latin America and with Brazil in particular, and via its subsidiaries, PoABI and APEC, the Port of Antwerp-Bruges will continue to deliver consultancy services in Port Development, Port Management an even potentially Port Investment, and training services to port professionals and companies in the region. ■

Fernando Biral

CEO
PORT OF SANTOS

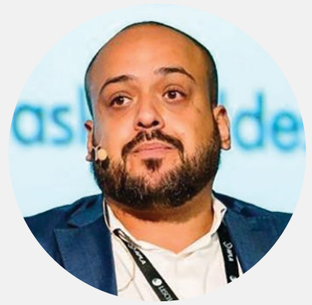
What is the current capacity of the Port of Santos, its expansion plans, and how relevant are the petrochemical and chemical sectors to its trade?
The Port of Santos has capacity of 160 million t. We will be expanding this capacity through 11 auctions we have modeled since 2019, six of which have already been held and another five will take place in the near future, aligned with the 2040 Port Development and Zoning plan, which would see an increase of capacity to 240 million t. This is coupled with investments in terminal equipment, services and capacity. Santos has one of the largest port complexes and only comes behind Vale's mineral terminal in volume. In terms of the flow of commercial good, Santos leads the way in Brazil. It is a multi-purpose port that serves as a gateway to Latin America, and is arguably the most important port in the southern hemisphere.

The petrochemical and chemical sectors are some of the most important sectors to the port for two reasons. Firstly, we have the capacity to handle 16 million t of chemicals and petrochemicals, which represents 10% of our capacity. Even more significantly, Port of Santos plays a critical role in the nations petrochemical value chain, accounting for 40% of all volume that goes through Brazil.

How is the privatization process at the Port helping to optimize operations?
The brownfield areas within the port expansion are key to unlocking the investments that will expand our capacity from 160 million t to 240 million t for all cargo by 2040. In 2022, we are on track to move approximately 155 million t of diverse cargo, bringing us very close to our maximum capacity. There are a lot of joint concession projects under development that will allow private companies to develop and run the infrastructure the port needs. ■

Moacyr Pedro

Central and South America Representative
PORT OF HOUSTON



What is the relevance of the Latin American chemical and petrochemical markets for the Port of Houston?
The chemical and petrochemical markets, not only in Latam but the whole world, are the top markets for the Port of Houston. In terms of chemicals, bulk liquids, and even containers, we are known as a hub for the entire Americas region.

How will the Panamax port expansion help mitigate current logistics and supply chain bottlenecks?
This expansion is not only to receive the new Panamax vessels, but actually to be able to receive more than one vessel at a time. As we finish the enlargement of the channel, we will be able to accommodate two vessels at a time, one going to the channel and one going out to sea.

How has the Port of Houston been able to reduce the average time for ships and containers?
The global average wait time for containerships (as of June 2022) is approximately 7 or 8 days, but at the Port of Houston we have been able to achieve an average of 2.9 days. Today, the average time of import containers is approximately 6 days, and for export containers approximately 12 days, but this is because of the carriers and not related to our operations. We have also been able to reduce times through optimizing the trucking routes inside the port.

Do you expect bottlenecks to ease later in 2022 or in 2023?
The expectation is that logistics and supply chains will normalize in three years, which means that here in Latin America we are waiting for the normalization of the routes between Asia and Europe, and Asia and North America, which are the largest routes for trade in terms of volume. ■

APLA 2022 COMPANY DIRECTORY

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