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Brazil Chemicals 2012

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BRAZIL: THE FUTURE IS NOW

By Fernando Figueiredo,
Executive President of
the Brazilian Chemical
Industry Association
(Associação Brasileira
da Indústria Química
ABIQUM) - April 2012



The process of opening the market and also the stabilization program, with the launch of the Plano Real, in the early 1990s, have created the basis for the solid and sustainable growth of Brazil, despite the increase in the 'Brazil Cost' that has created serious obstacles for industrial growth.

For this reason, it is no surprise that the chemical segment, a sector with the characteristic of serving the other industrial activities, has had, over the last decade, a rate of growth that reminds us of the Chinese economy. Yet the growth of the market has not been matched by industrial investments in Brazil.

Indeed, this growth in the chemical market has been largely supplied by imports, as shown through the growing and substantial deficit in the trade balance, which has reached the extraordinary figure of US\$25.9 billion in 2011, which is a growth of 27.9% compared to the previous year. This heavy deficit becomes even more worrying because, at the same time, the Brazilian production had a decline of 3%. In addition, data collected by ABIQUIM show that the level of investment in industrial projects is below the real possibilities of the Brazilian market, making a total of US\$22 billion between 2010 and 2016, while the studies conducted by the institution show a potential of up to US\$167 million from 2010 to 2020.

It is not difficult to explain the reasons why the Brazilian chemical segment does not make the necessary investments to accompany the growth of the market: expensive raw materials, with the price of gas being four times what it is on the American market; expensive energy, at almost double the cost in the United States; high interest rates, even though the National Bank for Economic and Social Development (BNDES) has made credit lines available at more favorable rates compared with those of the banking market; high tax burden, particularly taxation on investments in machines and equipment; limited encouragement of R&D; and a currency which is highly overvalued compared with other international currencies. All these factors help to inhibit investors from carrying out their projects.

However, there are positive signs show-

ing that there could be a possible change in this direction, also opening the possibility of a new wave of investments in the segment.

On the one hand, the recent discoveries of petroleum and gas reserves in the layer of pre-salt bring the hope that the companies installed in Brazil may finally count on abundant raw materials at competitive prices, these being characteristics that promote the development of the chemical industry in all countries of the world.

On the other hand, three Government initiatives suggest that the Federal Government has firmly decided to attack the causes of the lack of competitiveness of Brazilian industry: the installation of the Competition Council for the segment, the establishment of a Study Group to define the policy for using gas as a raw material and the hiring, by the BNDES, of a study about the opportunities for diversification of the chemical industry.

Among the measures being considered, one is a special taxation regime to ease the burden on productive investments and a decisive support to investments in Research and Development, for the use of renewable raw materials.

It is never too much to remember that the structure of the Brazilian chemical industry is extremely solid and anchored on large national and multinational chemical conglomerates, all of which have been in Brazil at least 50 years, and also can count on hundreds of creative and dynamic medium-size companies, and an efficient network of distributors.

Thus, the fundamentals necessary so that Brazil may make use of its unleashed potential to become the fifth chemical power on the planet by 2020 are present in a very solid manner, and I have no doubt that our industrial segment shall have one of the most brilliant performances in this decade.

This book, Brazil Chemicals 2012, is the result of intense research conducted with executives of Brazilian and multinational companies established in Brazil and clearly shows the international investors all the challenges, risks, threats and, most importantly, the enormous opportunities for investment in the Brazilian chemical industry. •

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This research has been conducted by Vanessa Acuna, Sharon Saylor, Amanda Lapadat and Maher Tariq Ali | Edited by Barnaby Fletcher
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The Giant of South America

An Introduction to Brazil's Economy and Chemical Industry.

"Brazil is more important than in the past. I see our global company really looking to us, the Brazilian office, for our expansion opportunities, because of the stability of the economy and the growth that will be coming. We always used to focus on the external market. However, with the Olympics, which will generate an increase in the internal market, we now much focus more on the internal market."

- Carmen Rodrigues, General Manager,
Buckman Laboratórios Ltda

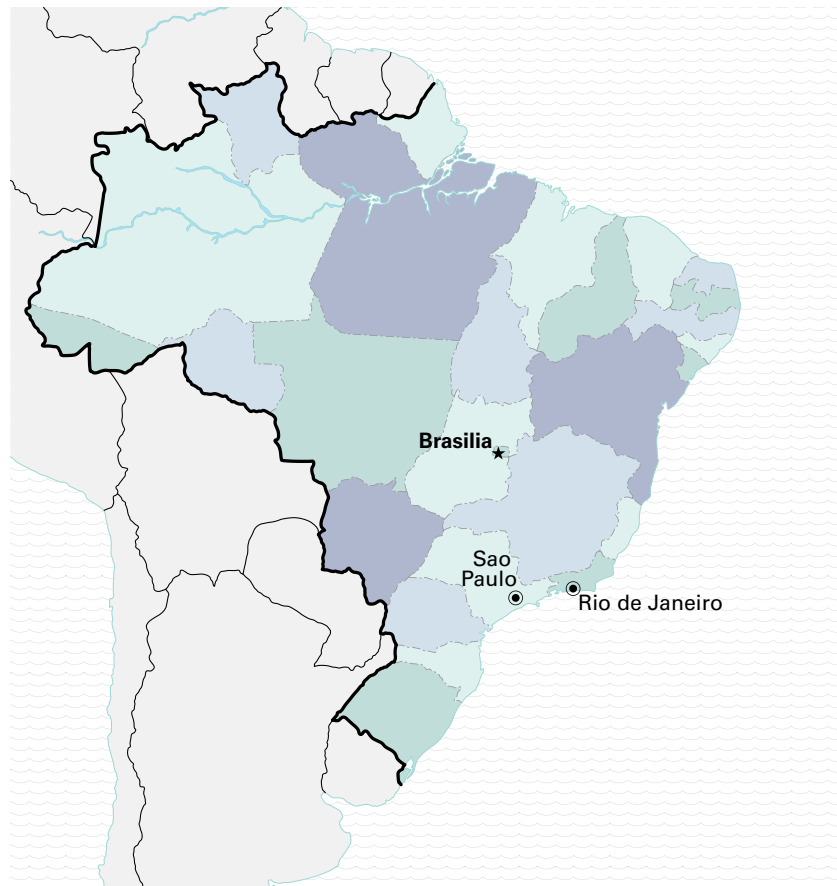
An Introduction to Brazil

A brief overview of the Brazilian economy

Brazil is booming. The reality of this statement is in no doubt for anybody who has even the most cursory knowledge of the global market. With gross domestic product (GDP) growth reaching a 25-year high of 7.5% in 2010, Brazil surged past the United Kingdom this year to become the sixth-largest economy in the world in the early months of this year. Almost continuous growth since the turn of the century has seen the economy triple in size and has cemented its position among the BRICS; the most exciting emerging markets of our age.

Closer to home, the country continues its dominance of South America, in terms of geographical size, population and GDP. From an investment perspective, Brazil is a very enticing market. The country, with a population of close to 200 million people and a growing middle class, enjoys a certain cache as one of the first markets to recover from the global economic crisis.

The good news continues coming: unemployment is falling (urban unemployment reached a record low of 4.7% in 2011), income inequality has declined for each of the past 12 years and its debt profile has been steadily reduced since 2003. Over the next five years, in which time the country will host both the 2014 World Cup and the 2016 Olympic Games, GDP growth is expected to continue at 5.5% to 6%. Though a wealth of natural resources and favorable demographics no doubt play their part, much of this prosperity can be attributed to the sensible macroeconomic policies of the administration of President Luiz Inacio Lula Da Silva (2003 to 2010), continued by



the current president Dilma Rouseff. The tenure of the latter, most notable a sustained campaign against corruption, has so far met with widespread approval (polls in early 2012 put her approval rating at 59%).

Yet challenges remain. In a continent imbued with resource and industry nationalism, Brazil is no exception. In the World Bank's Ease of Doing Business report for 2012 Brazil ranks 126th out of 183 countries, having fallen six places since 2011. In the Heritage Institutes Index of Economic Freedom its score has experienced an inconsistent but definite decline since 2003, and rises in the past two years still leave it slightly below the world and regional average.

A distinct shortage of government investment in many necessary fields further suppresses investor appetites. Despite its massive size, Brazil spends only 2% of its GDP on infrastructure: a third of the expenditure of China and Chile and half of the expenditure of India. Estimates have put GDP at an average of 2% higher per annum if Brazil

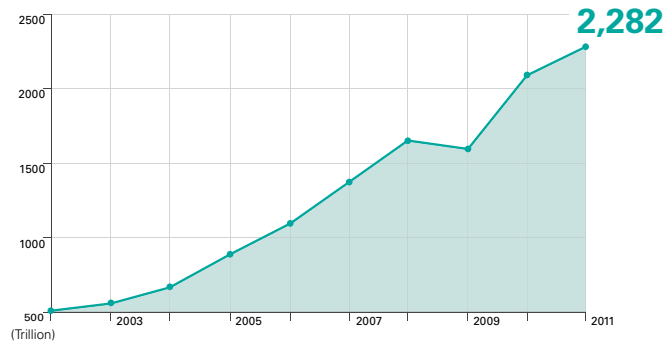
Population: 205,716,890 (July 2012 estimate)
Capital: Brasilia
Head of Government: President Dilma Rouseff
Currency: Real (BRL)
GDP: \$2.282 trillion (2011 estimate)
Growth Rate: 2.7% (2011 estimate)
GDP per Capita: \$11,600 (2010 estimate)
Economic sector breakdown: agriculture: 5.8%, industry: 26.9%, services: 67.3% (2011 estimate)
Exports: \$250.8 billion (2011): transport equipment, iron ore, soybeans, footwear, coffee, autos
Imports: \$219.6 billion (2011): machinery, electrical and transport equipment, chemical products, oil, automotive parts, electronics
Major Trade Partners: China, US, Argentina, Germany

had the quality of infrastructure seen in Costa Rica or Chile.

In order to achieve the rosy predictions that so many expect, Brazil will have to address these problems, both for the country in general and for its various industries. With the administrations eagerness to encourage a downstream industry to feed off its vast reserves, it is a reasonable guess to say that the Brazilian chemical industry will be one of those receiving particular attention over the next few years. •

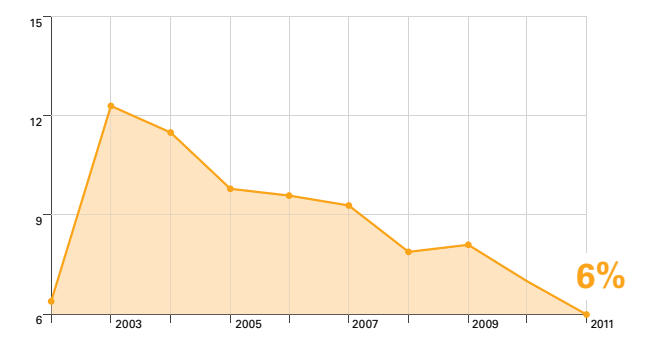
GDP (current US dollars)

Source: World Bank, CIA World Factbook



Unemployment Rate (%)

Source: CIA World Factbook



2.7%

GDP Growth Rate 2011

Source: World Bank, CIA World Factbook

6.5%

Inflation Rate Average Consumer Prices 2011

Source: International Monetary Foundation, CIA World Factbook

3.1%

Budget Surplus 2011

Source: CIA World Factbook

\$48,437 MILLION

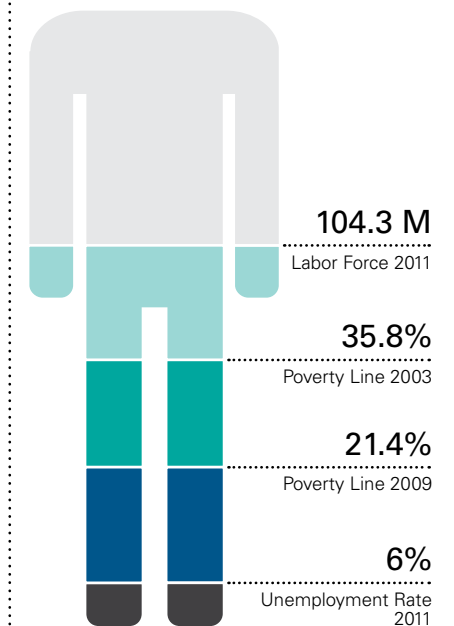
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Source: World Bank

Domestic Market: Population and Poverty

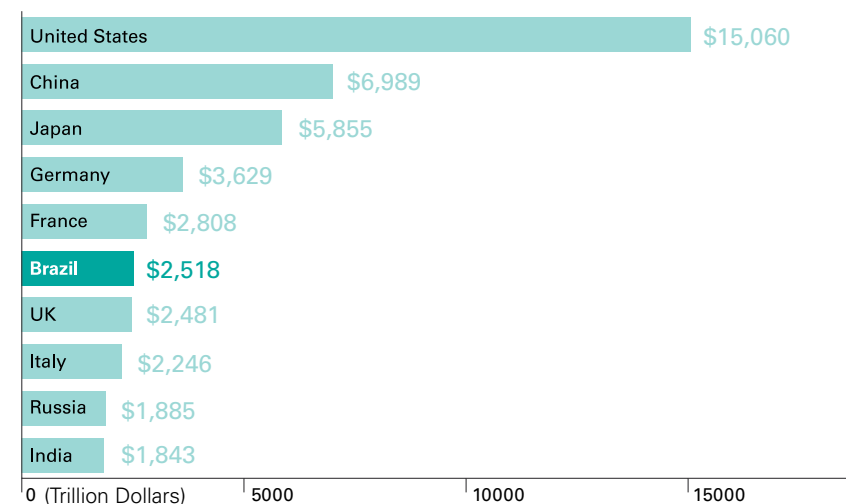
Source: World Bank - CIA World Factbook

203,429,800
Population 2011



World Largest Economies

Source: CIA World Factbook



Interview with Alexandre Bertoldi

MANAGING PARTNER, PINHEIRO NETO

Could you give us some details as to Pinheiro Neto's dealings with the chemicals industry?

We have quite a few companies – both pharmaceutical and chemicals companies – and we work quite a lot with foreign investors in the field of mergers and acquisitions. In the past few years we have done a number of deals involving chemical and pharmaceutical companies. With chemical companies there have not been a lot of consolidations so far but in pharmaceutical there have been quite a large number, particularly because of this market of generic and OTC products. As a result of this market, there have been some very large Brazilian players.

Today we are in a different phase. Especially with chemicals companies we are seeing a lot of direct investment, greenfield projects, and expansion of existing plants. We do not see a lot of room for consolidation as we have a few very strong players. We see a lot of potential for expansion for greenfield projects but not a lot of consolidation. For pharmaceuticals we might see some consolidation in the next few years. It depends on the crisis in Europe; if the economy there gets worse then companies might invest in Brazil. At the moment Brazil is doing so well so that will be a last resource.

Today you can count the number of foreign companies on one hand that are in the market place in Brazil. Do you see that dynamic shifting?

These kind of companies stay in the hands of families. So we have to rationalize companies that are in their third or fourth generation, and I do not see a reason for people to sell. What might happen is that the new entry of Chinese products from the East may open some room for consolidation in these fields.

From a legal framework point of view, what would you say are key deterrents or inhibitors for direct investment in to the chemicals industry?

There are no differences in barriers between international and Brazilian investors, so this is not an issue. The main obstacle is that Petrobras is a quasi-monopolistic player and, as a provider of raw materials, we depend a lot on them. If companies are unable to secure a supply of what they intend to use for chemical plants, there are no markets for those materials unless Petrobras supplies it. However, Petrobras are not going to change their production just to satisfy one of the other players. If they feel that the country has the need for something they might adapt their policies but they are unlikely to do so just to create competition or facilitate the rise of new entrants in to the market.

How would you describe the investment environment in Brazil?

We are seeing a lot of foreign investors for two reasons; firstly, Brazil is a very promising country and secondly, because there is nowhere else to go in the region. The country is doing well but not facilitating a lot of investment, we have a very complicated tax system, which can be a deterrent. We also have high costs of labor here and many people say the Brazilian currency is over-valued compared to other currencies. However, the good thing about Brazil is that you have a huge internal market that does not depend on exports. Only now we are beginning to be able to access the consumption markets. So everything that is related to consumption products and goods has a very good future here in Brazil because here we have huge parts of the population which have been sidelined in terms of access to consumption, but now they are consume more and this is a trend that is due to continue for the next 10 to 20 years. We have skilled labor here too. Overall Brazil is a very attractive market because it has bright prospects, political stability, a reliable judicial system, and no racial or religious tension. Brazil is a pretty homogenous country in terms of language and it is a democracy, so it is a very stable country in many aspects.

Are there well-established regulations protecting patenting and intellectual property in Brazil?

Our regulations in Brazil are well established, but the Brazilian government has taken controversial decisions in the past in terms of certain pharmaceutical patents. This is in the case of these drugs saving the lives of the people; for some drugs that are critical for the life of patients, patents are ignored but on the whole patents are respected in Brazil. The human interest was more important than the economic interest so it was a populist measure they took, but this is an exception.

How do you think the industry will have evolved in five years time?

I think the trend in Brazil is that today we are a well-developed industry for chemicals and pharmaceuticals businesses but still it is generally focused on basic chemicals so the margins are not as high as some other markets. The industry in Brazil is going to migrate to a more diversified and sophisticated basis. In five years time we will probably have an excess of oil here with new discoveries and so, particularly in the petrochemical industry, Brazil should be a future player with more sophisticated chemical products and more technology. Eventually, because of the expansion of internal markets, new plants related to fine chemicals are going to be opened.

Do you have any final comments to do with the legal regulatory framework for foreign investors in the Brazilian industry?

Brazil does offer a very good, developed, and reliable financial sector and legal system. We have stable institutions, including politically, and there is a huge internal market. Any player with the ambition of being a global player has to be in Brazil. •



Brazilian Chemicals

An introduction and overview of Brazil's chemical industry

Brazil's chemical industry is the world's seventh largest. Bolstered by the country's pre-salt oil exploration, biomass potential and the rise of the middle class, this sector has played an integral role in Brazil's rise as a global economic powerhouse and looks set to further drive growth. Analysts foresee the potential for the Brazilian chemical sector to claim a place among the world's five largest, subsequently assisting the country as a whole to a similar position among the world's largest economies.

Chemicals are important for Brazil; in previous years the industry has contributed roughly 3% to the nation's GDP, the third largest sectoral participation of industry GDP. Net sales from the 2011 Brazilian chemical industry surmounted \$158.5 billion (not including sales from ethanol). Overall the chemical industry estimated a 23.4% increase from 2010 net sales in 2011. The greatest boost was seen amongst fertilizers, in which 2010 sales have almost doubled (\$11.5 billion), and industrial chemicals, which grew 24.5% from \$61.2 billion.

Brazil's chemical industry is diverse. Its petrochemical sector, playing off the strength of the country's pre-salt petroleum reserves, is one of the largest in the world. Modernization and consolidation in the 1960s and then again in the 1990s has led to an established industry with several world-class companies. Its agrochemical sector has made the most of the country's agricultural advantages; an agriculture value added per worker well above the world average and massive land area; to both access a huge domestic market and to exploit cheap sugar cane as feedstock for ethanol-based derivative chemicals.

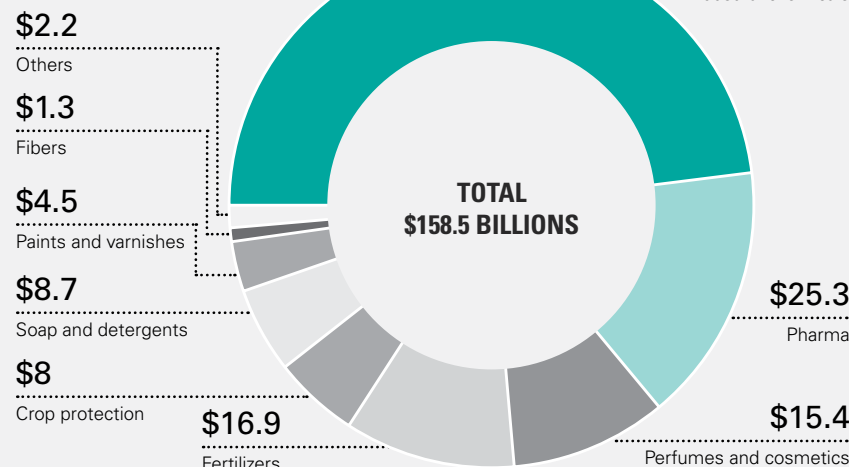
**Global Chemical Industry
Net income 2008 (billion dollars)**

Sources: ACC, CEFIC and Abiquim

United States	\$689
China	\$549
Japan	\$298
Germany	\$263
France	\$159
South Korea	\$133
United Kingdom	\$123
Italy	\$122
Brazil	\$98
India	\$82

**Brazilian Chemical Industry
Net sales 2011 (billion dollars)**

Sources: Abiquim



“I feel that the numbers speak for themselves. Any word that I say about foreign investment in Brazil is surpassed by the figures. Brazil has been able to attract sizeable amounts of money in direct foreign investment.”

Paulo Schirch, Regional Manager Mercosur, Solvay



Continuous development has also given rise to a thriving specialty chemicals and pharmaceutical sector. Brazil is currently the world's ninth-largest market for pharmaceuticals and drugs and, while home-grown companies lead the way in terms of sales and invest heavily in research (accounting for four of the largest pharmaceutical companies in the world), foreign players also account for a large share of the 540 pharmaceutical companies registered in Brazil.

This diversity, combined with favorable demographics and what should be a wealth of raw material, lays strong foundations for the continued and future growth of the industry. Nonetheless, several challenges remain. Underdeveloped infrastructure, high energy prices, shortages of raw materials at competitive prices, taxes, interest rates, and exchange rates threaten Brazil's position at the forefront of the global chemical arena. These, coupled with the call for a projected \$32 billion investment in research, development and innovation (equivalent to about 1.5% of net revenues forecast for 2010-2020), means Brazil's chemical industry

is in desperate need of a shake up. A collaborative approach from government and industry is imperative to enhance its image as a preferred investment destination and ensure the next wave of prosperity is not a missed opportunity.

To fulfill its potential, new investment is critical. For all its virtues, and size, the capacity of Brazil's chemical industry has not kept up with demand, resulting in a chemical product trade deficit that grew from \$1.2 billion in 1990 to \$26.5 billion in 2011. Compensating for two decades of underinvestment will, by some estimates, require new capacity investment in the order of \$167 billion between 2010 and 2020. If this is not forthcoming, it is unlikely that production increase will be able to match demand from the nation's rapidly growing middle class, let alone make a start on reducing the trade deficit. Yet the industry is reassuringly aware of its shortcomings and happy with its obligations. Allocated recent and planned investment includes major plans from BASF, Rhodia & Solvay, Coquepar, Oxiteno, Pan-Americana, Petrobras and its subsidiaries Petroquisa and Braskem.

On a more macro level, the 2010 National Pact for the Chemical Industry, an initiative by ABIQUIM, who represent more than 140 chemical producers comprising around 85% of industrial chemicals production in the country and more than 50% of total chemical sales, has outlined the necessary sectoral and governmental response to strengthen an already well-established industry. Essentially, the document aims to meet ABIQUIM's mission to promote the competitiveness and the sustainable development of the chemical industry by making a quantification of the investments needed, and making suggestions to overcome the barriers that hamper new investment. The final result is intended to create a sustainable and leading position in green chemistry with a surplus of chemicals.

Emerging from a comprehensive evaluation of the sector, the initiative outlines the chemical industry's commitments to the economic and social development of the country: specifically the direct and indirect creation of more than 2 million jobs, increased attractiveness for foreign direct investment, increased importance

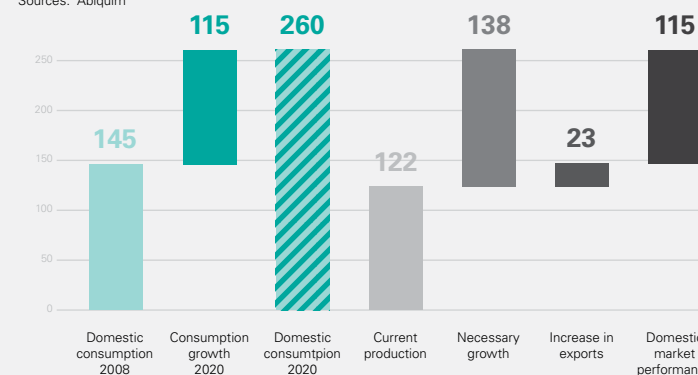
Projected Trade Deficit 2010 - 2020 (billion dollars)

Sources: Abiquim

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Deficit - 4% annual growth	25.0	26.0	27.0	28.1	29.2	30.4	31.6	32.9	34.2	35.6	37.0
Deficit - 4% annual growth and elasticity of 1.25	25.6	26.9	28.2	29.6	31.1	34.2	34.2	35.9	37.7	39.6	41.6
Variation (deficit projected with base and natural growth)	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.9	2.0
Investment needed (capital/production ratio=1.1)	1.3	1.4	1.4	1.5	1.7	1.8	1.8	1.9	2.0	2.1	2.2

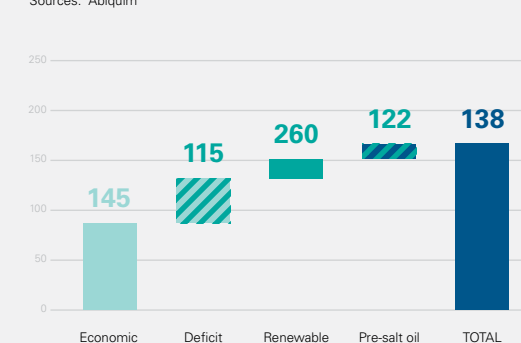
Chemical Industry - Projections for 2020 (billion dollars)

Sources: Abiquim



Opportunities for investment in the chemical industry until 2020 (billion dollars)

Sources: Abiquim



of Brazil in international trade, reduction of external vulnerability, adding value to inputs from pre-salt, expanding the potential use of biomass resources through the chemistry of renewable resources, encouraging the development of the capital goods sector, the creation and development of technology, fostering a culture of innovation and research and strengthening the capital market with stronger chemical companies.

“In the last 12 months we experienced increases of 7.7% in the overall growth rates of the Brazilian chemical market, trends that are similar to those seen in China. However, at the same time Brazilian chemical production shrank by two percent and imports grew by 27.9%. In Brazil we have three big national companies, and many large well-established multinationals with an integrated Brazilian culture; we have the foundation to grow the industry, now we need to see the commitment from the government,” remarks Fernando Figueiredo, executive president of ABIQUIM, the main chemical industry association in Brazil.

To support these goals, most notably that

of increasing Brazil's prominence in international trade, the industry has adopted a Responsible Care Program, adapted from the Canadian equivalent. Dedicated to the continuous improvement in health, safety and environmental quality, this should ensure that Brazilian manufacturers can reach the global market without restrictions. “This is an important milestone; it ensures that Brazil's chemical industry complies with legislative requirements from some of the most demanding markets,” comments Figueiredo.

The importance of accessing new market is not to be understated in an industry that has, arguably, so far struggled to fully exploit a globalized market. Neither has it been enough to rely on the its neighbouring markets and partners in the regional economic bloc Mecosur; intra-regional exports, hovering at around 25% to 30% of total exports, fall well below those of Europe, Asia or North America.

“What is most apparent about Brazil is actually how much of a closed market Brazil really is. If you look at imports and exports as a percentage of GDP, in Brazil this represents just 10% and com-

paratively the world average is 25%. Our neighboring country, Argentina, is over 30%. On the positive side, those inside are very protected, and whatever happens in Europe will have a limited impact on the economy in general in Brazil. We are an island of self progress and we live off our internal demand,” remarks Fabio Rios, managing director of Bandeirante Brazmo, one of the companies in Formitex Group's chemical division and a leading distribution company with the largest chemical product distribution structure in Latin America.

The future is undeniably bright. For all the concerns, Figueiredo is correct when he says that “Brazil has a framework of legal security, is experiencing positive growth rates, macroeconomic stability and a stable democracy which for many offset the obstacles faced by investors interested in expanding or entering into Brazil.” The chemical industry faces the same challenges as any other sector in the country. Yet, perhaps more so than most, it also has the ability to overcome them and play a critical role to play in the future economic development of the nation. •



Playing to its Strengths: The Brazilian Petrochemical Sector

“A collaborative approach from both the government and the private sector is needed to find solutions and turn the petrochemical industry into a competitive industry. Globalization is present, it is a fact, and Brazil needs to be creative and have an entrepreneurial spirit to find ways of becoming competitive.”

- Augusto Cesar Fernandes de Carvalho,
CEO, Petrocoque

Brazilian Petrochemicals

An introduction to Brazil's petrochemical sector

Petrochemicals are a natural industry for Brazil. The discovery of the Tupi oil field in 2006 opened the possibility of significant oil and gas reserves in the pre-salt: a geological formation lying beneath a layer of salt in waters as deep as 3,000 meters and below as many as 7,000 meters of seabed. With proven reserves from this as yet underdeveloped 200 km-by-800 km region already putting Brazil as the second largest petroleum holder in Latin America, after Venezuela, the feedstock potential for a downstream industry is substantial.

One of the wittier epithets about Brazil is that of Charles de Gaulle: "Brazil is the country of the future, and will remain so." For a long while this was true. President Getulio Vargas created Petrobras, the state oil company, in 1953, yet it was not until 2006 that Brazil finally achieved its aim of oil self-sufficiency. It is still more recently that the country's oil industry, and subsequently its petrochemical sector, is coming into its own. To borrow a reference from popular culture: today is the tomorrow Brazil was promised yesterday.

Petrobras, now the world's fifth largest energy company, was elected the Energy Company of the Year (Platts, 2011) and has embarked upon an aggressive investment path with plans for \$224.7 billion of investments between 2011 to 2015. Evolving from its simplistic beginnings, Petrobras today is an integrated energy company working in exploration, production, refining, trade and transportation of oil and natural gas, petrochemicals, distribution of oil derivatives, electricity, biofuels and other sources of renewable energy. Petrobras has proven oil reserves of 14 billion barrels, a figure that should double with the further discovery of oil and gas in the pre-salt region. Further downstream, the company has committed \$35 million of investment until 2013 into the petrochemical

sector, including development of the Rio de Janeiro Petrochemical Complex (Comperj). The Brazilian conglomerate has stakes in the local petrochemical company, Braskem.

Braskem is another recent development. Founded only ten years ago (in 2002), Braskem was the result of the major restructuring of the Brazilian petrochemical industry. At that time, consolidation of six companies (Copene, OPP, Trikem Nitrocarbonyl, Proppet and Polialden) resulted in the creation of Braskem, which is now the largest petrochemical company in Latin America. Through organic growth and acquisitions, including that of Politen (the third largest polyethylene producer in Brazil), and the largest merger in Brazilian history that consolidated business segments from Grupo Ipiranga (a former Brazilian company involved in refining and distribution of oil, as well as the petrochemical and chemical industry that has since been sold to Petrobras, Braskem and Grupo Ultra) together with Petrobras and the

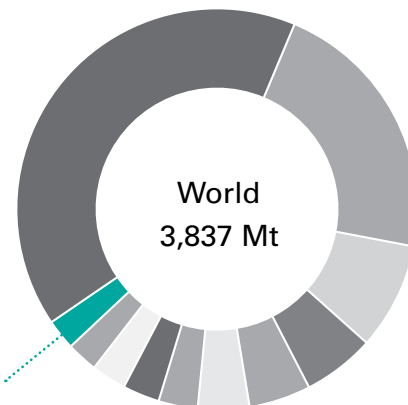
Producers of oil products (2008)

Sources: Abiquim

United States	835 Mt
China	328 Mt
Russia	231 Mt
Japan	189 Mt
India	162 Mt
Korea	120 Mt
Germany	116 Mt
Saudi Arabia	100 Mt
Canada	99 Mt
Brazil	95 Mt
Rest of the World	1,562 Mt

Ultrapar Group (a Brazilian group with three business streams: distribution of fuel through Ultragas and the acquired Ipiranga business, production of chemicals through Oxiten and integrated logistics solutions through Ultracargo).

The evolution and expansion of the company has continued to this day; recent acquisitions of Quattor (the second largest petrochemical producer in Brazil) and Sunono (which added more than 1.5 million tons of resins to the production capacity of Braskem) have positioned Braskem as the eighth largest petrochemical company in the world by production capacity. In 2011, Braskem bought Dow Chemical Co.'s polypropylene assets in the United States and Germany. Now, Braskem, the petrochemical arm of Petrobras, is responsible for the operations of 35 industrial units in Brazil, including the two largest petrochemical complexes in the country, Camacari (Bahia) and Triunfo (Rio Grande do Sul), and their first greenfield project, the polypropylene plant in the city of Paulinia (Sao Paulo state) as well as operations in the United States and Germany. As part of Braskem's globalization strategy, the company is constructing the Ethylene XXI project in Mexico, planned



to begin production in 2015, which is a joint venture between Braskem (65%) and IDESA (35%). These activities have given Braskem a diversified portfolio of petrochemical products with a focus on PE, PP and PVC.

At the beginning of the 1990s, the concept of privatization was introduced to the Brazilian petrochemical industry and the Odebrecht Group (founded in 1944) became a player in the subsequent consolidation. Odebrecht is the second largest Brazilian multinational, specializing in the field of engineering, construction, chemicals and petrochemicals. Founded in 1944, Odebrecht has been instrumental in the development of two major firsts for Braskem: the Green Ethylene Plant in Triunfo and the Polypropylene Plant in Paulinia, the company's first greenfield project.

As a pioneer in the Brazilian chemical industry, Henri A. Slezzynger, president and CEO of Unigel, the second largest petrochemical company in Brazil, and president of ABIQUIM, comments on the evolution of the country's petrochemical industry: "historically the model for the Brazilian petrochemical industry was the so called 'three party model'; government-owned Petrobras/Petroquisa would combine with a foreign technological licensor and a Brazilian group that often did not have specific experience in the industry but wanted to invest, as the third party. This was a very successful model and the Brazilian industry was protected with extremely high tariffs. This model enabled the establishment of the industry and once the industry became more mature this model was not conducive to diversification because companies established themselves to produce only one product and the multinationals did not necessarily want to produce anything else. Therefore, there was a lot of consolidation in the market resulting in the formation of Braskem."

Unigel can attribute much of its own growth to changes in market conditions and company strategies. Many multinationals divested out of specific markets around this time, leaving their operations free to be acquired by Unigel. These

Oil Production (2011)

2.301

million bbl/day

Source: CIA World Factbook

opportunistic acquisitions saw Unigel consolidate their position at home and expand into the North American market. Today, the company has eight production sites in Brazil and four in Mexico. It is the leading Latin American producer of acrylics and styrenics, the largest producer of ammonium sulfate in

Natural Gas Production (2011)

24.070

million cubic meters

Source: CIA World Factbook

South America and the only producer of acrylonitrile and methacrylate in Latin America. Its product portfolio includes fertilizers and packaging materials and it has an annual turnover of approximately \$2 billion.

Amongst the largest chemical groups in the country is Oxiten. Oxiten is the chemical subsidiary of the Brazilian industry company Ultrapar Holdings and was created in the 1970s as a result of

mergers and partnerships. In 1973, the first Oxiten plant was built in the Petrochemical Complex of São Paulo: the first chemical plant in Latin America to produce ethylene oxide and its derivatives. Oxiten has industrial units in five locations across the country, three of which are in Camaçari, including the first and only plant to produce natural fatty alcohols in Latin America.

Perhaps unusually in an industry that requires such high capital expenditures, Brazil's history has spawned many successful Brazilian companies. The above-mentioned Braskem, Oxiten and Unigel are all proudly Brazilian pioneers: a fact that speaks well of the strength of the industry.

Yet, as always, challenges remain. Feedstock issues, contrary to expectations, continue to be a hindrance. And for all the successes, Brazilian petrochemicals still struggle to meet domestic demand, let alone grow their position in export markets. Current predictions say that Braskem, which is controlled by Odebrecht with Petrobras as its main partner and is effectively the only supplier of domestic resins, will need to supply almost 100% of its production in Brazil to the growing local market. Demand for polymers is forecast to increase (polypropylene and polyethylene are expected to grow by 12% to 13% annually) and Petrobras' new Comperj refinery and petrochemicals project in Itaboraí will help fill much of this gap. Investment into this plant, which is expected to come online in 2013 and process 165,000 bbl/day of heavy crude oil to make olefins and downstream products, equates to \$8.4 billion. Other investments include Petrobras' Premium I Refinery to be built in Maranhão and Premium II Refinery in Ceará, each with a processing capacity of 300,000 bbl/day of oil. The Premium I Refinery is expected to be completed in 2017. •

Leadership, Innovation and Commitment to Value Creation

LEADERSHIP IN LATIN AMERICA

Founded in 1966, Unigel is the leading Latin American company in acrylics and styrenics, with a strong presence in fertilizers and plastic packaging materials. It is the largest manufacturer of acrylonitrile, methyl methacrylate, acrylic resins, polycarbonate, styrene and polystyrene in Latin America, as well as the largest producer of ammonium sulfate and extruded acrylic sheet and cast acrylic sheet.

COMMITMENT TO VALUE CREATION

In recent years, the company has invested in upgrading and expanding its industrial facilities. With operations in Brazil and Mexico, Unigel contributes to the generation of income and wealth in both countries with approximately 1,800 direct employees.

INNOVATION AND TECHNOLOGY

As an example of a successful initiative, in February 2011 Unigel increased its ethylbenzene production capacity with the start-up of the EB Zeolite Project which resulted in greater efficiency, reduced emissions and less generation of effluents.

SOCIAL RESPONSIBILITY

Unigel actively contributes to the education and development of those communities where it operates. In addition to sponsoring training courses, the Company develops, in partnership with the public sector, childhood education projects that benefit 500 children aged between 2 and 11 every year.

Interview with Henri A. Slezynger

PRESIDENT AND CEO OF UNIGEL



As a leader in the industry and President of the second largest petrochemical company in Brazil, can you provide us with a brief history of the evolution of both the Brazilian chemical industry and Unigel?

Currently Unigel is the leading Latin American producer of acrylics and styrenics, with a diversified portfolio of products including fertilizers and packaging materials and annual turnover of approximately 2 billion USD.

Unigel was founded in 1966, when it developed its own technology for manufacturing acrylic polymers and today we are the only producer in Latin America. Unigel then started manufacturing polystyrene. Since then, we have diversified and expanded the company through organic expansions and acquisitions that resulted in our leading position and with a high level of integration in the production chain.

Historically the model for the Brazilian petrochemical industry was the so called 'three party model': government-owned Petrobras/Petroquisa; a foreign technological licensor; and a Brazilian group, that often did not have specific experience in the industry but wanted to invest, as the third party. This was a very successful model and the Brazilian industry was very much protected with extremely high tariffs (in late 1970s), so the foreign companies who wanted to be present here needed to invest here. This model enabled the establishment of the industry and once the industry became more mature this model was not conducive to diversification because companies established themselves to produce only one product and the multinationals did not necessarily want to

produce anything else. Therefore, there was a lot of consolidation in the market, resulting in the formation of Braskem.

Unigel did not participate in these movements as we were mostly producing niche products (acrylics). However, as we grew we eventually became partners with Monsanto in CBE (Companhia Brasileira de Estireno). Then we saw a shift in the strategies of many of the multinationals, who were interested in divesting out of specific markets; for example Monsanto started producing genetically modified seeds and decided to become involved in Bioscience. Then, both BASF and DOW decided to leave the styrene and polystyrene business and Unigel decided to acquire their operations.

In Mexico it was a similar story and through acquisitions and a successful agreement with Pemex we were able to expand into the North American market and create in a smaller scale a copy of what we have in Brazil. Today Unigel has 12 production sites strategically located in Brazil (eight) and in Mexico (four).

Much of Unigel's technology is self-developed and we are proud of that. Unigel has established a technology centre to manage our own technologies and those we have acquired over time.

Was your decision to invest in Mexico based solely on opportunity rather than a decision to divest outside of Brazil?

Unigel had previously thought to invest outside of Brazil as we looked at opportunities in Portugal. Prior to Portugal joining the common market in 1992 we thought that it could be a good opportunity for Brazilian companies to enter the common market via Portugal. However,

we decided against this and later took the opportunity in Mexico to be able to participate in the North American market.

As President and CEO, what are your key objectives to expanding the business both within Brazil and beyond the borders?

We intend to consolidate and strengthen our leading position in acrylics and styrenics. In this context, we are analyzing the possibility of investing in projects that are aligned with this strategic objective.

How important will the Brazilian operations remain to the strategy of Unigel and how attractive is Brazil to Unigel as a current investment destination?

The market in Brazil is strong and has grown at a rate of 7% to 8%. Governmental policies to improve wealth distribution and the emergence of a middle class have been successful and this increases consumption more than exports. However, industrial companies in Brazil are facing strong competition from imported products, favoured by strong local currency.

All Brazilian industries suffer from a very strong currency, which reduces our competitiveness. In the chemical industry, we struggle with extremely high costs of raw materials and we have been discussing with Petrobras and Braskem alternatives to maintain the competitiveness of the production chain. In Brazil, Petrobras is responsible for the exploration of gas but they have not yet taken the step of detaching the price of gas from its equivalent in oil. The

price of gas is \$12 to \$15 per million btu which makes it impossible to use as raw material. Therefore the chemical association is on a crusade to decrease the price of gas and we are trying to make government understand that Brazil cannot compete against industry that sells gas for \$3.5 to \$4 per million btu if we charge \$12 to \$15 per million btu. Mexico prices its gas at US gulf price so this is the reason we have decided to place our expansion in Mexico.

Brazil is not pricing its naphtha as a producer, it is not giving any thought to the fact that Brazil is now producing as much oil as it consumes (about 2 million barrels) and with the new discoveries, Brazil is on the way to becoming the fourth largest producer of oil. Brazil needs to give serious thought to more accessible prices to increase the competitiveness of the petrochemical industry.

What would be your final message about the Brazilian chemical industry and about Unigel?

The Brazilian chemical industry is strong and well established and because of our growing internal market we are forecasting to become the fifth largest chemical industry worldwide. We have a huge raw material base and we will find a way to tap into this to become competitive. Brazil also has a leadership role in the green chemical and renewable industry. We have a strong agricultural sector, with sugar cane and glycerine and this is very much something Brazil will develop. Brazil has a way of rising to the occasions.

Unigel will continue to grow and strengthen our leading position in styrenics and acrylics. •



Interview with Manoel Carnauba Cortez

EXECUTIVE VICE PRESIDENT, BASIC PETROCHEMICALS

As Brazil's largest petrochemical company and celebrating your tenth anniversary in 2012, please can you detail your key aims as Executive Vice President for Basic Petrochemicals to foster another 10 years of growth?

Over the last 10 years, Braskem has experienced increased capacity and has grown our presence in the Americas as well as in Germany with the acquisition of the Dow Chemical polypropylene business in September 2011. With the acquisition of Dow Chemical, we gained manufacturing facilities in Germany and became the number one polypropylene producer in the Americas. We are currently developing a new cracker, the Ethylene XXI project in Mexico.

In Brazil, Braskem has four crackers and three of them are naphtha based. The largest cracker is located in Camaçari in the northeast of Brazil. It has 1.27 million metric tons per year of installed ethylene capacity. The second largest is located in the south of Brazil, in Triunfo, Rio Grande do Sud, which is also naphtha based and has 1.25 million metric tons per year of installed ethylene capacity. Currently, Braskem's priority is to evaluate the options for de-bottlenecking these crackers. Braskem will need additional capacity to fulfill the immediate demand until the start up of the new cracker in Rio de Janeiro.

Braskem recently announced the partnership with BASF to construct an acrylic acid plant. How important is this project to Braskem and what other projects form part of Braskem's investment portfolio in Brazil?

In this project, BASF plans to invest about 750 million euros and Braskem will be the propylene supplier investing approximately \$30 million in logistics. In addition to this, we are focused on our investments to de-bottleneck the current crackers and increase the capacity of polyethylene and polypropylene. Fur-

thermore, we are studying the complex in Rio de Janeiro, which has two polyethylene plants and two lines with potential to be de-bottlenecked.

In Triunfo, our clients require ethylene for additional styrene production and Braskem is also looking for the opportunity in polyethylene and polypropylene. There is potential in Camaçari to grow the entire complex and we are looking into acrylic acid, oxalalcohols, polyethylene, polypropylene and PVC. Braskem planned for two lines (until the end 2014) to introduce those de-bottlenecks which are currently being studied for economic feasibility. We are also building a 100,000 metric ton butadiene plant in the south near Triunfo to start production in July 2012, a \$150 million investment. In 2012 we will also start up a new VCM and PVC plant in Alagoas with 200,000 metric tons per year installed capacity.

Although your main feedstock is naphtha, Braskem has made significant steps to becoming a global leader in sustainable chemicals. Please highlight some of Braskem's key sustainable development initiatives?

Braskem's green ethylene plant has recently completed one successful year of running, after opening in September 2010. We are now considering a new polypropylene from renewables using ethanol as a raw material. The idea is to evaluate other investments in Brazil for an integrated complex to produce from ethanol polyethylene and polypropylene in the southeast of Brazil to integrate with the sugarcane ethanol production.

Key to further developing the petrochemical industry is localization of the supply chain, how is Braskem contributing to localization of the supply chain?

Localization of the supply chain is a key issue for Braskem. Brazilian infrastructure needs to be developed. We do not



have as many highways as we need in Brazil; we are able to move ethanol from the SE to Triunfo by highway, but this is an exception. Normally we rely on ports, which are very busy, and the poor prospective of new investments is a concern for us, especially in the northeast near the Camaçari port, which is in desperate need. This is a huge competitiveness issue for the Brazilian petrochemical industry and actually makes Braskem think twice about investments in the country.

Braskem has the strategic view of being one of the five largest petrochemical companies in the world in 2020. If we were to return in five years, how would we see Braskem's petrochemical business has developed?

In five years time, Braskem will be growing in Brazil through de-bottlenecking and the new complex in Rio de Janeiro will be ready for start up. We will also be running a new cracker in Mexico with the polyethylene plants, we will be building new crackers in South America, and we are studying opportunities in Peru and United States. In addition, we will have new green plants, which form an integral part of our strategy.

Braskem is committed to the growth of Brazil and despite the challenges facing the industry in infrastructure, we are very confident in the growth of the Brazilian market. We invite other players to come to Brazil to join in these opportunities with us, there are some areas which we do not have the required technology and need partners to enable us to develop the Brazilian petrochemical industry. •

Interview with Rui Chammas

EXECUTIVE VICE PRESIDENT, POLYMERS DIVISION

Could you provide us with a synopsis of your key objectives in the Braskem and Quattor merger?

In 2011 I was responsible for the merger of Braskem and Quattor and to reorganize and capture the synergies of this merger. The key points of my mission are to ensure we achieve the best standards of operation and to operate all plants at maximum capacity, with the best profitability and serving our customers to the best of our ability.

How will the new merger of Braskem and Quattor affect the face of the business?

Today we are the sole producer of polyethylene and polypropylene in Brazil. We are not the only company selling, but we are the only company truly committed to the market. We do have a bigger responsibility in terms of developing the plastic value chain in the country. We need to assist our customers to develop and grow their business because this is the only way we will be able to grow in our business. It is clear that Braskem has a bigger responsibility to develop the local market and this is part of our mission. We also need to help our customers in the rest of our region (Latin America) to develop their position in their market.

There is an increased emphasis globally on sustainability within the chemical industry. What steps has Braskem taken in the polymers business to follow this global drive?

Our vision is to run the business in the most sustainable way. In addition, Braskem is developing a complete range of bio-based materials that are perceived by the market as more sustainable. At the end of 2010 we started the green polyethylene plant, which positioned Braskem as the leader in biopolymers globally and we are also bringing to the market an additive for gasoline that

is based on ethanol as a raw material. Braskem is also investing a lot of money in R&D to look for new products that are based from renewable raw materials. We understand that as a country we have the advantage of a very competitive bio-based raw material and with our investment in R&D Braskem will leverage this to position ourselves favorably in the global sustainable arena. We understand there is a demand from the market for renewable materials and Braskem is prepared to deliver these products.

Braskem has a well-established presence in Brazil and Latin America with current expansion in Mexico. What further opportunities do you see for geographical diversification?

We have room for growth in the Americas. We have the project in Mexico, we are currently in a process of merging with Dow PP assets in the USA and we are analyzing a potential project in Peru.

How would you describe the investment environment in Brazil?

In terms of raw material, we will have a lot of material from the pre-salt oil fields coupled with economic growth and we are experiencing a rise in internal market demand. The question is how to build the basic infrastructure needed for this potential growth. The focus is now on what should be done to bridge these gaps; including transforming into reality the potential we have in the country through tax incentives, raw material availability and cost, innovation incentives, and capital expenditure incentives. This, together with improvements in energy costs and infrastructure, will lead to a promotion in investment. However, as we now stand, there is a lot of room for improvement. Braskem faces the same challenges as new investors, but we are committed to lead the market growth in



the next years.

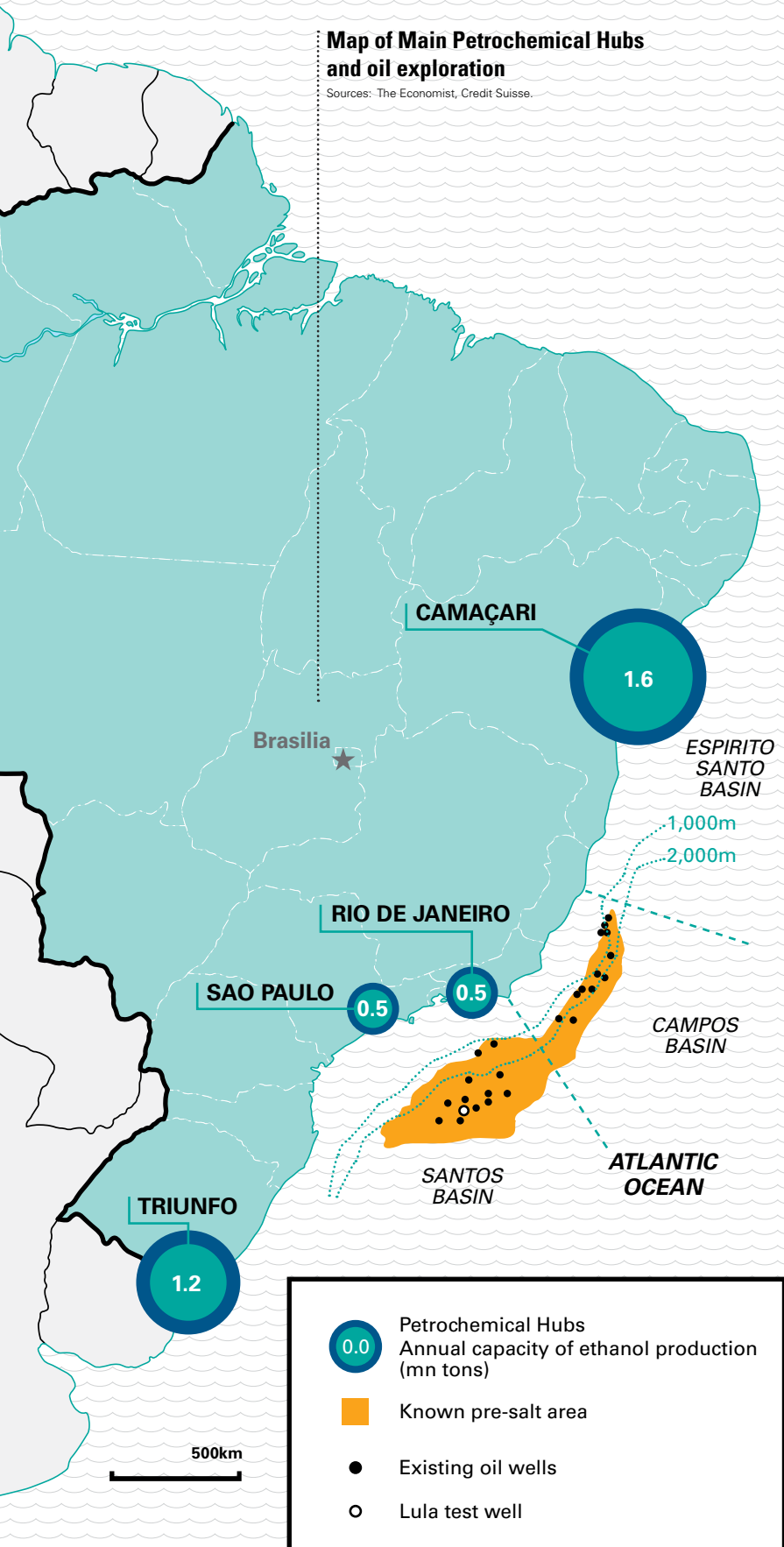
How do you expect the polymers business evolve in the next five years?

We believe Brazil will continue to grow and we foresee future market growth in South America. In five years, our plastic industry will be much more developed in the region and Braskem will be here doing our best to serve the market with materials and services.

Innovation will be key and in the bigger sense we will continue to look for new biomaterials, new technologies and new applications of our materials. At Braskem we are very positive for the future. This region will be key for growth in the next years. •

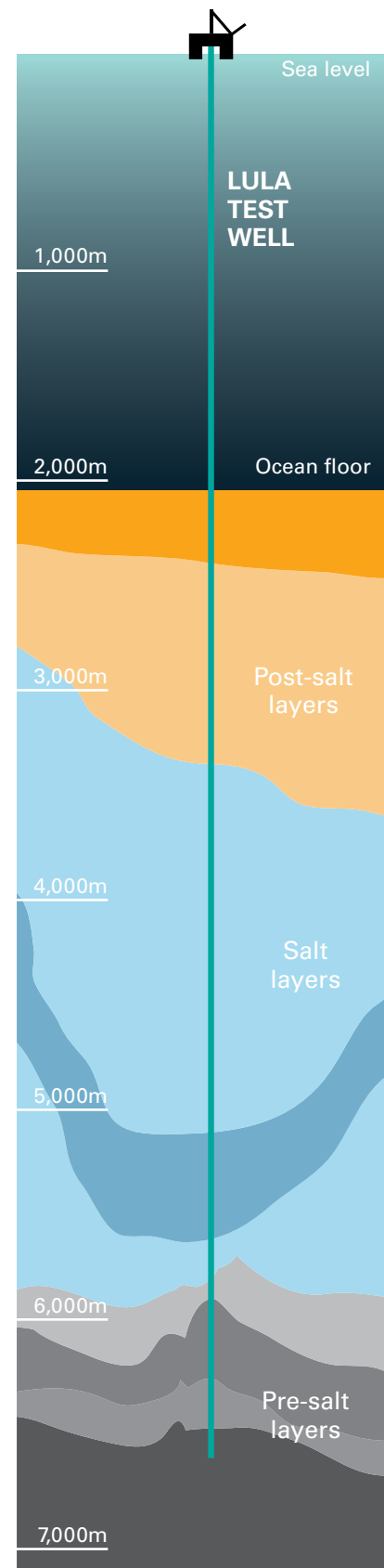
Map of Main Petrochemical Hubs and oil exploration

Sources: The Economist, Credit Suisse.



Santos Basin

Sources: Petrobras, BP



Courtesy of Mammoet

The Feedstock Challenge

How raw materials are scarce in a resource-rich country

Brazil produces 2.301 million barrels of oil and 24.07 cubic meters of natural gas per day. It is a net exporter of oil to the order of roughly 550,000 barrels per day. Its reserves, far from the decline apparent in many countries around the world, have vast exploration potential, with some estimates putting actual reserves at ten times the current figure. Yet feedstock for the petrochemical industry remains in short supply.

This shortage has a significant affect on the sector. In 2009, over a third of its naphtha, which accounted for the overwhelming portion of its petrochemical feedstock, was imported. Last year, even as the National Petroleum Agency (ANP) announced that Brazil's oil and natural gas production reached a record high in 2011, the domestic petrochemical market slowed and production decreased.

Although in many regions of the world the question of feedstock is pressing for everyone (the Middle East in particular is facing decreasing supplies as natural gas production in Saudi Arabia, Iran and Qatar is not increasing fast enough to meet demand from ambitious downstream expansions), Brazil is facing competition from the US and, to a lesser extent, Canada, where shale gas and oil sands respectively promise to bolster the competitiveness of the North American petrochemical industry. Brazil looks poised to suffer unless the price and availability of its raw feedstock can match its growing position as a petroleum producer.

"It is very important to understand the current scenario in the Brazilian raw materials market. There is one stated company, namely Petrobras, who is the biggest supplier of naphtha and natural gas to the industry. Petrobras has a stake of 40% in Braskem. And Braskem is the owner of all the crackers in Brazil. So when you talk about obtaining a quota, or an allocation, of raw feedstock, you are talking about a decision of one of those two companies."

Reinaldo Rubbi, former Chief Executive and current Board of Directors member, Elekeiroz

"Most chemical companies depend on natural gas. For natural gas in Brazil we pay something very close to \$13 per million btu. In the United States it is around \$3.6 and in Saudi Arabia it is \$0.72. It appears that Braskem is willing to introduce a better cost for natural gas that is used as a raw material, and it is likely that two different policies will develop; one for natural gas used as energy and one for natural gas used as a raw material. ABIQUIM is leading a movement to try to get better conditions for raw material."

Ciro Marino, Latin America Business Director, Cristal

"We are not able to supply the growth of demand because of restrictions on raw materials and therefore we are not able to expand production due to the price of natural gas. This year we will reach 1 million tons of internal demand for methanol and we will only supply 200,000 tons, meaning 800,000 tons needs to be imported. If we were to grow as the market demanded we would need big changes."

Wanderlei Passarella, Chief Executive Officer, GPC

"In my opinion the chemical industry has all the necessary conditions to be the brightest segment in Brazilian industry. However, to achieve this the government has to act. We cannot compete with American companies when they have natural gas three times cheaper than in Brazil. We cannot compete when our energy costs are higher than most of our competitors around the world. In these issues, we should take action."

Fernando Figueiredo, Executive President, the Brazilian Chemical Industry Association (ABIQUIM)

The problem, according to some, is that neither the government nor national oil company Petrobras has taken the step of detaching the price of gas from its oil equivalent. Natural gas is priced at around \$12 to \$15 per million British thermal unit (btu) in Brazil. Compared to other Latin American countries, where it is predominantly between \$3.5 to \$4 per million btu, or the Henry Hub, where at the time of writing it had fallen to just above \$2, and it is easy to see why this is affecting the petrochemical sector. Indeed, many attribute the 2008 rise in interest in renewable energy in the US, and the subsequent attraction of talent to the sector, to gas prices rising to the level that they are currently at in Brazil. The petrochemical sector could experience the opposite affect, with investors and skilled workforce moving away.

Henri A. Slezynger, President of Unigel, stresses the need to improve the nation's competitiveness: "Brazil is not pricing its naphtha as a producer, it is not giving any thought to the fact that Brazil is now producing as much oil as it consumes (about 2 million barrels) and with the new discoveries, Brazil is on the way to becoming the fourth largest producer of oil. Brazil needs to give serious thought to more accessible prices to increase the competitiveness of the petrochemical industry."

This view is shared by many in the industry. Brazilian chemical company GPC Química, created by the merger of methanol producer Prosint and resin supplier Synteko, currently has two joint ventures to produce methanol (one with Petrobras in Camacari), yet has recently developed a new business recovering carbon black from tires. Wanderlei Passarella, GPC's chief executive officer, sees a need to diversify into other segments due to the cost of petroleum feedstock. "We are not able to supply the growth of demand because of restrictions on raw materials and therefore we are not able to expand production due to the price of natural gas," he said. "This year we will reach 1 million tons of internal demand for methanol and we will only supply 200,000 tons, meaning 800,000 tons needs to be imported. If we were to grow as the market demanded we would need big changes."

President Renaldo Silva Duarte of Columbian Chemicals Brazil comments on the

Renewable-Based Chemistry Investments

Sources: Abiquim

Type of investment	Description	Measurement unit	Quantity	Investment
Investment - Agricultural sector	Additional sugarcane fields	MM hectares	2.0	6.0
	Additional saccharose production (sugarcane)	MM tons/year	24.0	
Investment - Electric sector	Dry fiber: baggase + straw and bits (traditional sugarcane)	MM tons/year	41	6.1
	Electric energy generation (approx. 1.2 MWh/tbd)	MM MWh/year	49	
	Associated power (approx. 8,000 hours/year)	MW	6,120	
Investment in chemical centrals	Saccharose extraction	MM tons/year	24.0	3.3
	Green naphtha production	MM tons/year	7.2	7.2
	Additional production of "green" basic chemicals	MM tons/year	5.5	3.3
Downstream investment	Additional production of second-generation chemicals	MM tons/year	7.2	6.5
Total (central + downstream investments)	Total (central + downstream investments)			20.3 (billion dollars)

same issue. Recently acquired by India's Aditya Birla Group with the intention to utilize their synergies to enhance growth in selected regions such as Brazil, Columbian Chemicals Brazil has the only local carbon black plants in Brazil, supplying 71% of the market in South America. Yet Duarte explains that this dominant market share is not free from obstacles: "we have a natural gas monopoly in Brazil... In a carbon black market we can use part of our raw material as natural gas, but we do not have a cost incentive for this in Brazil like we do in any other country worldwide."

It is, however, difficult to imagine that these challenges will persist in the medium to long term. When looking at the disparity between Brazil's status as an oil producer and the feedstock challenges currently afflicting the country, one must remember that Brazil only became a net importer of crude oil in 2009. It is still not a net natural gas exporter, although the potential is undeniably there. New large-scale activities in the upstream sector should guarantee an ever-increasing supply of naphtha and other feedstock and, in response, the growth of the petrochemical sector to match the country's position as a petroleum nation. •



Courtesy of Mammoet

Interview with Paulo Roberto Costa

DOWNSTREAM DIRECTOR, PETROBRAS

Petrobras has been instrumental in the development of the Brazilian petrochemical industry. Could you explain this role in more detail?

In the 1970s, the Brazilian government invested in a three-part system for Brazil's petrochemical industry. One part was Petrobras, as part of the government, another part from Brazilian companies and, thirdly, international companies. In 1990, the government decided that Petrobras would leave the petrochemical sector, but would retain a minority presence without an active participation in the executive board. In 2004, there were many dominant companies in the Brazilian market looking into the global market, including Suzano, Petroquímica, Unipar, Ipiranga, Braskem, Petrobras, and Unigel.

We then began internal discussions about the potential threat of the absence of Petrobras from the petrochemical market. We decided to make the first movement between Petrobras, Braskem and Grupo Ultra and we bought Ipiranga Petroquímica and Ipiranga Derivatives. As a second step, Petrobras bought Grupo Suzano, with a very relevant participation in Bahia and also with branches in Rio de Janeiro, which increased Petrobras' participation in the petrochemical sector.

Today we have three chemical poles in Camaçari, Bahia, two here in Capuava, São Paulo, and Triunfo, Rio Grande do Sul and 10 refineries operating in Brazil, an asphalt and lubricant factory in Ceará and also an oil shale production in Parana. We also have a full logistic function, which oversees shipments, transportation of crude oil and derivatives in Brazil and abroad, which my division manages. In addition to our refinery and logistics operations, Petrobras also has a commercial division, with offices in China, Singapore, London, Houston and Buenos Aires, for oil and derivatives commercialization.

What strategic advantage has your partnership with Braskem brought to

the company?

Today in Braskem's advisory board we have four advisors and a very active participation in management decision making. We chose Braskem today to be our petrochemical arm in the polyolefins, polyethylene and polypropylene markets. With the merger, Braskem also gained strength to become global player and has participation in Brazil at the three chemical poles in Capacai, Capuava and Triunfo. Braskem bought Sonoco and, most recently, we bought Dow's assets in the United States and Germany. When we merged with Braskem, Petrobras gained Braskem's operational and commercial expertise in the petrochemical business and in return, Petrobras opened doors for events, financing and investment for them.

Together, we are also developing a petrochemical refinery, which is a result of our company focus on product exchange to add value and continuously improve our offering. With the construction of COMPERJ, will be better because we will have the refinery and petrochemical operations integrated together. We are very confident and interested in the benefits and synergy of petrochemicals with refinery for adding more value.

Please can you detail Petrobras' current investments in the petrochemical sector and your plans to strengthen your foothold in this industry?

As outlined in our business plan for 2011-2015, we will invest \$5.4 billion in the petrochemical sector to stimulate further growth in Brazil. Today, Petrobras is simultaneously building five refineries because our refinery capacity is around 1.85 million barrels a day and the market now is at 2.2 million barrels. If we look towards the future, in 2020, the demand will likely be 3.2 million to 3.3 million barrels a day and Petrobras; refinery capacity will be around 3.1 million to 3.2 million barrels after the construction.

We have a project called Complexo Pet-



roquimico do Rio de Janeiro, COMPERJ, which is a large project that will sit on 45 km2 of land. We have already completed 30% of the initial phase, which is the construction of a refinery that will produce 165,000 derivate barrels a day. We will also construct Brazil's fourth petrochemical pole with a planned start date in 2014. Braskem will be very involved with COMPERJ and will build the cracking, the polyethylene, polypropylene and PVC factories.

What would be your final message to our readers about Brazil's ability to position itself amongst the top five petrochemical industries worldwide?

The Brazilian petrochemical market still does not consume as many derivatives in comparison to the United States, Argentina or Colombia. We know however that with the upcoming World Cup and Olympics, the plastic consumption will grow a lot. We also have about 30 million to 40 million people that are now active in the market as a result of the government's income distribution policy, which is impacting the country's demand for oil derivatives and plastic products; thus, increasing the domestic need for oil, gas and diesel.

Through Braskem, Petrobras will become among the four or five largest petrochemical groups in the world, which will help grow the Brazilian petrochemical industry. The petrochemical market is global, not regional, and you must be strong or you will disappear. It is Petrobras' priority to invest in the petrochemical sector in Brazil and when we complete our integration plan for the refinery and petrochemical we will add a lot of value to the market. •



Alternative Supplies

Petrochemical manufacturers stray from their traditional feedstock

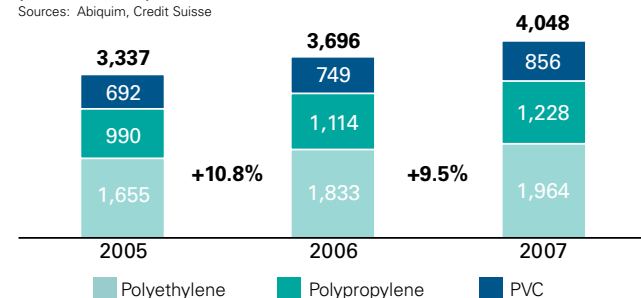
With Brazil's high cost of natural gas as an industrial raw material reducing the sector's competitiveness, many petrochemical producers have decided to examine alternative feedstock options. As is so often the case, out of this challenge has emerged an impressive array of innovation.

In 2009, Brazil had 6.959 million tonnes of petroleum feedstock. 6.952 million tonnes of that was naphtha and the remaining 7,000 tonnes came from kerosene products. Yet Brazil is uniquely placed to develop alternative feedstock for chemical compounds traditionally derived from naphtha or other petroleum products. A favorable climate and vast areas of arable land make the cultivation of sugarcane, a favorite source of ethanol, cheap and uncontroversial to produce. With roughly 8.5 million acres of farmland used for ethanol production, compared to just under 500 million acres used for cattle ranching, the tradeoff between harvesting for food or harvesting for energy that has been the subject of so much debate in the US and Europe simply does not apply.

While these advantages, combined with the high rate of energy return (9.3 units of energy output for each unit put into the production process, compared with three units for other methods such as corn- or wheat-based ethanol), have meant that sugarcane has been enthusiastically embraced by the nation's power generators (Brazil accounts for 60% of Areva's global biomass business, for example), the petrochemical industry has been no less proactive.

Renewable-Based Chemistry Investments (thousand tons)

Sources: Abiquim, Credit Suisse



Estimated Oil Exploration Potential (according to different sources)

Sources: Various

Rio de Janeiro State University	123
Brazilian President Dima Rouseff	100
International Maritime Associates (IMA)	70
National Petroleum Agency (ANP)	50
Current Proven Reserves	12.86

billion barrels

In one of the most prominent and ambitious projects, Braskem has been responsible for the green ethylene plant in the Triunfo Complex, Rio Grande do Sul, which completed its first year of successful operation late in 2011. Using sugarcane ethanol as a raw material, this positioned the company as a global leader in biopolymers. "In addition," said Manoel Carnauba Cortez, Executive Vice President, Basic Petrochemicals for Brakem, "we will have new green plants, which form an integral part of our strategy."

The first of these new facilities is already underway, with October 2010 seeing Braskem announce the construction of a propylene plant, again using sugarcane ethanol as a raw material, which will have a minimum production capacity of 30 ktons/year, with start-up slated for late 2013.

Odebrecht, who were instrumental in the development of the green ethylene plant, have been similarly vocal in their belief in the potential of ethanol as an alternative feedstock. "There is so much demand for green polyethylene that we are also going to do a green polypropylene factory next year to create other green products," said Marcio Da Silva, Director at Odebrecht. "I am not sure exactly how much the investment will be in ethanol in the next five years, but it will grow. In Brazil most production is naphtha, however, this new green step is important as it has improved Braskem's image and the company is now viewed more socially and environmentally responsible. Also very importantly, this project was done with our own technology."

Other companies are also making use of Brazil's distinct bioethanol production (the country produces 33% of the world's bioethanol supply; a position second only to that of the US and that, according to

analysts such as those at KPMG, places it at the forefront of sustainable technology in petrochemicals). Belgium's Solvay, for example, is evaluating an ethanol-based polyvinyl chloride (PVC) project with an annual capacity of 60,000 tons, and the US-based Dow Chemical, in partnership with Japan's Mitsui & Co., has invested in an integrated sugarcane to PE project and M&G plans to invest in a biofuels and biochemicals project.

Oxiteno received the Kurt Politzer Technology Award for its case "Changing the Properties of Ethanol for Feasibility and Use in Diesel Engines." The company's R&D department developed a formula that uses ULTRAFUIDTM Eco, allowing the use of hydrated ethanol in diesel engines of heavy-duty vehicles, such as trucks. The company has made several other marked contributions to green chemistry. Joao Benjamin Parolin, chief executive officer for Oxiteno, discusses Oxiteno's innovation platform: "Oxiteno has successfully achieved 20% of raw materials from renewable sources and 35% of its materials contains renewable ingredients."

French chemical giant Rhodia, recently acquired by Solvay, has a long-standing reputation for commitment to sustainability. In 2011, US-based Cobalt Technologies, a developer of next-generation bio-based chemicals, and Rhodia announced a Memorandum of Understanding for a strategic alliance to develop bio-n-butanol refineries throughout Latin America, and launched a solvent based on glycerine, which is a sub-product of biodiesel production.

Reichhold, driven by environmental concerns, are also making their contribution. Their Envirolite® product line offers unsaturated polyester produced with recycled and renewable raw materials.

Other companies are looking at more

unusual feedstock. Brazilian chemical company GPC Química, for example, has a new business recovering carbon black (a form of amorphous carbon used as additives to automobile tires and pigment in inks, coatings and plastics) from tires. "Up until now," said Wanderlei Passarella, GPC's Chief Executive Officer, "our core business has been in methanol, but now we are forced to diversify to reach our goal of becoming a BRL1 billion company. Methanol is a mature industry, but resins is big growth market, growing at 10% per year and we will take advantage of this opportunity."

The importance of these diverse feedstock options cannot be overstated. In the domestic market, finding an alternative to naphtha or other petroleum sources provides a means for Brazilian-based companies to compete with imports arriving from countries with cheaper natural gas supplies. In a more global context however, Brazil is leading a worldwide trend. The environmental movement places a certain cache and subsequent price premium on "petrochemicals" that have not come from petroleum, but instead more sustainable sources. Even without this, these sustainable sources can often be cheaper; Europe, which obtains a significant portion of its ethylene from oil-based products, is finding itself decreasingly competitive. While four of the top ten petrochemical producers were in Europe in 2008, it is expected that 2015 will see just one remaining.

Brazil, with its plentiful supply of alternative feedstock and the drive and ability to use it, has the potential to claim the market share that more traditional petrochemical hubs are relinquishing. Competition is tough, and there are many hurdles that the country must yet overcome, but as with many opportunities this one has emerged from a limitation. •

Interview with Wanderlei Passarella

PRESIDENT, GPC

Could you give us a brief overview of GPC and your Brazilian operations?

The group is almost 100 years old, which is very rare in Brazil, and we are family owned. The group as a whole is present in three or four different areas; we incorporate medium-sized bank activities, the chemical branch which is GPC chemicals, steel pipe production businesses and real estate.

GPS Chemical is a medium-sized company; we have about \$100 million real in net revenue and we operate three different business units. One is methanol and derivatives, another is related to thermofixed resins for wood panels and cosmetics, and we also have a small third business unit for wood floor varnish: Synteko. Besides these three main business units, we have two joint ventures; one small factory in Camacari with Petrobras and another Sinerging, which is related to the production of renewable energy from biomass. GPC produces carbon black from the solvents and oils from tyres. We are the first company in Latin America and possibly the world to do this. The development of this technology took place in Brazil.

In which business segment do you see

the most growth opportunities?

GPC's portfolio is balanced. We have a growth opportunity in resins, which is brand new. The industry of cosmetics is growing very fast and so is the cans-producing industry. This is increasingly moving from Argentina to Brazil. The methanol industry is growing but it is a mature commodities industry and we are not able to supply the growth of demand because of restrictions on raw materials and therefore we are not able to expand production due to the price of natural gas. This year we will reach 1 million tons of internal demand for methanol and we will only supply 200,000 tons, meaning 800,000 tons needs to be imported. If we were to grow as the market demanded we would need big changes.

Resins is a very big natural industry and it is growing every year and future investments are going to come. The other growth opportunity is biomass and related areas. Coke and ore does not seem to be growing as these industries face the same challenges as Methanol.

What would you say are the key opportunities that are able to drive investment for both local and international players?



For industry to grow as the market demands, changes must happen. If we are unable to negotiate these changes with the government then there will be no growth. Demand will continue to increase and foreign imports will continue to grow. The scale of imports has grown significantly and it does not make sense that the authorities have not done something about this yet. People can be aware of the problem now, but if we do not do anything there will be even bigger problems in 10 years' time. If Brazil has raw materials, then why are we giving it to the private sector? We ought to integrate and take the chance on the raw materials ourselves. The other problems that exist are surrounding the cost of infrastructure, logistics and government taxes. We are investing just to remain in business so if you analyze the sunk costs that we have in investments, it is better to continue investing. However the profitability after taxes is too low to provide any real incentive for investment.

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Interview with Sr. Milton Sobrosa

continued from page 29

The petrochemical industry is an infrastructure industry and there is a multiplication factor. Companies like GPC are growing but only in other areas. We are unable to grow significantly in the petrochemical sector because of the policies surrounding natural gas. So we have to grow in special resins, applications and renewable energy.

Do you see more opportunities outside the borders of Brazil?

Geographical expansion will not be the strategy for GPC. Our business is more dependent on resins, which cannot be exported as they have a short shelf life. As for the other renewable energies, Brazil is the real foundation for this. You need lots of raw materials to produce renewable energy.

Our company suffered a lot after the 2008 crisis. We were able to attract some capitalization through private funds recently to support the company through the crisis. We had to shut down the production of methanol for a while as the price of natural gases remained high but the prices for methanol dropped. Right now we believe in the strength of the company's future but will focus on our other products.

What does the future hold for GPC?

GPC's goal is to reach annual revenue of \$1 billion reais. The renewable energy industry will grow very rapidly and we have many ongoing projects. There are many opportunities and lots of impressive technologies that we have developed. GPC is considering investments for wood panels; we have a strategy of producing resins in small units very close to costs. This is a brand new model and it looks like the market is moving towards this direction. We intend for our growth from resins and our other small business units like Synteko. With regards to methanol, it is looking like Brazil will have lots of natural gas and there are new independent producers emerging, which should mean this should be out of the control of Petrobras. Therefore, we hope that in few years we can drive solutions forward for business with methanol production. •

INDUSTRIAL DIRECTOR, PETROM

What are the main business activities of Petrom and what are your key objectives as Industrial Director?

Petrom is the largest producer of phthalic anhydride in Latin America. In addition we manufacture plasticizers and fumaric acid. Over 14 years ago Petrom began working in partnership with ExxonMobil in Brazil. ExxonMobil supplies the isoamyl and we produce the ester plasticizer to commercialize the product.

It is the vision of our shareholders to follow the highest environmental standards and to continue to expand and increase capacity with a strong focus on developing more sustainable products to the industry.

Petrom has spearheaded research and development of a new renewable plasticizer; please can you detail its development and plans to bring this to market?

Seven years ago Petrom began research and development for renewable plasticizers. Since the end of 2008 we contracted Desantis and we opened an onsite laboratory to understand the behavior of these plasticizers in the final products. This unraveled in 2008 during the financial crisis, but according to our shareholders it was strategic to have a pilot plant, even at that time. In 2009 Petrom patented the renewable plasticizer BLGS. Petrom began industrial production in 2010 and we are rapidly introducing these plasticizers globally and have already received approval in the United States. This plasticizer is specific designed for sensitive products, including medical devices, food and children's dolls. We are in the process to attain FDA approval and this should be approved by the end of 2011.

We could never have imagined creating a product such as this and now many multinationals have acquired a license to use this plasticizer. Petrom has the intention to finalize the process to introduce this new product in Europe in Jan 2011 and already

we have received a lot of interest. This is a revolution in the industry.

Surprisingly, earlier this year Solvay, one of our principle users of this product, asked for samples of the product to be tested and presented in a seminar. They compared several properties and concluded that our plasticizer was one of the best in the world. This was a major achievement for Petrom. The quality of our product is fantastic and the price of this product is similar to petrochemical products. We have achieved the creation of a renewable-based plasticizer with a competitive cost.

Petrom began industrial production last year, to date what is the production capacity compared to market demand for this renewable plasticizer?

This plasticizer began production in 2010 and now our capacity is 10,000 tones per year. However we need to invest quickly and increase capacity to support the number of requests we are receiving. We are also able to develop the raw material for this plasticizer and we can produce soy oil hypoxide which is compatible with several plants in the world. In our pilot plant there is no industrial production, but we do have the intention to commence production early next year. The advantage of this development is to patent this process in the near future.

If we were to return in five years time how do you expect the industry and Petrom to have evolved?

Our vision is to support our two arms: petrochemical and oleo chemical. Petrom understands this requirement of the world and now we have a product to offer to the market. The development in petrochemicals and renewables will grow to meet the demands in the environment and there is greater scope for growth with these renewable projects. Petrom will be here to support the change in demands by offering a renewable product at a cost competitive price. •

The nature of our business is to provide the best solutions for yours.

Petrom began its history in 1953 and today is an important Brazilian petrochemical company, with the abilities to meet the most diverse and challenging needs of its customers through solutions that meet rigorous quality, safety and environmental standards. Petrom is the largest manufacturer of phthalic anhydride in Latin America and maintains a wide portfolio of products whilst also striving to innovate in the areas of alcohol, fine and green chemistry. A recent example of this is the launch of PLS Green, a new range of plasticizers developed from renewable sources such as sugar cane derivatives that meets the growing global demand for environmentally sustainable products. Petrom. A company whose main business is to contribute to the success of its clients wherever they are in the world.



To learn more about Petrom, visit: www.petrom.com.br

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PETROM
PETROQUÍMICA MOGI DAS CRUZES

Interview with Mr. Marcio Da Silva

DIRECTOR, ODEBRECHT

Could you provide us with a brief overview of the history of Odebrecht, and specifically the industrial engineering division?

Founded in Bahia, Odebrecht has been around for more than 65 years and today we operate on a truly global scale. The industrial engineering division builds industrial plants for the petrochemical, oil and gas, steel, and fertilizer as well as other sectors.

We are currently involved in projects for Petrobras, PDVSA, Braskem, Vale, and YPF which form a major part of the industrial engineering business. However, within Brazil there are many other opportunities, but at the moment due to the huge investments in oil and gas, and petrochemical plants we have limited human resources to meet the demand. Outside of Brazil, in the Latin American region Odebrecht has an important role in Argentina, Venezuela and Mexico and currently in partnership with Petrobras; we are working in a Petrobras refinery in the United States.

With operations across the globe, what would you describe as some of the unique challenges of operating in the Brazilian engineering and construction industry?

From the technology and management point of view Petrobras has the 'pre-salt challenge'. Despite training efforts we continue to lack personnel and Brazil needs more qualified labor in the industry.

In Brazil, there are many engineering companies, national and international: some American, others Asian and Euro-

pean, but the challenge to meet Petrobras' needs are huge. Inside Odebrecht we are structuring ourselves to attend specifically to the clients. At Odebrecht we employ around 160,000 employees in Brazil and abroad and approximately 32,000 employees are part of the industrial engineering division. Despite this large base of skilled workers, in order to meet the demands of Petrobras and Braskem, our most important clients, we need the support of major multinational companies in partnership with local players and this is part of Odebrecht's strategy.

Odebrecht has maintained a reputation for high employee satisfaction with over 1,000 employees in 2002 having worked for the company for more than 25 years. How has Odebrecht achieved this high level in such a competitive marketplace?

Odebrecht has a long tradition of employee satisfaction. Those seeking employment with us, plan to retire with us. Our management philosophy is very specific: we work with total autonomy, 'each contract is a small company'. The decentralization level is incredible. A Mexican director, for example, will behave and make decisions as the business owner and is rewarded based on the project results. Few companies in the world have this level of decentralization. Our philosophy is based on people's trust. If you do not delegate this power you do not have the same quality treatment to the client. Our competitive advantage that characterizes who we are is the speed in which we make



decisions; Odebrecht has a maximum of three hierarchical levels between the shareholder and the client. At the end what we want is to meet the client's need. This drives growth of our people and is not the usual way of business for engineering companies or huge corporations. I do not know any other company with this level of delegation and autonomy.

We have a policy of profit share based on the projects results, which allows people to take big responsibility and be compensated accordingly. The shareholder policy is to drive results, make new business investments and provide growth opportunities to our employees. As such, we have invested heavily on people's training; in the industrial engineering division we have over 1,000 interns and trainees at one given time. This is what has allowed Odebrecht to grow into what we see today. In the beginning, Dr. Norberto Odebrecht (today 91 years old) strived to form partnerships with masters in the industry and everyone grew. Braskem's growth was also due to this same philosophy.

As the leading engineering and construction company in the Brazilian marketplace, how does Odebrecht plan to maintain its position while continuing your aggressive plans for international expansion?

Odebrecht is currently working on its strategic plans for 2020. Part of this strategy is to train the new generation with responsibility. This new generation has been raised on the internet and does not have the same experience on the field and they have a different level of commitment.

In addition, we do not look at specific job titles, we are all responsible for one area and its business. All directors will talk about the same things, independent of their title. The company's conceptual and philosophical values are the same and we follow what Dr. Odebrecht talks about in his book.

Odebrecht was a key contributor to the success of Braskem's Green Ethylene Plant in Triunfo: the first in the world to manufacture plastics from 100% renewable sources. Please can

you highlight the significance of this project for both Odebrecht and Brazil?

This project has a very important meaning, image and practicality for Brazil. This was the first commercial scale plant to produce green plastic from ethanol and from this, new projects will be executed worldwide. It was very important milestone for Odebrecht, we were able to complete the project on time and in budget.

This first production was all sold to Toyota, who aspired to make the first green car at that time. There is so much demand for green polyethylene that we are also going to do a green polypropylene factory next year to create other green products.

I am not sure exactly how much the investment will be in ethanol in the next five years, but it will grow. In Brazil

most production is naphtha, however, this new green step is important as it has improved Braskem's image and the company is now viewed more socially and environmentally responsible. Also very importantly, this project was done with our own technology.

What would be your final message about the Brazilian chemical industry?

The Brazilian chemical industry needs very rapid growth to diminish its trade deficit. Our chemical industry will take time to establish and our commitment is to seek good partners and providers. At the moment, we buy a lot abroad for export. This is a challenge and opportunity for whole supply chain.

Brazil will be among the fifth largest petrochemical companies in the world and this will happen before 2020. •





Land of Plenty: Brazil's Agrochemical Sector

"When we look into how we drive innovation and science, there are a few mega-trends that we follow. The first one is the world's growing population; when you consider a global population that has reached 7 billion and is forecast to reach 9 billion, this brings a lot of new challenges. The first one is feeding those people. We cannot simply replicate the model that society has been using in the new emerging markets."

*- John Jansen,
R&D Vice President for Latin America, DuPont*

Brazilian Agrochemicals

An introduction to Brazil's agrochemical sector

In August 2010 The Economist published an article entitled "Brazil's agricultural miracle: How to feed the world". In this, The Economist described Brazil's agricultural revolution: a process of embracing science not subsidies that turned the country from a net food importer to the world's first tropical agricultural giant, challenging the dominance of the traditional "big five" food exporters: America, Canada, Australia, Argentina and the European Union.

Brazil has many advantages when it comes to agriculture. As the fifth largest country in the world, it has ample land. Its diverse climate (with six distinct climatic regions) allows for the broad range of crops and is especially favourable to products such as soybeans and coffee, both of which count among Brazil's major exports. Water supplies, so often a hindrance to industry, do not seem to have such a restrictive effect on Brazilian agriculture.

2010 data from the National Union of Agricultural Industries (SINDAG) revealed Brazil's crop share amounting to \$7.3 billion, with 44% from soybeans, 11% from cotton, 10% from sugar cane, 9% corn, 4% coffee, 3% citrus and 19% other. The country's agricultural trade balance was \$55 billion in the black in 2009 and has only increased since then. Brazil is now one of the world's largest agriculture producers with the highest rate of expansion.

This growth is not solely due to the country's natural gifts. Brazil has also supplemented these advantages with forward-thinking policies and an emphasis on agricultural research, including in the field of agrochemicals. The extent of these research and development initiatives can be seen in the fact that while agriculture accounts for only 6% of GDP, agribusiness (including these related sectors) pulls that figure up to 25% of GDP. Brazilian agribusiness exports reached new records of \$87 billion in 2011, 24.4% higher than in 2010, partly

due to the rise in average export price. The Brazilian agrochemical business, in particular, has shown impressive performance over the past years in both fertilizer chemicals and crop protection. With the Brazilian population estimated at over 200 million inhabitants and high demand for food worldwide, there is an increasing need for agrochemicals to meet escalating demands locally and internationally.

Yet simple expansion of supply is not the only motive fuelling this research. For all the natural advantages, Brazil does have natural challenges. These must be overcome.

Favorable conditions, for example, lend themselves to the prevalence of insects, diseases and weeds. Eduardo Daher, executive director of ANDEF (Brazil's National Association of Crop Protection), explains both the benefits and negative aspects of his country's climate: "Snow is the best and cheapest herbicide, insecticide, pesticide and fungicide, yet the bonus to being a tropical country is we can produce sugar cane. We run two crops every year for soybean, wheat and corn and in an irrigated area we can run five seasons of beans every two years. This means we grow between two to three crops per year and produce more for the same space of land. However, when comparing productivity to a country such as Canada and United States we are much lower for wheat and rapeseed."

Pesticide production is predicted to grow at 4.1% annually and Brazil is the top market globally. Brazil's pesticide market is estimated to grow from \$7.3 billion to over \$11.77 billion in 2020 (based on export projections of soybean, corn, sugar cane, coffee and cotton). However, Brazil has a huge gap in pesticide production. Comparing worldwide pesticide use to production ratios, Japan uses ten times more, followed by France, the European Union, Argentina and United States. Increased use of

pesticides, resulting in better productivity, coupled with conversion of unused land for agricultural, will enable Brazil to meet its demand upswing.

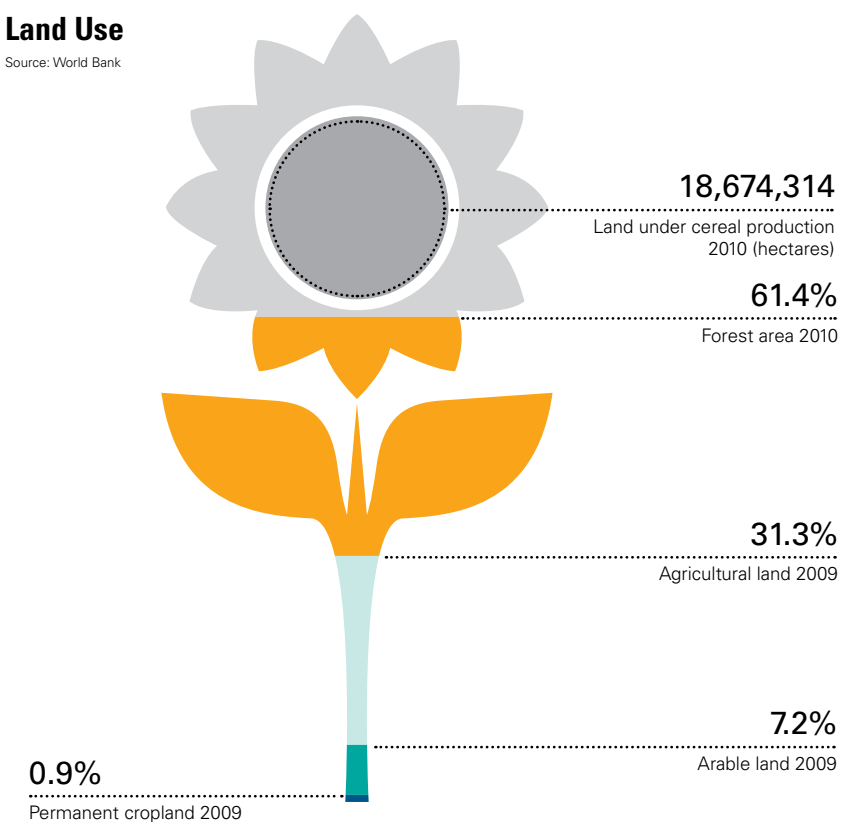
Many companies, such as the Ihara Chemical Industry Co., are capitalizing on these trends. Drawing on the technical expertise of its Japanese shareholders, Nippon Soda, Kumiai Chemical, and Sumitomo Corporation, Ihara has forecast revenues of \$8.3 billion for this year.

Regulatory uncertainty, as it pertains to crop protection and its impacts on the distribution business, directly influences producers. However, while complex, it can be overcome, as Thomas Britz, managing director of Helm do Brasil, explains: "businesses need to register and receive approval of crop protection products with several institutions in Brazil including Anvisa, the Ministry of Agriculture and Ibama, the Ministry of Environment. In addition there is state legislation, which in Brazil varies considerably. In the south of Brazil you have more of a cooperative system, while in other parts of the country you have more private distributors or direct sales to farmers. Mato Grosso is the most important agriculture region in Brazil with huge farms and the industry is selling directly to these farmers. Therefore, you need a tailor-made approach in each region. The business model and the market access are different as well as your portfolio of offerings needs to be tailored to the various regions."

Helm do Brasil is part of the larger HELM AG German, a family-owned company with over 110 years of experience as one of the world's major independent chemicals marketing enterprises. "Brazil is going to be the most important market, surpassing the US this year for the first time. The market is enormous, with very good potential, but it also includes some risks. Climate and financial risks, commodity prices and volatilities all have to be considered.

Land Use

Source: World Bank



There are many factors that make our life interesting. For Helm, I am optimistic that we can contribute more to the growth of Brazil, helping our customer to get products and solutions with cost-benefit to improve their productivity and profits."

The key opportunity in Brazil is its diversity in products and diversity in markets; Brazil is the world's largest exporter of coffee, sugar, meat, soybean, orange juice, tobacco, ethanol and poultry (according to 2009 USDA figures), selling to over 215 destinations worldwide. Brazil's agrochemical market must step up to the challenge of developing a sustainable agricultural industry, increase productivity and lower social and environmental impact. Brazil is nonetheless well poised for spectacular growth. •

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Interview with Antonio Carlos Zem

LATIN AMERICA GENERAL MANAGER, FMC CORPORATION

FMC is obviously a global company, with operations in different fields around the world. What is the primary focus of FMC in Brazil?

FMC is a medium-sized American corporation, with \$3.3 billion in sales. FMC held an initial public offering in 2002, which segregated the company in three divisions, making FMC Corporation totally dedicated to the chemical industry, more specifically focused on agriculture, and supplying ingredients in specialty chemicals such as soda ash, hydrogen peroxide and persulfates and food ingredients. Our operations in Brazil are divided into three major divisions: Agriculture Product group (APG), Specialty Chemical group (SCG) and Industrial Chemical group (ICG). On the APG side, our sales in 2002 were \$116 million, last year they reached \$510 million, and by the end of this year we will be at \$600 million. In the coming years, we expect strong growth as the market is growing very rapidly. Brazil has been quick in moving to be the number one agribusiness in the world, across all sectors. There is extreme growth seen throughout the value chain, including agricultural finance and insurance, tractors and suppliers, fertilizers, seeds and crop protection meaning our market is growing very fast at 10% compounded growth.

What sets FMC apart from your peers in the Brazilian market?

We are the number one provider of sugar cane and cotton sectors in Brazil. We reached this position because in 1996 all our peers found it fashionable to be growing on soybeans, corn, fruits and vegetable and we were the first company to take a serious approach to bio-energy for example. At that time cotton prices were erratic, and risky; no one expected bio energy and natural fibers to be booming. However, today our long history in the market benefits us as we have built up incredible relationships.

Our segment is highly competitive with 37 different players of all sizes and there

is intense rivalry among players so we must be the best of our game. FMC is distinguished by our strong presence in sugar cane bio-energy sector and cotton. Nobody is like us here and in particular to those crops we have a strong customer intimacy, broad portfolio and fast decision-making process, which allows us to be very agile.

What are FMC's objectives over the next three to five years for the Brazilian market?

Over the next three to five years, FMC aims to become one of top three players in the grain business by increasing our market access and building a strong distribution system to serve large growers in Brazil. The beauty of the Brazilian business is its size, dynamics and growth however the dark side is the very intensive capital requirements a company faces here. Brazil is a large country, which requires an extensive distribution system, good supply chain supported by in-depth planning before each crop season and long sales terms.

Brazil is adding almost 2.2 million acres every year of new cropping area, showing a large growth in the size of the industry. In parallel, there is also a growth related to technology in the industry and we are seeing Brazilian growers becoming more professional and larger in their operations. The overall agriculture business is growing around 15% year after year and we expect this growth to continue until at least 2020. There are some expectations that the global food demand from now until 2020 will grow 40% and from this growth Brazil will be supplying 20%, so half of all growth will be seen in Brazil. In line with these developments, Brazil is becoming a more important part of our global business and we expect that by 2014, we will have a \$1 billion dollar operation here.

Where do you see opportunity for growth in Latin America?

In terms of growth, if you look at only



soybeans in the major producing countries - Brazil, Argentina, Paraguay, Uruguay and Bolivia, then we are talking about 60 million hectares of soybeans by 2014: that is a huge evolution of the crop. And this is why we are moving to soybeans, adapting our teams, portfolio, and market access to really become an important player in this great opportunity. Growers today in Brazil require better control of diseases, weeds and insects, so we want to combine chemical solutions with biological and natural solutions to make our product lines more efficient and more sustainable.

Brazil is considered a rapid development economy, which we are proud of. We just need to keep the ball rolling. Brazil is doing well because we have a growing middle class. So the internal demand is huge for almost everything. Brazil's economy is booming on the export of commodities, and we are demanding strong leadership in our markets but unfortunately Brazil has not been investing in education and producing top talents, where we are finding restraints to attract and retain skills, which is critical for a booming industry such as ours.

What would be your final message about the Brazilian agrochemical industry and about FMC?

FMC is in the right position to invest in Brazil, and I am very optimistic for the future. I know the world is talking a lot about the crisis but here we are full of opportunities. The people that believe in the country's potential and can overcome the crisis will lead the country's growth. FMC is confident that there is a strong opportunity ahead of us. We just need to plan and execute it superbly. •

Leading the Growth

The major players and potential of Brazil's agrochemicals



Courtesy of Ithara

The agrochemical sector in Brazil is one of those rare and beautiful markets: both mature and possessing a multitude of opportunities. While a multitude of companies operate in the field, and innovation has been the trademark of the industry for the past few decades, use of many agrochemicals still rank well below counterparts in the European Union, the US, or other major markets.

For this reason, Brazil's agrochemical sector has attracted some of the major players of the global industry. Leading the pack are Arysta LifeScience, BASF, Bayer CropScience, Chemtura, Dow AgroSciences, DuPont, FMC Brazil, Ithabras, Isagro, ISK Biosciences, Monsanto, Brazilian Herein, Sipcam Isagro Brazil, Sumitomo Chemical and Syngenta, the world's largest agrochemical producer. Between them, these companies dominate the two major segments of Brazil's agrochemical industry: crop protection and fertilizer chemicals.

In the crop protection market in Brazil, Syngenta, Bayer and BASF dominate, together holding a 60% market share, followed by FMC, Dupont, and Monsanto. With pesticide use still lagging behind other market, the potential for growth is significant.

Fertilizer use is more in tune with international standards; Brazil is the fourth-largest consumer of fertilizers behind China, India and the US. Yet domestic production, which by some sources accounts for only 30% of total usage, still has opportunities for development. In 2011, statistics from Brazil's National Fertilizer Distributors Association (ANDA) showed overall deliveries of all fertilizers to end consumers reaching 26.509 million tonnes product between January and November 2011, an increase of about 3.7 million tonnes or 16% on the

corresponding period of 2010.

International players are taking advantage of these opportunities, even if agrochemicals are not always their primary focus. Dr. Alfred Hackenberger, president of BASF South America, comments on the importance of the agrochemical business to the Brazilian operations: "in Brazil we have three pillars, 30% agro business, which is very important in Latin America and much higher than BASF global trends, 20% decorative paint, and the core business in BASF worldwide is in plastics which represents 50% of the business in Brazil."

For those companies willing to look outside their traditional areas of operation, the opportunities are limitless. Brazil is, for example, the second largest producer of ethanol in the world and the largest exporter. Land usage, often a target for criticism from those who claim biomass cultivation pushes up food prices, is also relatively uncontroversial in a country as large as Brazil, where roughly 8.5 million acres of farmland is used for ethanol production compared to just under 500 million acres used for cattle ranching. Combine that with climate conditions that enable some areas to reach 140 tons of sugarcane per hectare compared to the world average of 90 tons, and it has been enough to tempt some chemical companies to explore the energy business.

FMC Corporation, for example, is one of the world's foremost diversified chemical companies with leading positions in agriculture and is also the number one sugar cane and cotton energy producer in Brazil. According to Antonio Carlos Zem, Latin America's general manager for FMC, "FMC reached this position because in 1996 all our peers found it fashionable to be growing soybean, corn, fruits and vegetable and we were

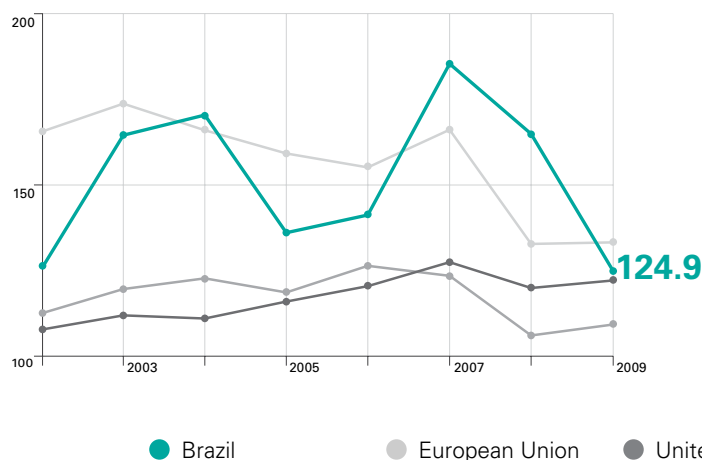
the first company to take a serious approach to bio-energy. At that time, cotton prices were erratic and risky; no one expected bio energy to be booming. Brazil is adding almost 2.2 million acres every year of new cropping area, showing a large growth in the size of the industry. In parallel, there is also growth related to technology in the industry and we are seeing Brazilian growers become more professional and larger in their operations. The overall agriculture business is growing around 15% per year and we expect this growth to continue until at least 2020. There are some expectations that global food demand from now until 2020 will grow 40% and from this growth Brazil will be supplying 20%, so half of all growth will be seen in Brazil. In line with these developments, Brazil is becoming a more important part of our global business and we expect that by 2014, we will have a \$1 billion dollar operation here."

It is this willingness to diversify and experiment that provides the key strength of the Brazilian agrochemical sector. Dr. Hackenberger of BASF, while lamenting the lack of an R&D tradition in Brazil, says that the agrochemical sector proves an exception. "In my opinion, Brazil is the strongest country worldwide when it comes to R&D for the agro sector. BASF is very strong on that front in Brazil; the first transgenic soybean developed outside of the United States was from BASF in partnership with a local company."

For many other countries, then number of players already in the market and the innovations they have been making for decades would indicate a saturated market. But on the issues of food, a growing global need, and in the location of Brazil, an agricultural powerhouse, it seems that only the first seeds have been planted. •

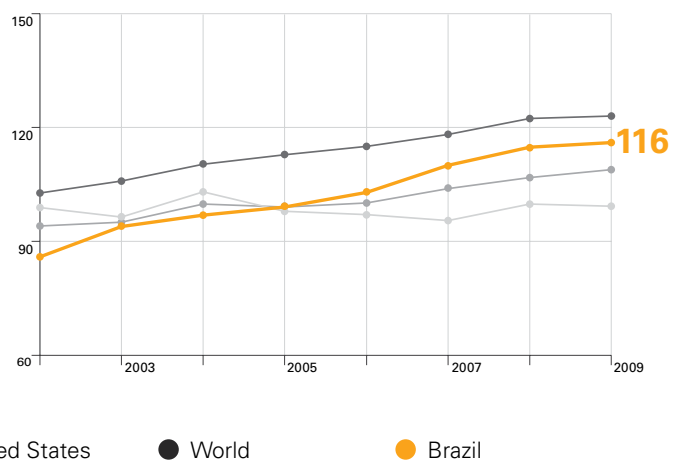
Fertilizer Consumption (kilograms per hectare of arable land)

Source: World Bank



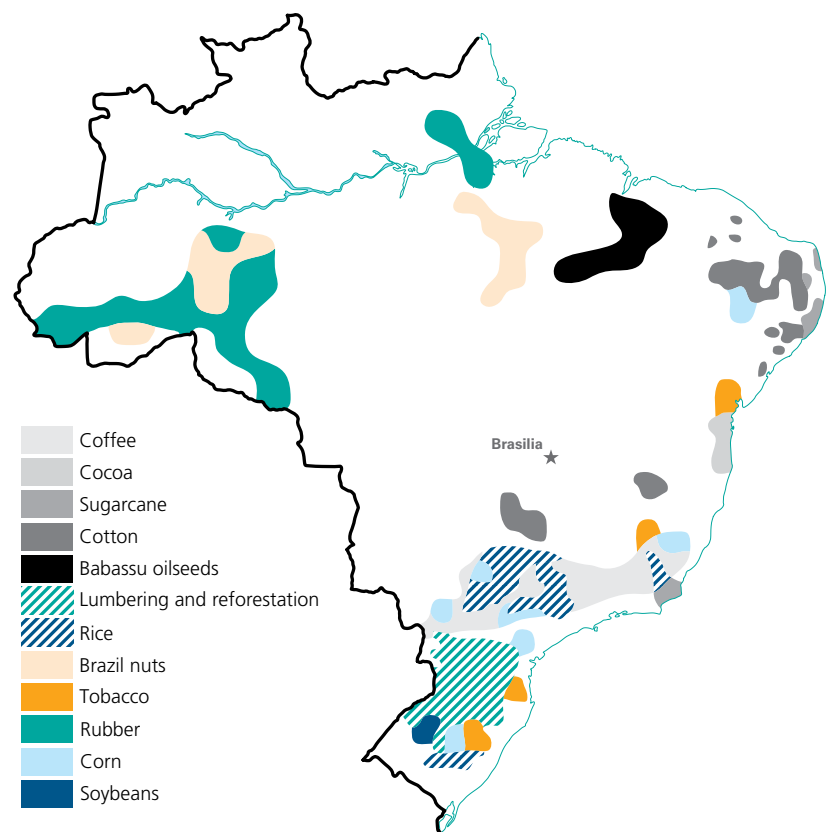
Food Production Index (2004-2006 = 100)

Source: World Bank



Agricultural Production by Region

Source: CIA World Factbook



5.8%

Agriculture as a percentage of GDP

Source: CIA World Factbook

20%

Agriculture as a percentage of employment

Source: CIA World Factbook

25%

Agribusiness as a percentage of GDP

Source: CIA World Factbook

Interview with Flavio E. Prezzi



ARYSTA LIFESCIENCE SOUTH AMERICA

What differentiates Arysta Lifesciences from its competition in the agrochemical sector in Brazil?

Arysta is one of the 10 largest agrochemical companies. We do not work in seeds but in several other sectors that we have selected. This includes the businesses of planned nutrition, which is a new sector. In South America we have a different business model to the majority of other agrochemical companies as we take a marketing approach to our products. Based upon our marketing research we then start to develop our portfolio. Arysta is split across six regions and they are each starting to grow; we used to only be in South America but now we are in Latin America. Although we are split in six regions, Latin America represents one third of the total of Arysta's global operations.

How would you describe the agrochemicals industry in Brazil?

Brazil has been growing consistently in the last 10 years and Brazil is important for chemicals. We became the number one market for hydro chemicals and then we became the second after the USA. Brazil will be number one again because we are growing. We have the physical area available to us and so we still have a lot of areas to grow and produce food. Even with the crises this year in Europe, the US and China, these countries still need food. And Brazil has the conditions, capacity and area to continue to grow food; we have about 70 million hectares dedicated to agriculture. With maize and corn for example, the Brazilian level of technology has not reached the same level of that of the USA, however in terms of investment in technology there is a big space for us to continue to grow with regards to using the right agrochemicals and making the right fertilizers etc. Brazil just needs to expand its infrastructure with investment in ports, roads etc.

How important is R&D to Arysta Lifesciences in Brazil?

Arysta Lifesciences does not invent products but we have a big alliance with Japanese companies who do, and we are a perfect business partner for developing this research outside Japan. We have a fantastic research station here with all certifications; we produce trials not only for our products but also for those of other companies because our research station is very respected.

What kind of growth levels do you expect over the next three to five years and how do you hope to grow in the market place?

This year the Brazilian market is growing so far at 19% and we are expecting by year-end that the market will grow by 10% to 12%. This can be compared globally to averages of 1% to 2%. For next year we expect 8% growth in Brazil. For 2013 to 2014, much will depend on what happens with the crisis of Europe and the export market depends on the demand from the US.

What proportion is Arysta Lifescience's business is internal demand and how do you see those dynamics shifting?

We are the company with the fastest growth in sugar cane. This is used both within Brazil for ethanol, but we also export a lot of sugar to fulfill a shortage in India. Arysta Lifescience's internal demand probably makes up about 60%, with 40% external demand for the export of products including sugar cane, soya bean, cotton.

How would you describe the investment environment and what are the key challenges in the market place?

International investment in Brazil has been the big driver of our economy's progress. Even with the import taxes the government levies on foreign com-

panies, the amount of money coming in to Brazil is tremendous due to the 12% interest rate which makes everybody want to bring money in to Brazil. In fact, our currency is overvalued right now. Brazil has grown so fast for many reasons, including the fact that salaries have increased but manufacturing costs from China have remained the same. The weak side of the equation is that the government still needs to invest in to the infrastructure of Brazil to really help business here.

Where do you see the agrochemicals industry and Arysta Lifesciences having evolved in the Brazilian market-place in five years' time?

In five years we hope Brazil, as an agriculture and agrichemicals market, will continue to grow. This is in terms of our planting area for crops and in terms of our increase of technology. We also hope Arysta to reach our main strategy to be the leader or one of the top three competitors in the select crops that we have chosen; sugar cane, vegetables and fruit and finally pashan.

How do you see the future for Arysta Lifesciences and Brazil?

In Brazil the market is growing so there are tremendous opportunities for companies to grow so long as they leverage their strengths and increase their possibilities to compete. Arysta is one of the 10 companies, that can be classified as medium sized, that is growing in terms of our development of our relationships and we will continue to build upon this. •

Interview with Julio Borges Garcia

IHARA CHEMICAL INDUSTRY CO.

Ihara has a long history in Brazil. How has the business environment evolved during this time?

Iharabras S/A Indústrias Químicas was established in 1965 as an association with one Japanese trading company, Mitsui Bussan and Ihara Chemical. The company has expanded over the years through production and sales activities centered on the development of original technology, and the synthesis of new chemical products. During the 1980s, many foreign companies faced hyperinflation, high interest rates and a difficult political situation in Brazil, motivating many to leave our country. As a consequence of this difficult environment, Mitsui Bussan decided to leave Ihara's corporate structure, after many years of losses. Since then, the controlling interest of Ihara has gone from Japanese investors to Brazilian investors and back again to Japanese investors.

Today, Ihara has become a joint venture of Japanese companies, with corporate structure consisting of Nippon Soda, Kumiai Chemical, Sumitomo Corporation, Mitsui Chemicals Agro, Sumitomo Chemical, Mitsubishi Corporation and Nissan Chemical. Regarding our businesses, Ihara receives its most important products from Japan, as a result of our corporate structure and our priority to distribute our shareholders' products. Our site is located in Sorocaba, approximately 100 km away of Sao Paulo, on a farm of 230 hectares of land and comprises a research center (where we conduct research and development (R&D) for natural products, essential oils and biological products), formulation and synthesis plants, administrative offices and an experimental station.

Could you please outline the key challenges for the company and industry?

A key challenge for Ihara is related to the transparency of government regulation

and agency procedures. Although we accept that every country should have its own regulation to evaluate products, the lack of transparency creates obstacles for our company and makes the operation complex and inconsistent. Many companies of our industry are not conducting their R&D in Brazil as there are still many concerns over the protection of intellectual property rights. Nevertheless, Ihara is looking to develop new compounds and two years ago started a new organization based on innovation, where there have been developed partnerships with research centers, aiming to overcome the challenge of innovation and to foster an innovation corporate culture. In two years time, it is intended to have new products on the market as a result of this initiative.

ABIQUIM is forecasting an investment of \$165 billion to Brazil's chemical industry by 2020, what do you think makes Brazil an attractive place to invest?

There is no doubt of the increase in Brazilian demand for agrochemicals in different segments of the market. There are many things to consider in the growth of the market, even for generics. More and more generic products are coming to Brazil, however these products have not been successful so far due to the lack of a consolidated strategy and knowledge of the market, which are critical. On the other hand, R&D companies that have been long established in Brazil, such as Dow Chemical, Bayer, BASF, Syngenta and FMC have the 'know how' to operate here. In the future, our market will be completely different with better procedures and operating in a more mature consolidated market.

What are the key objectives for the next 12 to 24 months for Ihara?

Ihara is very confident with the agricul-

ture industry in Brazil and in fact, the market has hit our forecast for this year of \$8.3 billion dollars in revenues. In the next five years, we believe the market will reach revenues up to \$10 billion and demand will continue to be strong, despite the situation in the United States and Europe. Farms in Brazil need the support of agro chemicals in order to fight diseases, control fungus activities (which are very active here), reduce the impact of pests in productivity, and help to protect crops with other problems that are typical at tropical countries. In the last 10 years, we have increased our sales on an average of 25% annual growth rate. Our market share of rounding 4.5% is still small, however it has increased in a fast pace from its 1.5% mark of five years ago and our target is to reach 7% in 2015.

What future opportunities does Aryta Lifesciences believe Brazil offers to enable continued growth?

Ihara is becoming a new company, even though we have already established a good brand and very close relationships with end-users. In the next five years, we want to be ready to move downstream, however we first need to invest more in the infrastructure of the company. We are already synthesizing two compounds in Brazil and in the near future we will produce locally and export to our neighbors in South America and the United States, instead of doing businesses mainly in Japan. In Japan, we will concentrate on R&D activities and synthesize more products there.

Ihara is very excited for the future of the Brazilian market, which is undoubtedly expanding and open to new business. Brazil will remain our most important market and in the future we hope to be an even stronger competitor in the Brazilian market. Ihara has a bright future in Brazil. •

IHARA brings Japanese technology and you increase the productivity of Brazilian Agriculture.

IHARA being a quality conscious Japanese Company, investing in high technology and innovation. Works diligently to develop products with the cooperation of Brazilian Agriculture.

For this reason, IHARA performs many scientific and technological tests, constantly finding solutions that creates efficient productivity, also creates profitability and gives healthier lives to the farmers of Brazilian Agriculture. All these issues, always, because Agriculture is our life.



**Agriculture
is our life**

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Sophisticated Samba: Brazil's Specialty Chemicals Sector

"Investment is mainly driven by the growth in the internal market as a consequence of 30 million people moving up the social class and having increased purchasing power. The downstream products are used in super-absorbents (diapers) and one ingredient in decorative paints, which will increase due to the construction of new homes... This will not be the only investment we make in Brazil."

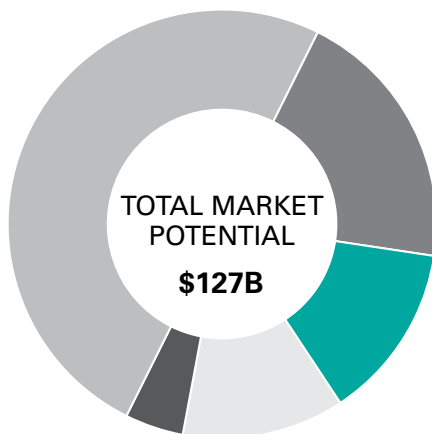
*- Dr. Alfred Hackenberger,
president of BASF for South America*

Brazilian Specialty Chemicals

An introduction to Brazil's specialty chemicals sector

Specialty Chemicals Markets in Emerging Economies (2010)

Source: Deloitte



Country	Market Potential (Billion Dollars)
China	63.9
Russia	25.7
Brazil	16.8
India	15.7
Mexico	5.4

(Billion Dollars)

While the emerging markets, Brazil among them, have been the engines driving demand for basic commodities for the past few years, their role in the market for more refined products has arguably not attracted quite the same attention. It would be a mistake, however, to overlook the growing sophistication of these countries.

By 2015, the BRICs (Brazil, Russia, India, China and South Africa) and Mexico are together expected to account for 42% of the global chemical market, up from 34% in 2010. Specialty chemicals, while not as strong as other chemical segments in these countries (China enjoys the strongest specialty industry thanks to specific government initiatives), this more refined market in these countries was nonetheless worth an estimated \$127 billion in 2010.

Brazil, like all the rest, is making moves to capitalize on this potential. In 2008 the industrial and specialty chemical segments of the market (with specialty chemicals providing the smaller portion) accounted for 50% of the \$120 billion total chemical sales, according to ABIQUIM. A middle class that increased from 34% to 53% of a growing population between 2005 and 2010, combined with a 12% increase in the minimum wage over the same time period, all result in a consumer base that is ready and willing to spend money on more advanced chemical products.

With this rise of the middle class also comes growth in related industries that the specialty chemical market serves. Global company Solutia, for example, sees much of its business coming from the automotive industry and the construction industry. In the former, Brazil is now the world's fourth largest market for vehicles, and seventh largest producer. In the latter, the Brazilian govern-

ment has put construction at the top of its agenda for 2012, with an estimated 600,000 new homes to be built.

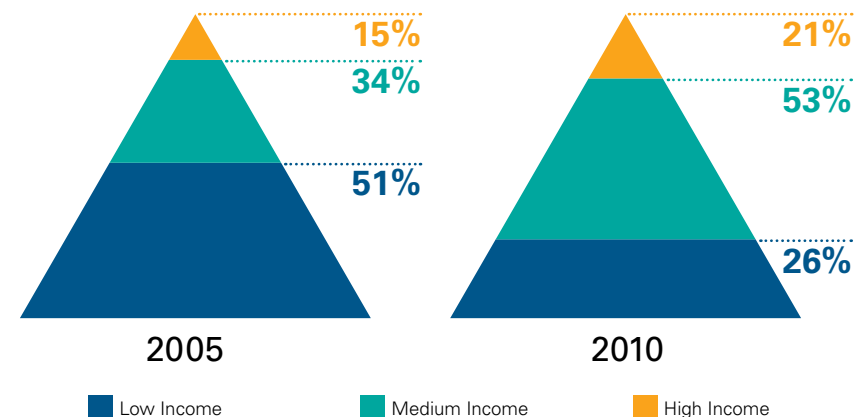
"The car and architectural markets are certainly going to increase," says Geert A. Van der Sijpt, regional coordinator and South America supply chain manager for Solutia Brazil. "Brazil has more and more middle class people and it continues to be the focus of the current president to continue this move out of poverty. So for these two end markets of our products, automotive and architectural, we are very positive."

The scent of this relatively untapped market has pulled in some of the biggest names in the industry. BASF has been present in the country for over 100 years. Dow has been in Brazil since 1956. America's Eastman has developed a research lab in São Paulo and made several acquisitions in the country. Akzo-Nobel, Croda, Lanxess, DuPont, Wacker Chemie, and DSM are other examples of international players and global leaders operating in the country. New players are also seeing the potential of the market: California-based Amyris announced last year that they would be manufacturing specialty chemicals from sugar cane in Brazil, marking the first time the chemical and biofuels company will produce on an industrial scale.

Local companies are also claiming their share of the market. Oxiteno, primarily known for its petrochemical operations, has increasingly moved downstream; it now produces cosmetics and personal care products, paints and coatings for the construction and automotive markets and products for domestic and industrial cleaning industries. Not content with staying in Brazil, it now has plants in Venezuela and Mexico and was recently reported to have acquired a specialty chemical plant in Texas. •

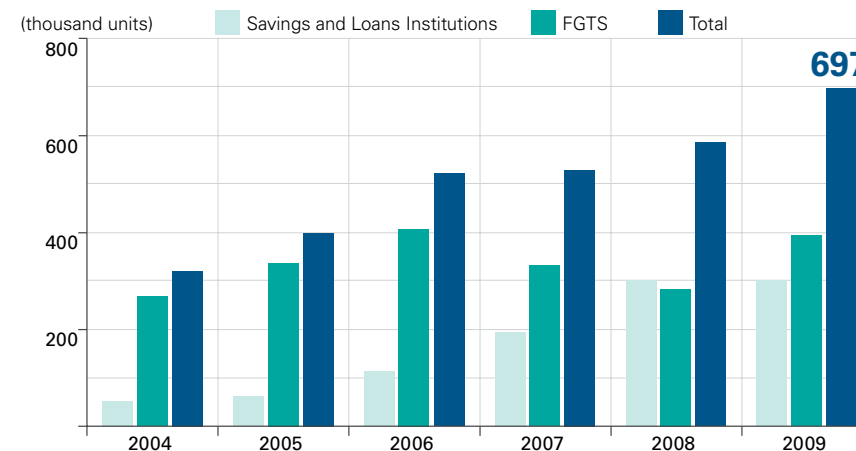
A Growing Market

Source: The Brazilian Institute of Geography and Statistics (IBGE)



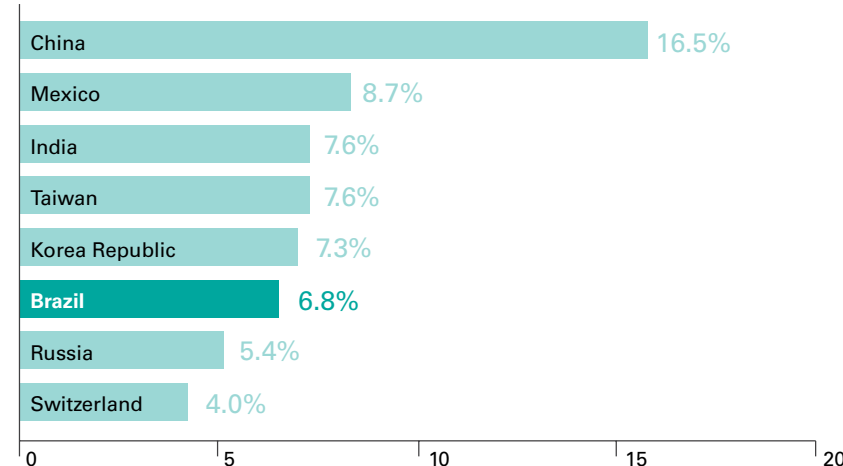
Construction Market (New Homes Financed)

Source: ABECIP, BNH and Caixa Econômica Federal



Growth in Chemical Sales (1997 to 2007)

Source: Cefic Chemdata International



Worldwide Market for Specialty Chemicals (2011)

483.7

billion dollars

Source: Research and Markets

Brazil's Automotive Market (2011)

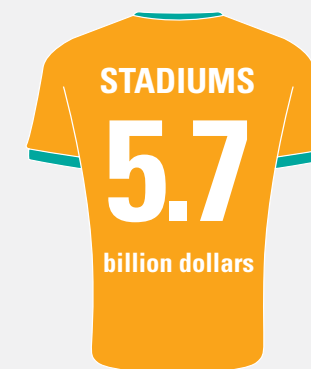


3.4

MILLION VEHICLES PRODUCED

Source: The International Organization of Motor Vehicle Manufacturers (OICA)

Brazil's Construction Market (Estimated World Cup Construction Expenditure)



Source: Research and Markets

Brazil's Cosmetics and Personal Care Market (2010)

16.5

billion dollars

Interview with Marco A. de M. Carmini

MANAGING DIRECTOR, CRODA BRAZIL



Croda is an international player in specialty chemicals. What attracted the company to Brazil?

In the last five years (2006 to 2010), Croda has grown twice the average of our segment peers in Brazil. In terms of sales, turnover has been greatest in the last five years. In the Brazilian chemical industry we have an industrial and consumer chemical sector and Croda is active in both. We synthesize molecules and compounds, blend and deliver them to businesses such as personal care or the lubricant business. However, while we are classified in the industrial chemical sector. We are very well positioned to serve both industrial formulation markets and consumer chemicals (home-care, personal care and pharma). Croda has always been strong in serving these segments, both globally and in Brazil.

Croda has been in Brazil since 1974 and, particularly since 1990, has been investing in local manufacturing, which reinforces the long-term vision of the company. In 1990, the Brazilian tariff barriers came down and imported goods started

becoming more profitable than local products. However, Croda continued to invest in manufacturing, especially to serve the main markets in Brazil: personal care, pharmaceutical, home care, etc. Today, our investment footprint in Brazil is very much driven by those markets. Croda has a strong interest in continuing to invest in this market, despite all the difficulties. It is getting expensive to invest in Brazil with the strength of the real, but we have always being here for the long-term; we are not short sighted about Brazil.

The domestic market in the beginning of 2000 became significant due to the emerging middle class and we believe the local domestic market will continue to be a driving force for our growth. It is becoming very difficult to export out of Brazil and there is a lack of supply for chemical intermediates. Most of them are imported; with import duties that are much higher than in many other countries. It is our challenge now to see how can we turn Brazil into an exporting platform, at least for Latin America.

The growth target for the Brazilian operations of Croda is very aggressive. We want to keep the same growth pace we have seen in the last five years. It is very important to keep an eye on the bottom line, to keep things under control, because of the strong real and the high prices of raw materials and intermediates, which conspire against having a profitable operation in Brazil. Our challenge now is to bring Croda Brazil to a profitability level.

With aggressive plans to grow the Brazilian operations, are you looking for potential acquisitions or partnerships or will Croda's strategy be to grow organically?

Our growth strategy will be a combination of organic growth and acquisition. Croda is looking for regional acquisitions that can bring in new complementary technology applicable to this market. We will further invest into our plant as we believe the consumer care segment will continue to grow by at least 10% or more in the next year.

The second consideration in growth is how to balance the business in Brazil. Generally, there is a very good consumer care and industrial specialty areas. Globally these segments are 50/50 in terms of turnover, but in Brazil 65% comes from consumer care and 35% from industrial specialties. I want to balance

that more, especially addressing the industrial specialty segments: homecare and polymers. At Croda we believe that the construction industry will be still very strong in Brazil, not only because of the upcoming big events, The World Cup and Olympics, but because there is still an unmet need in terms of housing in Brazil. Brazil is one of the largest markets in the world and we are not represented yet. The lubricant segment is another area we plan to invest heavily. Another segment Croda Brazil is excelling is animal care. Croda hosts in Brazil an Animal Care Excellence Center. We see in this area a lot of potential future collaboration with Asia. This is becoming less important in the US or Europe but Brazil has a big potential in process meat and raw meat production together with Argentina and China. Second, we also see a lot of opportunity in biodiversity. The Brazilian Biodiversity Act is the first one in the world, and although this act has many flaws that need to be corrected, Brazil's biodiversity is a strong source of innovation for companies. We have six or seven biomes and so far we have only invested in the rainforest biome, but there are some others that can provide a unique innovative solution for the chemical industry.

What would be your final message about Brazil and about Croda?

Croda has outgrown its peers in the past five years and Croda will continue to grow far ahead of the market. Croda will invest in research and development, and differentiate ourselves with service and innovation. We spend about 2.5% to 3% of our local turnover in R&D. Among our key initiatives is to increase our presence in the industrial specialty markets and animal care.

Regarding the Brazilian chemical industry, it will be ranked fifth in the world by 2016 because of this very heavy investment plan and, depending on how the US performs, we surpass Korea. To achieve this we have a lot of challenges to address and one of the key issues is manpower in the chemical industry. There is very little collaboration between the industry and universities.

Brazil is attractive to foreign investors. We believe that the domestic market will grow 8% to 10% a year. Most of the segments in the chemical sector have shown growth of 9% to 10% each year. Nonetheless, it is still a very bureaucratic country to operate in. Regulation requirements and also the tax system are a major burden. Attractiveness in based on domestic demand on one side, and also it depends on how the government operates the business environment with the companies in Brazil. We are moving in the right direction but we still have a lot of work to do. •

Looking for a Solution?



Croda offers a complete range of high performance excipients for the veterinary market such as: High Purity Oils, Esters, Surfactants, Emulsifiers, Lanolin and Derivatives, among others, that can be used in topical, oral and parenteral applications.

For more information, please, visit our website at www.croda.com/healthcare

Veterinary Excipients

CRODA

Beauty from Biodiversity



Crodamazon is a naturally derived product range composed by oils, butters and derivatives obtained from the pulps and fruits seeds such as: Andiroba, Buriti, Brazil Nut, Cupuaçu, Passion Fruit and Pequi.

When searching for natural products, obtained from the Brazilian biodiversity and with outstanding properties on the skin and hair, contact Croda.

For more information, please, visit our website at www.croda.com/la/pc

Innovation you can build on™

Crodamazon

CRODA

Interview with Pedro L. D. Fortes

MANAGING DIRECTOR, BRAZIL OPERATIONS,
EASTMAN



How important is Brazil to the global company and to the overall Latin America strategy?

Globally Eastman is a 7.2 billion dollar company. In Latin America, we represent about 10% of that turnover.

In terms of Latin America, we would like to grow more in Brazil and we see tremendous potential in the local chemical industry. In Brazil we have an emerging middle class and a growing economy and this means more opportunity for the chemical industry and for Eastman. There is no doubt Brazil is the place to be.

In 2006 I assumed the role as Director for the Eastman operations in Brazil. At this time we were currently in our transition phase. The following years were key for Eastman to demonstrate to the corporation the opportunity to invest in Brazil. We had many different executives traveling to Brazil to look at potential opportunities and investments. Eastman is a young corporation and we developed a strategy for investment in Brazil and hired a local advisor to help us to execute this strategy.

In addition, Eastman will continue to look at Mexico as an important area to expand too.

What is Eastman's strategy to grow the local operations?

Eastman is a specialty chemicals company. We want to grow but we want to stay aligned with our growth strategy. The strategy we have, especially with our new acquisition (Scandiflex), is aligning with the strategy we have to be a global player in the specialty chemicals arena.

Brazil's raw materials offer some also unique opportunities in sustainability (ethanol, cellulose, soy oil etc), which Eastman has identified and will pursue. The Scandiflex's business is part of this strategy and we have a pipeline of products and ideas here in Brazil.

In order to maintain a competitive chemical industry major investment is needed in R&D. Eastman has spearheaded innovative solutions for the sector but what mechanisms are in place from the Brazilian government to help position Brazil's chemical industry as a leader in R&D?

In Brazil, we have many different institutions from the federal government to support innovation, capital investment and import substitution to promote the growth of the industry. There are many Brazilian companies that are receiving funding from the government, which not only promotes investment in R&D but also helps companies take these products and establish operations internationally. One important example of local governmental support is the innovation platforms developed by Oxiteno. Eastman invests heavily in research and development. We have independent labs and centers of excellences. Here in São Paulo, we have a research lab inside Scandiflex, supporting innovation and R&D for our plasticizers businesses.

With businesses across the globe how does Brazil compare from an operational perspective?

In Brazil there are constraints at the ports, and difficulties related to logistics and infrastructure. Taking a long-term

view, the difficulty is less in the physical barriers but with taxes. The government was trying, although unsuccessful to create some initiatives to reduce taxes and promote the hiring of personnel.

We need to look at where we have been successful. If we try the same model that the industry used to build the ethanol business, in the agrochemical business for instance we could be enormously successful.

How do you expect to see the industry evolve over the next five to seven years and how do you expect the business of Eastman Brazil to have evolved?

Eastman will grow the business in Brazil and in Latin America. We will invest in our Latin American region potential for growth. Brazil in particular has been a leader country for many years in this scenario. If you look at our past, we did

not have a lot of resources and we had to improvise and we were forced to do that, and this has created an entrepreneurial talent in Brazilians.

We have many examples of new innovations and sustainable products (See book for more information) and Brazil is leading this effort worldwide. For example, Eastman has special products for water filtration that helped company like HTI to develop a product like Hydropack. The product was developed for the military and HTI realize its potential for catastrophe relief and a project was conducted along poor people in Africa who do not have access to water. Hydropack uses an Eastman cellulose membrane to filter any kind of water through forward osmosis, making that water drinkable, even seawater. You can throw this in the river and then drink it. The cellulose membrane purify the water, remove all the impurities and bac-

teria. It has been used in emergency situations, such as the earthquake in Chile. Fifty helicopters taking drinking water can be replaced by one helicopter with this. This was launched this year, in Brazil first, then in the US. Those are the things that we are doing which separate us from any other chemical company in the market.

What are the main factors that will contribute to the future growth of the Brazil chemical industry?

It is a combination of favorable market conditions, opportunities in the pre-salt, utilizing sustainable materials, reducing the trade deficit, investments in capital and people and the ability to identify where to invest and to make good decisions. This is the responsibility of companies together with the government and the entrepreneurship quality of us Brazilians. •

Growth

Global commitment, sustained investment

Eastman welcomes Scandiflex to the family

The worldwide leader in non-phthalate plasticizers now has local manufacturing capability in South America with the acquisition of São Paulo-based Scandiflex.

Plasticizer production in Brazil—Latin America's largest market—means that Eastman now has nine plasticizer manufacturing locations on four continents, strategically positioned to provide timely supply to customers.

Eastman is committed to the global plasticizer industry, with an 80-year history of providing

- A reputation for excellence
- Superior products
- Reliability of supply
- Excellent customer service

Contact an Eastman representative today to find out more
800-EASTMAN or www.EastmanPlasticizers.com.

The worldwide leader in non-phthalate plasticizers

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EASTMAN

SCANDIFLEX
A subsidiary of Eastman Chemical Company



Interview with Marcos A. De Marchi

FORMER PRESIDENT, RHODIA LATIN AMERICA

Please can you provide us with a synopsis of Rhodia's operations in Brazil?

Rhodia came to Brazil in 1919 and right from the beginning we opened a plant. Since then Rhodia sold some business, including the acrylic and polyester fibers. However, Rhodia kept the polyamide and acetate business and today we are very strong players in this field. In polyamide, we have an integrated business model across the supply chain, which is very positive for the customers and for the country. In a chemical sector that has a \$25 billion deficit in trade balance, Rhodia has a surplus in its trade balance of 10% of the sales.

Rhodia is a strong player in Brazil, with sales of \$1.3 billion in 2010. Rhodia buys cumene and ethanol in Brazil and aggregates value across the whole value chain. Rhodia is the only producer of phenol in Latin America, and we recently expanded to 240,000 tonnes of capacity. From the phenol, we produce, among other products, adipic acid: one of the raw materials for the nylon chain. To complete the polyamide upstream, Rhodia also produces locally HMDA, starting from the ADN imported from Rhodia in France. From the nylon salt, we produce the polymers and, in the sequence, the fibers and the engineering plastics. While transforming cumene in phenol, we obtain also the acetone. With the acetone we produce the ketonic solvents. This is a very strong branch of the Brazilian operations.

Rhodia also entered into the production of ethanol in the 1940s in Brazil and today we are consuming 140,000 tonnes per year for chemical purpose.

We have a huge deficit in the trade balance of the chemical sector in Brazil: we need to have more business models like Rhodia installed in the country. We need to add value to Brazilian raw material. From our production, we export around

30%. From the total exports, only 40% is designated to Latin America. This means we are competitive not only in the region but also globally.

Rhodia has been recently acquired by Solvay. How will this affect the Brazilian operations?

The business will not change. There is nothing that Rhodia produces that Solvay also produces. We will have synergies but we are not changing the business structure. Of course, being a 12 billion euro company we have more muscle to develop, and also more volumes to negotiate as a greater player in the global chemical world. The chemical world is difficult for medium-size companies; you need to have scale and we are very optimistic about this new period.

Rhodia has a long-standing reputation for commitment to sustainability. How is this global strategy replicated in your Brazilian operations?

It is very difficult to be sustainable in the chemical world. It is easier and less expensive to do things as they were done in the past. However, this has to change and Rhodia sees this as a responsibility; to be sustainable and to be more proactive both at a global and local level. The second point is a source of business opportunity. If you transform your business into a sustainable business before your competitors, you are better positioned for the future. Sustainability is an obligation and an opportunity. In order to translate this vision into something more concrete, Rhodia Way program was introduced with great results: Rhodia has been awarded on the Dow Jones sustainability index for the third consecutive year.

What would be your final message to our readers about the Brazilian Chem-

ical industry and about Rhodia?

Brazil is a country of opportunities. We still have 15% of homes without access to running water. We still have one car per seven people, compared to one car for 1.2 people in developed countries; you can imagine the opportunities you have in the automotive industry. It is not surprising the car industry is growing from 4.0 to 6.0 million cars production in a period of five years in Brazil.

We still have a consumption of electricity that is eight times smaller than the United States, basically half of South Africa in terms of kilowatt per person per year. The former President announced the country had brought 30 million people from D and E to C class. This means essentially a whole country brought to consumption and this is the reason for the growth in the country. Five years ago, Brazil was the 10th largest chemical industry worldwide and today we are the seventh. Brazil needs the PACTO between the government and the private sector to ensure we do not lose the opportunities that are in front of us. We need access to raw material at competitive prices and assured volumes. We need a reform in our tax system, Brazil has imported products paying less taxes than the home made products. This has to be addressed, as well as the logistics and infrastructure, including the ports and roads.

Furthermore, innovation is key. We have an agricultural sector in Brazil that is very strong. It means we have access to another kind of raw material that the rest of the world does not have. At Rhodia, we have recently launched a solvent based on glycerine, which is a sub-product of biodiesel production.

If we address these issues on time, we will be in a position to be amongst the top five chemical industries worldwide in the next five years. •

Research and Innovation

Great ideas lead to impressive growth

Investment in research and development (R&D) is fundamental to increasing the competitiveness of the Brazilian chemical industry. Previous reports have indicated that companies in parts of Europe, Japan and the United States invest 5% of annual revenue into R&D initiatives, while Brazilian companies spend on average 1%. With an increasing move downstream into specialty chemicals, however, the emphasis Brazilian and Brazilian-based companies are placing on research is increasing.

Eduardo Estrada, president of DSM Latin America, a global science-based company, and vice-president human nutrition and health, talks of a shift in focus for DSM and the culture on innovation: "we invest more than 5% of our sales in research and development and 10% of our people globally work in innovation. DSM's target is to increase innovation sales from 12% towards 20% of total sales by 2015. DSM surpassed its innovation targets in 2010 and we aim to repeat this in the next five years. In Brazil we are building a solid platform to replicate DSM business model throughout Latin America... and the sale of DSM Elastomers [Lanxess completed the acquisition of the DSM Elastomers in 2011] completes our Vision 2010 strategy to become a focused life sciences and materials sciences company. DSM has now entered a new era of focused growth and this allows us to be a larger player in technologies of the future... we closely follow global shifts, climate and energy and health and wellness, and these global shifts shape our strat-



Courtesy of BASF

egy. Our strategy lands in four different areas: the high growth economies (50% of our sales by 2015), innovation (including open innovation and collaboration with other companies, including biotechnology), sustainability, and acquisitions and partnership.”

Croda's managing director, Sr. Marco A. de M. Carmini, also stresses the importance of R&D to the local operations: “we spend about 2.5% to 3% of our local turnover in R&D. Among our key initiatives is to increase our presence in the industrial specialty markets and animal care. Croda hosts in Brazil an Animal Care Excellence Center. We see in this area a lot of collaboration in the future with Asia. This is becoming less important in the US or Europe, but Brazil has potential in process meat and raw meat production with Argentina and also with China. Secondly, we also see a lot of opportunity in biodiversity. The Brazilian biodiversity act is the first one in the world, although this act has many flaws that need to be corrected, Brazil's biodiversity is a strong source of innovation for companies. We have six to seven biomes and so far we have only invested in the rainforest biome, but there are some others that can provide a unique innovation solution for the chemical industry.”

Croda is a global leader in specialty chemicals, in personal care, health care, crop care, coatings and polymers. Croda employs a variety of ‘traditional’ chemical processes to convert natural based raw materials into fatty acids and glycerol, and then further refine and process them into a range of products, which has led the company to be the world's number one producer of lanolin. Innovation and technological development have played a part in Brazil's economic history in one form or another for over 30 years. Between 1982 and 1992 Brazil closed its market to the import of digital products, with the goal of all digital technology being developed locally. The move was aimed at restabilizing the internal market, and was a part of a larger economic plan to combat the country's hyperinflation. This had a profound effect on companies servicing the chemical industry.

Yokogawa Electric Corporation is a Japanese company that provides technology solutions in measurement, control, and information, which was selected by the Brazilian government as one of a few firms to develop digital technology in Brazil at that time. Nelson Ninin, Chairman & CEO, Yokogawa South America reflects on the company's history in the Brazilian market, “in 1973, Yokogawa opened its first affiliate located outside Japan in Brazil. The military government at the time strategically placed the petrochemical industry in Sao Paulo, Bahia and South of Brazil as main priorities for development, which helped to launch new products from Japan quickly into the Brazilian market...when the market re-opened in 1992, Yokogawa bought a Brazilian company to take care of our operation here and put together our business for field instruments, testing

and measuring instruments to offer as a solution a package for our customers in Brazil.” Ninin also discusses the future of Yokogawa: “our plan is to continue with the last 10 years' average annual growth of 15%; in 2010 we were 38% up on new contract business and we foresee that 2011 to 2015 will show a larger increase in new contract business because there are some large projects on the horizon. The new projects we see upcoming for Yokogawa South America will be in pulp and paper, oil and gas, power, petrochemical and chemical, mining, ethanol, but the majority will come from oil and gas.” Many well-established multinationals have made large investments into Brazil, establishing centers of innovation or R&D laboratories. America's Eastman has developed a research lab in São Paulo in this regard. Eastman's managing director of the Brazilian operations, Pedro L. D. Fortes, reflects on the entrepreneurial skills that have long been associated with Brazilian culture: “if you look at our past, Brazil did not have a lot of resources; we had to improvise and this has created an entrepreneurial talent in Brazilians. At Eastman, we have many examples of new innovations and sustainable products and Brazil is leading this effort worldwide. For example, Eastman has a special water treatment program that was developed for poor people in Africa who do not have access to water. This is also useful for military use in rural and remote areas.

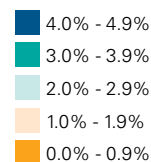
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Countries by Spending on R&D (percentage of GDP PPP)

Source: CIA World Factbook



1. Israel	4.2%
2. Japan	3.3%
3. Sweden	3.3%
34. Brazil	0.9%

The inflatable bag can be thrown into a body of water such as a river and the cellulose filters the water and removes all the impurities and bacteria. It has been used in emergency situations, such as the earthquake in Chile. Fifty helicopters taking drinking water can be replaced by one helicopter with this product solution. It was launched this year, first in Brazil, then in the US. Those are the creations that Eastman is developing, which separate us from any other chemical company in the market.”

French chemical giant Rhodia, recently acquired by Solvay, has a long-standing reputation for commitment to sustainability. In 2011, US-based Cobalt Technologies, a developer of next-generation bio-based chemicals, and Rhodia announced a Memorandum of Understanding for a strategic alliance to develop bio-n-butanol refineries throughout Latin America. Marcos A. De Marchi, former president of Rhodia Latin America and head of fibres for Rhodia globally, has taken advantage of Brazil's raw materials: “in Brazil we have access to another kind of raw material that the rest of the world does not have. We have recently launched a solvent based on glycerine, which is a sub-product of biodiesel production. It is very difficult to be sustainable in the chemical world. It is easier and less expensive to do things as they were done in the past. However, this has to change and Rhodia sees this as a responsibility; to be sustainable and to be more proactive both at a global and local level. The second point is a source of business opportunity. If you transform your business into a sustainable business before your competitors, you are better positioned for the future. Sustainability is an obligation and an opportunity. In order to translate this vision into something more concrete, the Rhodia Way program was introduced with great results: Rhodia has been awarded the Dow Jones sustainability index for the third consecutive year.”

GE is also making significant commitment to furthering the development of the industry through the establishment of a new R&D centre in Rio de Janeiro. Currently GE has laboratory capabilities throughout the country and facilities in Brazil that allow the company to tailor

products developed in the headquarters to local market needs. An R&D facility planned to be fully operational by early 2013 has seen investment of around £200 million from the company. This innovation center will be GE's fifth research facility worldwide and will initially focus on serving the oil and gas, biofuel and health care sectors. Tadeu Justi, regional executive for GE Latin America says the investment is “not just a commitment to the Brazilian market but a clear indication about GE bringing more capabilities to fully develop technologies in Brazil for Brazil, pure R&D focused.” The Brazilian research center will house as many as 300 engineers, making it the company's second-largest

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Brazil's global ranking for innovation and sophistication, World Economic Forum 2012 Global Competitiveness Report

Source: World Economic Forum

R&D facility outside the United States, according to a company statement.

Yet great ideas do not only come from foreign minds. Local companies are playing an impressively innovative role, culminating, perhaps in Braskem's green ethylene plant discussed in the petrochemicals chapter.

Braskem is not the only local chemical company investing huge capital in R&D. Oxiteno, a subsidiary of the larger Ultrapar Group that operates worldwide and is a leading manufacturer of surfactants and the largest producer in Latin America as well as a leader in specialty chemicals, received the Kurt Pritzker Technology Award for its case “Changing the Properties of Ethanol for Feasibility and Use in Diesel Engines.” The company's R&D department developed a formula that uses ULTRAFUID™ Eco, allowing the use of hydrated ethanol in diesel engines of heavy-duty vehicles, such as trucks. The company has made several other marked contributions to green chemistry. Joao Benjamin Parolin, chief executive officer for Oxiteno, discusses Oxiteno's innovation platform: “Oxiteno

has successfully achieved 20% of raw materials from renewable sources and 35% of its materials contains renewable ingredients.”

Oxiteno has research, development and technology centers in three countries, Brazil, Mexico, and Venezuela, and invests approximately 1.5% of its annual billings in R&D. “Oxiteno has also pioneered several innovations, including the oleochemical production plant. This was a first and significant milestone in Brazil and Latin America... Another important sector in Brazil is of course the agrochemical industry and Oxiteno has specially formulated agricultural pesticides that provide greater stability and higher performance. The end result is greater productivity and safety for the farmer,” says Parolin.

Other investments include the alkoxylation units based on the most recent technologies for producing high-purity surfactants intended for applications such as cosmetics, detergents, pharmaceuticals, and food and the green solvents obtained from sugarcane, which create a series of derivatives with outstanding sustainable attributes, enabling the replacement of synthetic solvents and the specialty chemicals which have valued attributes in the formulations of shampoos, soaps, creams, and lotions.

Collaboration

The chemical industry requires support for technological development and innovation. In many instances a pilot-unit to test processes and products requires support from public governing bodies to reduce investors' risk and foster innovation. In 2011 the Brazilian Development Bank (BNDES) disbursed BRL43.8 billion to industry, with BRL7.1 billion to the chemical and petrochemical sectors. Together with the Research and Projects Financier (Finep), BNDES will support industrial technological innovation in the sugar-based energy and chemical sectors, allocating BRL1 billion for the 2011 to 2014 period. Its purpose is to stimulate projects that aim to develop, produce and commercialize new industrial technologies designed for pro-

cessing sugarcane biomass.

In many cases, companies are supported by public policies, both from federal and state governments. The "Lei de Inovação" ('Innovation Act'), the "Lei do Bem" ('The Goodness Act'), mechanisms for economic subsidies, financing programs from institutions such as FINEP (Research and Projects Financing) and BNDES (Brazil's Development Bank), as well as the instruments and resources utilized by Fundações de Amparo à Pesquisa dos Estados ('State Research Foundations'), all represent important sources of financial support to research and development of innovative technological solutions. Paulo Schirch, Solvay's general manager for Brazil and Argentina comments: "Brazil has been publishing and increasing research in a significant way. Brazil has surpassed European countries in the amount of technical publications in the past years; in certain areas, for example R&D in the agricultural and forest industry, we are very strong and powerful. It is a matter of how we allocate resources and how the government and institutions

see themselves in terms of return and competitiveness. The support we have received from the government, for example, the Brazilian Developing Bank (BNDES), and through agencies such as FINEP, have been key to supporting not only the chemical industry, but also the clients of the chemical industry. Solvay is committed to becoming one of the leading companies in the sustainable industry and Brazil is a strategic platform for us to achieve this; the country can provide us the resources to do so." Despite the favorable conditions, for the chemical industry to fulfill its innovation investments, changes in the regulatory regime, improvements in the analysis processes and efficiency in the release of credit have been flagged as concerns. For ASK Chemicals, Renato Addas Carvalho, managing director for South America, further regulation and drive for sustainability is an important growth area for business: "a major differentiator is our environmentally friendly products. The more restrictions the government and companies implement the better it is for our business.

For instance, our products have zero formaldehyde, which is much safer for the employees. Companies now see value in this and we are the only company in the market to produce this product."

ASK Chemicals is the result of a joint venture designed to create a larger company with one focus; the foundry market. Carvalho adds: "combining the three businesses we have a truly global presence, a very complete product line and the strength of a combination of all the technologies from Ashland, Sud Chemie and ASK Chemicals."

For Ask Chemicals and others supplying to the automotive industry, Brazil represents some of the greatest growth opportunities. "Currently, 58% of the foundry business is related to the automotive industry and, as you know, the automotive industry is growing very fast and will continue to grow. If you compare the number of habitants in Brazil to the number of cars, it is still very high. We are six habitants to one car as compared to Mexico which is four to one and below two to one in developed countries." •

Interview with José Luiz Calvo Filho

VICE PRESIDENT & GENERAL MANAGER REICHHOLD BRAZIL



What percentage of Reichhold's worldwide activity is in Brazil?

In terms of Brazil, the market here represents over 20% of our global activity. It is one of the main regions of focus for Reichhold, and we have been investing significant amounts of money in Brazil since Resana's acquisition in 1996.

Do you think the Brazilian government is doing enough to ease the restrictions on companies?

I think the government is working hard in order to bring Brazil to a high level of standards. In the USA there are many more rules and regulations, but we are seeing movements in this country. The environment is getting more and more attention and green products are far more present now than they were ten years ago.

The biggest point is that Brazil has a very high level of taxes, which reduces the competitiveness of the industry. This means that many materials come from countries in the region for which import taxes do not exist. Some customers are starting to import parts from China for example, which almost destroyed the clothing industry years ago. It is a threat for the industry in Brazil, because one part from outside destroys the chain. That is the most important challenge to Brazil, is to remain competitive in the global market. There needs to be more efficient and more competition with the global market. We are seeing positive changes in this light, and hope they continue.

Have you seen a big rise in demand with the announcement of the 2014 FIFA World Cup and 2016 Rio Olympics?

Yes, there is an important volume of products going to the World Cup and Olympics projects. Of course there are a lot of paint and composites there, and we are a part of that. Several of our customers are producing parts and delivering parts for these new constructions. Also, the infrastructure needed for these events is enormous. All of the hotels and roads people are building are all positive things. It is hard to see a building where you don't see paint or composites!

What is your R&D center putting out and are there any pioneering technol-

share in South America.

The most recent expansion we just started up was the new reactor for resins that are used in the production of powder coatings. It is a global trend that is growing in Brazil much faster than the market, and we are one of the leaders in this field. This new reactor is increasing around 30% our capacity for powder coating resins.

What is your market like in Brazil?

The key markets served by Reichhold for composites business are the Advanced Composites, Wind Energy, High Performance Anti-Corrosion, Infrastructure, Building & Construction, and Marine; and for coatings business are the Architectural Coatings, Industrial-Protective Coatings, and Equipment Manufacturer (OEM) Coatings. In terms of industry, one of the most important industries we supply to is the construction industry for resins and gelcoats. We supply to all of the big companies. Our second market is transportation. As the Brazilian market expands, companies grow, people make more money, and they spend more money, so the growth of the economy means growth for us.

ogies to come out of the Brazil centre?

The way Reichhold works, we have R&D centers around the world, and they all work together. An important part of our job here is to transfer technology from other regions, making sure that our products are available worldwide. This is a very important part of our strategy, to support customers goals with the best technologies available. It is a centre of excellence in Latin America and we are very proud of what we have here.

What would you say is your advantage over the competitors that you have in the market here? Are they multinationals or locals?

Reichhold is the company that is better structured than anyone in the region. We have a technology centre, two plants, we have gained many prizes from the market year by year, and we have gotten best supplier awards for many resins. Our technical group is the strongest in the industry, the most experienced. When customers need something, they know that we can support them. This is something that our competition does not have. Our installations and our two plant here are very well built and are state of the art. We provide products with high levels of quality.

In the next five years, where do you see Reichhold?

The environment here is positive, so unless some drastic changes occur, our outlook for Reichhold's growth in the next five years is extremely positive. We expect to continue growing and investing. The government and the industry are becoming increasingly aligned, which bodes well for everyone. •

RESINS AND GELCOATS: WHAT WE DO BEST

REICHHOLD

Reichhold develops and supplies innovative and sustainable resins and gelcoats to support the growth of composites and coatings worldwide. In addition to over 85 years of experience, Reichhold also has the global resources to provide innovative solutions to the needs of our customers for a variety of markets and applications. In Brazil, Reichhold has been the pioneer and leading supplier of resins since its foundation in 1948. Reichhold's success is due to a strong belief in its core values of safety, ethics, customer support, and respect for the environment.

Everywhere Performance Matters

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Interview with Eduardo Estrada

PRESIDENT DSM LATIN AMERICA,
VICE-PRESIDENT HUMAN NUTRITION AND HEALTH

As President of the DSM Latin America, please can you provide us with a brief overview of DSM and the evolution of your operations in the Brazil?

Royal DSM is a global science-based company active in health, nutrition and materials.

We connect unique competences of Life Sciences and Materials Sciences to bring solutions aligned with Latin America's growth needs. This includes markets as such nutritional ingredients for food and feed where we are a global and regional leader, personal care, automotive, paints, electrical and electronics, and life protection. In Latin America our nutrition group has been providing healthy solutions for over 30 years.

We have 22,000 employees with annual sales of close to €10 billion.

DSM is adjusting its organization in a variety of ways to accelerate strategic implementation in High Growth Economies leveraging local innovation and establishing clear accountability for regional growth. I joined DSM as part of our new global strategy where 70% of our growth will come from high growth economies, which includes Brazil. By 2015 we aim to have 50% of our sales from high growth economies.

By creating new business units and facilitating partnerships and acquisitions we will create new platforms to deliver our technologies. In Brazil we are building a solid platform to replicate DSM business model throughout Latin America.

What was the strategy behind DSM's divestment from the elastomers business unit?

The sale of DSM Elastomers (we had a plant in the south of Brasil) completes our Vision 2010 strategy to become a focused Life Sciences and Materials Sciences company. DSM has now entered a new era of focused growth and this allows us to be a larger player in technologies of the future.

Speaking of strategy, we closely follow global shifts; climate & energy and health & wellness and these global shifts shape our strategy. Our strategy lands in four different areas, the high growth economies (50% of our sales by 2015), innovation (including open innovation and collaboration with other companies, including biotechnology), sustainability, acquisitions and partnerships.

To highlight some of these strategic topics, we invest more than five percent of our sales in research and development and ten percent of our people globally work in innovation. DSM's target is to increase innovation sales from 12% towards 20% of total sales by 2015. DSM surpassed its innovation targets in 2010 and we aim to repeat this in the next five years.

Another driver of our strategy is sustainability. This is not only a value that is very well engrained but it is also our way of life, for instance, in nutrition we are collaborating with the World Food Programme and the full expression of our science and technology are brought to the most needy persons. We are directly reaching more than two million malnourished children globally with our specifically designed products.

DSM is setting new and ambitious busi-



ness targets for sustainability. By 2015 ECO+ products will account for over 80% of the innovation pipeline and towards 50% of total running business sales (compared to almost 40% now). These developments will make DSM the clear industry leader and preferred partner in value creation through sustainability. To achieve these ambitious goals, we are embedding sustainability into all our business activities.

What does the Brazilian chemical industry, and DSM, have to do to ensure sustained growth into the future?

Brazil is a competitive market, with many companies well positioned. However, there is enough space in the market given our unique technologies. Our footprint is low, but the potential is enormous.

We will expand our assets and collaborative models to be able to accelerate growth. There is no way to grow without investing in Brazil and local content is a unique driving factor for any company's success.

Acquisitions and partnerships are very relevant for high growth economies, particularly in Brazil. For example, currently, we are collaborating with oil exploration companies with our Dyneema® technology, the world's strongest fiber, to enhance performance of their deep sea platforms replacing heavy steel cables for deep ocean drilling.

In Brazil, DSM will also be involved in biomass conversion. Brazil is best positioned in this front and DSM has unique enzymes and yeast technologies to help us become the preferred partner for second generation fuels, biogas and biomaterials. The lifecycle impact of these industries is very favourable. So important for Brazil that the government has key initiatives through their national development bank (BNDES) PAISS programme that aims to invest up to one billion Real's to accelerate new technology adoptions in Biomass conversion, only few selected players will become part of this front and DSM is in the running.

How do you expect the chemical industry in Brazil to evolve over the next 3-5 years?

In the last five years, approximately 51% of the population were considered low income and today we have 53% in the middle class and 21% in the higher income class, and within the next five years this rate of growth will continue to drive the chemical industry. The growth of this new middle class in Brazil, boosts internal consumption so industries of different segments are maximizing efforts to adapt and launch new products that best serve their needs.

Urbanization and economic prosperity are promoting dietary changes and increased spending on housing, transport, lifestyle and energy. There is also a growing demand for safer and healthier foods and pharmaceuticals. Finally, there is a growing focus on alternative, renewable raw materials, made possi-

ble with the help of industrial biotechnology to produce chemical building blocks, materials or energy.

On the other hand, access to competitive natural gas and improved infrastructures are key areas to make local industry more competitive, there is an important need to address this at governmental and industry level to better address solutions that will continue to boost the Brazilian economy.

What would be your final message to the 70 000 international readers of Chemical Week about the Brazilian Chemical industry and about DSM?

Brazil is competing against itself and it must accompany its own challenge of growth. Brazil plays an enormous role in renewable sources of material and this is a very important part of DSM's strategy in the future. With innovation platforms created by industry together with established regulations around intellectual property and the right financial incentives we can accelerate biosolutions for the chemical industry.

For our industry, and in particular DSM, the future is now. To be able to accompany the growth and local trends you must be locally present with local talents. At DSM we have a global strategy that is locally applied. In Latin America we aim to double our sales from the current platform. In material Sciences we have been mostly serving Latin America from Europe and the US, however we are now increasing our footprint and growth, staffing up and increasing infrastructure in the country. •



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Paints and Pigments

Providing a splash of color

Brazil is a country known for its color. From its distinctive flag to its famous carnival, the vibrancy of the nation is evident to any visitor. It is perhaps no surprise, therefore, that the paint and pigment industry is booming.

In 2008 paints and coatings demand in Brazil was estimated at 1.3 million tons. By 2013 some sources foresee it reaching 2 million tons: an average growth rate of 5% to 6% per year. The decorative sector, growing on the back of a rapidly expanding construction industry, accounts for roughly three quarters of total demand. Rising home ownership and living standards have also assisted, as house-proud Brazilians increasingly want to improve their surroundings. Yet the marine and protective segments, although smaller, are possibly growing faster; driven by the offshore oil and gas industry.

Led by the Brazilian Association of Paint Manufacturers (ABRAFATI), who includes among its members such global heavyweights as AkzoNobel, Rhodia, Reichhold and BASF, alongside a host of local players, the industry is as dynamic as its colors would suggest. The International ABRAFATI Exhibition of Coating and Industry Suppliers is held every two years, now approaching its 13th installment. In 2011, it hosted over 220 exhibitors and 20,000 visitors: an impressive display of the sector's strength.

The companies attending this event, and competing in the market place, are diverse. One the one end, there are small local companies, relying on their flexibility and customer service to carve out a niche. Brancotex, for example, is a 100% national company that celebrated 40 years of operation in 2011. The company is active in the textile industry and markets products for various segments in the domestic market, such as paints,



self-adhesives, textiles and pigments.

Far from merely surviving as a small-to medium-sized company, however, Brancotex is in the midst of expanding its industrial structure and increasing its productive capacity. A new machine, being installed at the time of our interview, was set to increase their production capacity by 40% to 50%. "Brancotex's market share is very small, as our market is really big, with many players. However, we are innovating, and investing in production and quality. We are going to have the ISO 9000 certification next year, and we will then implement all new procedures here. We are confident this certification will help us to grow and gain more market share," explained Jairo Simoes Peixeiro Jr., director of Brancotex.

The ability to grow in a market dominated by international giants such as AkzoNobel is testament not only to the strength of Brancotex, but also to the size and constant expansion of the market. On the other end of the spectrum, this potential has attracted a multitude of foreign players. Reichhold, for example, has set an example of an American manufacturer with a history in Brazil. Founded as Resana Company in 1948, by 1998 the company was completely acquired by Reichhold, establishing their foothold in South America and focused on synthetic resins. Throughout its history in the country, Reichhold has

expanded its capacity significantly to become a supplier in the production of composites and coatings in Brazil.

Where domestic companies are a symbol of Brazilian growth and development, the expansion of such leading multinationals as Reichhold in Brazil exhibits confidence in the industry's continued rise in the ranks of global economies. "As an example of that," says Jose Luiz Calvo, "we just launched a new reactor for the production of powder coatings resins and increased our production capacity for these resins more than 30%."

Environmental regulations are increasingly important in such a fast developing market, and Reichhold is taking these regulations seriously. "We are introducing new environmentally-friendly products that help our customers to develop their green products. Our Beckosol AQ® product line for the coatings industry allows customers to formulate their paints with almost zero VOCs specialty and our Envirolite® product line is bringing new unsaturated polyester produced with recycled and renewable raw materials for the composites industry."

For the moment, the paints and pigments market shows little sign of slowing down, which is good news for the plethora of domestic and foreign players. With their growth, do not expect a change in Brazil's reputation for color any time soon. •

Interview with Dilson Ferreira

CEO, ABRAFATI

Could you provide a brief history of ABRAFATI and its role in the industry?

ABRAFATI covers the painting industry. It has associated companies from different locations in Brazil and from different paint sectors and product lines. The association's main objective is to promote the growth of the sector in a sustainable manner. By the sector we do not simply mean paint manufacturers, but also suppliers to the paint industry and other users of paint; we look for projects that will bring benefits to the supply chain. As such, most of our projects are open to everyone.

What are your growth expectations for the paint and pigment industry?

In the long-term, over the next five to 10 years, the paint industry will grow above Brazil's average GDP growth of 1% to 2%. This is due to the fact that the sectors we serve are the sectors projected to lead growth. Two of our most important market segments are those segments that are essential to the economy's concerns: housing and infrastructure.

What are the greatest challenges for the paint and pigment industry to overcome?

The modern paint and pigment industry depends on technology. The history of technological development in Brazil has been one of imported technology from the multinationals operating here. Many of our customers are global customers that demand a high level of quality. Brazilian companies need to adapt these requirements to the local conditions; the raw materials we have and the climate the final product must cope with. Brazilian companies must also play a role in local technology development, especially for specific niches of the market.

As a lawyer, how would you describe the regulatory framework within the industry and how do you like to see this evolve?

The direct regulation in the paint industry is mainly in the environmental and health areas. However, we are also affected by the regulations in the sectors we serve. Social programs in housing for people with low income, for example, provides us with a market but also has regulatory norms that need to be fulfilled.

With regards the environment concern in our industry, this is an area in which we work closely with the government. We tend to self-regulate before there is any government regulation and in doing so we acquire experience in implementing regulations. When the law comes, therefore, we can help to design it knowing the optimal way to implement it. This helps to create an effective law. One example of this is the presence of lead in domestic paint, which was initially internally regulated by ABRAFATI.

Do you see any common market trends in the paints and pigments industry?

I do see a continuous demand for sustainability of products. In things like the reduction of solvents in paint, we are doing something similar to what is done in Europe, although we are lagging about 10 years behind. There are other ways of doing it, like the American way, however we decided to follow the European way because it is the most proved and we think it fits better.

We have something unique with regards regulation of the quality level of paint. We have created three different basic levels for the same paint: we have simple paint (economic); we have an average (standard) and top paint (premium). Each one has a different perfor-



mance number and, to be able to call their paint premium, producers must behave accordingly. We have 22 paint companies participating in this program and we regularly perform inspections.

Do you have any final messages about the Brazil paint and pigment industry?

The paint industry can contribute significantly to environmental sustainability. Firstly, by using more renewable raw materials. For example, we are moving to using ethanol in the formulation of products instead of petrochemicals. Secondly, we are producing paints using less energy. We are using less solvents and less water, and also devising processes that give rise to less solid waste.

Finally, we are developing paints that enable buildings to use less heating. One example is paint that change the color depending upon the light of the environment. If it is dark it absorbs any light there is and if it is light it reflects that light. You therefore need less artificial light and less artificial heat. These type of products already exist but not on the scale necessary to produce a real impact, which is what we are hoping to do. We are also have self-cleaning paints, and are making increased use of nanotechnology; scratch-proof or self-healing paints are examples of this. By adjusting the formulation of the product and application, we can contribute to the future. •

Interview with Jairo Simoes Peixeiro Jr.

DIRECTOR, BRANCOTEX

Could you start by providing us an overview of the business and brief company background?

Brancotex was founded in Sao Paulo 40 years ago, in 1971, by the two directors, Jairo Simões Teixeira Junior and Adam Claudinei Cheli. In the beginning we were producing for the textile market, but with new market's necessities we started producing for the paper and ink market and also the adhesive market. Today the ink market is our biggest division and we have a total production installed capacity of 1500 tonnes per month, however we are only producing 800 to 900 tonnes per month. We are investing in a new automatic machine of 25 tonnes and others with lower capacity. We are now installing a new machine that will grow our production by 40% to 50% that will gives us an average production of 2000 tonnes per month.

Brancotex has 45 employees, two Directors, one Production Manager and 42 employees divided over all the different areas. It is a small structure that makes it easy for us to make quick decisions and be flexible which is another big advantage for our company. Brancotex's current revenues are 4 million to 4.5 millions Brazilian Reals which is equivalent to \$2.5 to \$3 million. The company had a complicated moment in the 1990's because of the entrance of low priced Chinese products, which caused our sales to drastically fall. After 1999, we started growing and gaining new types of clients from other business areas. We also invested in our production capacity without any help from banks; we invested only with our own capital.

How do Brancotex's operations enable the company to achieve growth and compete in the market?

Brancotex has its own import system for raw materials, meaning the company does not have to depend on any third party. We directly manage our imports, which provides us with the possibility of cutting costs and enables us to sell our products at lower final prices, that is an advantage in the market. We have now grown 10% to 15% every year, and over the last year we grew 20%, which we are very happy with and we hope continues.

Our sales department can customize our product and production to different clients, and that is other company's advantage. For example if our client needs one tonne of a product we will develop that product and produce it for them, but our competitors will refuse to produce that and they typically require a minimum production of 10 tonnes, which we do not. Under this system, we catch all the clients that others do not want, and that is our niche market because we are more flexible.

Could you tell us more about your customer base, are you mainly serving the local market?

Brancotex's clients are all Brazilian, but we are now trying to gain clients throughout Latin America and because of that we are investing to increase our production capacity and storage capacity. We are planning to start operating in these markets in 1 to 2 years because today we do not have the capacity to build new clients in these markets. Brancotex is an old company, however we are now investing in new offices, laboratories and other facilities to be prepared for the next move.

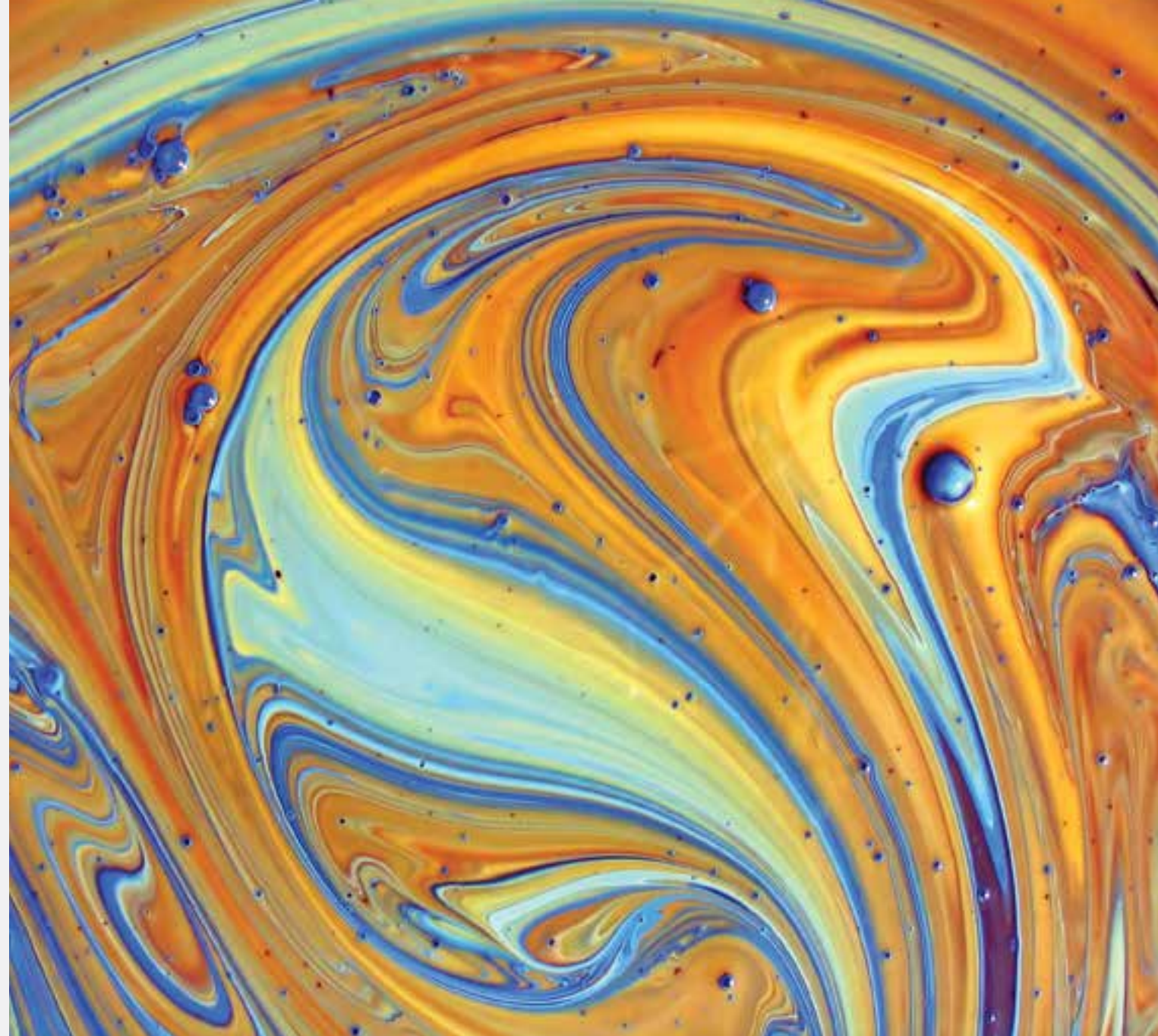
Our current clients are small ink companies, like Tintas Nova Rocha, Tintas Sato and Impermax that manufacture adhesives in Brazil. Our regular clients are small businesses, and as a result our

production is very flexible, we produce 1 tonne to 5 tonnes on average.

Could you please tell us about your competitive position in the market and comparison with your peers?

Our competitors are Euroamerica and DFM, which have the same production capacity as us, and Osvaldo Cruz, which is a chemical company that competes in some similar market areas. We operate in several different markets, each with different types of products offered and because of this structure, we have a large number of competitors we must consider.

Brancotex's market share is very small, as our market is really big, with many players. However, we are innovating, and investing in production and quality. We are going to have the ISO 9000 certification next year, and we will then implement all new procedures here. We are confident this certification will help us to grow and gain more market share. •



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Interview with Elaine Poco

LATIN AMERICA RD&I DIRECTOR, AKZONOBEL

Could you provide us with some personal history and how you came to your position as Director of R&D, Sustainability and Decorative Paints within AkzoNobel?

I am a chemist, with a postgraduate in marketing and an MBA in business. I have been working for AkzoNobel for nine years. AkzoNobel has several sectors; decorative paints, performance coatings and specialty chemicals. Brazil is one of the highest producers of performance coatings worldwide. In chemicals, AkzoNobel are not leading but we have a good position both worldwide and in Brazil. Decorative paints is the largest division for us in Brazil. AkzoNobel is the leading paints company worldwide.

How important is Brazil for the global company and how do you see that dynamic changing over time?

AkzoNobel's focuses right now are Brazil, India and China and so we are important to the global company. The CEO has expressed that AkzoNobel would like to put investments in to the Brazilian sector and so we are receiving a lot of investment. We are also investing in our operations in order to increase our capacity. The most important part of our business is decorative paints. We are also investing in media and this is part of our strategy: to not only produce our products but also communicating them with our Brazilian consumers. With regards to growth it is very important to us to be sustainable. AkzoNobel has value but also values. The chemicals industry in Brazil represents 2.5% of the GDP. Paints represent only 4% of that figure, so AkzoNobel are not so big within chemicals as a whole but we are leading the paints segment. We hope to grow but in a responsible and sustainable way. AkzoNobel are genuinely concerned with the way we are producing, developing our paints and taking care of the total chain, worldwide but especially in Brazil.

What do you think you can do to stimu-

late investment and research and development in Brazil?

AkzoNobel Brazil's R&D strategy is to be really open to understand the market and trade information and ideas with other countries within AkzoNobel globally. We like to invent from the wheel and use the experience of AkzoNobel globally as a starting point. More and more, we are having an important hold in global R&D. We need to understand how we are working together. The challenge globally is to understand cultures for both the decorative and automotive sectors. There used to be prejudice against Brazilian products within the global arena but now the teams in other countries trust the research teams here in Brazil. We have creative research in Brazil and in making processes more efficient. And so now it is easier to sell investments in this region. AkzoNobel Brazil also only has one brand for our decorative paints. Most of our competitors have tiered branding – premium, economic and standard. We have one brand for all segments and we are proud of this. We connect with all sectors of society, and so we have started to redesign our products for standard and economic lines, not just luxury and premium ranges. Also, some of our paints come as detergents and soap, which you have to mix with water so we save a lot on packaging and transportation. Sustainability is important to us, not only in production but with regards to raw materials, the user, logistics etc.

Moreover, with regards to R&D in Brazil, more than ten years ago we decided to use PAT waste as a raw material for our paint. Worldwide they do not have this innovation yet; the recycling process began here in Brazil. We do not save much money with this process as now demand for PAT has increased and so thus has the price but we are able to reduce 10% of our CO2 emissions, which is one of our targets.

Do you have a final message about the



Brazilian paints industry and about AkzoNobel?

It is important, not only for business, for Brazil to build infrastructure in order to support the country's growth. Brazil already has the capabilities and the people talent. Also, perhaps education needs more investment for our future. As a company, AkzoNobel are really doing what we believe in – talent development – in order to connect and give back to the country, by providing our employees with training opportunities that they do not get in formal education.

Finally, AkzoNobel believes that with colors we can increase the self-esteem of people; colors are like music and can make us happy. We would really like to show our consumers that we want the best for them and would like to preserve their houses and our city with our paints. So we are trying to develop products that are more efficient and reach a balance with our products distribution so they are available for all. There is a demand, consumption is growing and so we have to be better with efficiency and make products better for our customers. •

Interview with Harry Heise

GENERAL MANAGER, FORSCHER

How has Forscher grown and evolved to achieve its current market position?

Forscher was founded in 2004, and at the time we were only providing packaging services and managing customer samples for laboratory trials on behalf of other companies; our main customer was BASF. In 2006, we started to develop our pigment business. I came from this market and had worked with pigments for 24 years; therefore we decided to offer different kinds and sources of pigments to our customers.

Today, we have several different pigments in the market, including classical pigments and high performance pigments that are used in special applications where a long lifecycle is necessary and where high temperature or light resistance is required. There is currently no local production of high performance pigments in the Brazilian market, so Forscher satisfies this need by importing and distributing these products into Brazil from outside markets. Another part of our business is the protection of counterfeit business, which is a new area we are looking to further develop over the coming years.

Over the past five years, Forscher has achieved strong sales and grew 20 times its size. Today we are the forth-largest importers of high performance pigments in Brazil, based on value. Currently we are selling around R\$24 million a year and we forecast to reach around R\$36 million in 2013.

Could you tell us more about your supply chain, in particular the companies you are distributing products for?

Forscher distributes for a number of international companies around the world, including the German Company Heubach GmbH, who is our main supplier currently, and Chinese company CINIC. We have around eight major suppliers and 30 in total that we rely on for smaller and less frequent volumes. When we choose our partners to distribute for, we look for a company that must have high quality

products and be able to provide technical support for both our customers and us. ISO 9000 accreditation is also a must; we are supplying for all major players in Brazil so we need a consistent supply of high quality products. At the moment we supply products to around 230 businesses in Brazil operating in the plastics, coatings and printing segments.

Our market is very competitive, with more than 40 companies distributing pigments in Brazil. Our key for success is our focus on high performance suppliers and high performance customers. We have a high level of standard for quality products with strong technical capacity, meaning that we are not only looking for shippers and suppliers that compete on price; our customers appreciate that our main goal is quality.

What is the strategic vision for Forscher?

The strategic vision for Forscher is to continue our focus on high performance products and solutions and to start the production of pigment preparation in 2013. There are many producers in the market but only in the standard pigment preparation segment; we want to offer functional preparation, which means we will offer more than just color, and will also add other elements such as bacterial protection or preparation that will improve the quality of the plastic by adding additives, allowing 200% of stretch in the plastic. At the moment we are also discussing opportunities in acquisition as a way to grow the business both in the distribution of new pigments and in the production of pigment preparation.

What is the greatest challenge currently facing your operations?

Capacity for storage in Brazil is limited and the import infrastructure in the distribution business is an issue continuously facing Forscher, in addition to the government requirements for operating a business, which are quite complex. In Brazil you require a license to import and export

which is difficult to obtain and the timeframe to receive the license from the application date is lengthy, it could take up to one and a half years. The duties on imports of good is very high, we could face up to 63% taxes on our imported products and if the product is considered as not essential good, only the duty is 80%, in addition to internal taxes which often results in some products being 200% higher than the freight on board (F.O.B.) price. This obviously makes it difficult for companies in our situation to easily compete based on price.

In three to five years, where do you foresee Forscher?

In three to five years, we expect that Forscher will be a company that has a sales performance of around R\$60 million to R\$70 million per year, growing continuously and achieving profitable performance. We should reach R\$36 million in sales for 2013, and in 2011 we reached 13% profit in comparison to sales, which was achieved by decreasing our cost structure. Our focus will continue to be largely on Brazil, which is responsible for 85% of the overall pigment business in South America.

What is your advice to any potential investors in the Brazilian chemical industry?

Brazil is home to interesting business opportunities for almost every company in the world. Foreign companies entering the Brazilian market need knowledgeable distributors that can offer a good service and introduce their new products in the market. We know that it is difficult to enter a new market without any expertise and Forscher can provide that needed representation in Brazil and offer our capacities to do this for them. •

Industrial Gases

The oxygen of the industry

Gas products are not only essential to the chemical industry as a whole, but also play a vital role in our everyday lives. They are critical to the creation of vehicles, buildings, technologies, food and beverages, and pharmaceuticals, to name but a few applications. It is therefore no surprise that Brazil's chemical sector is home to several major players in the industrial and specialty gas segment, with four major multinationals (Air Liquide, Air Products, Linde, and Praxair's Brazilian subsidiary White Martins) and only one local player (IBG).

Linde Gases provides extensive application know-how, expert services and state-of-the-art equipment to help chemical companies improve their operations. Magnus Karlson, Linde Gases' business manager, explains how gases can be used in a number of sectors to help improve productivity, lower costs and environmental impact for their customers: "the molecules that our competitors are selling are not different to ours so we focus on gas applications. A bulk portion of our business is now in the application of air gases, but also gases such as hydrogen and CO₂ that can be applied in many different ways. For instance, you can use oxygen for furnaces in a steel plant as well as medical gas in hospitals or water treatment for our chemical customers. Gases are also used to recover product that would normally go straight into the atmosphere or gas can be used for the treatment of water."

Pedro Manuel Riveros, managing director of Air Products, outlines some of the key constraints faced by industrial gas companies: "electrical power is a significant part of the cost for production of gases in Brazil, which account for more than 50% of the cost structure. Brazil has the third most expensive power costs in the world and with the power potential that Brazil has, this is the topic

of constant discussion in the industry. In addition to high costs, distribution is also a challenge and fairly expensive from a productivity standpoint. There is an opportunity to increase productivity by improving our roads, because where the most industry is located high level of congestion is regularly encountered." Founded in 1940, Air Products not only provides large and small volumes of nitrogen, oxygen, and hydrogen gas as well as gas separation and purification technologies and technical support to the chemical processing industry, but they are also a chemical company, unique among the major industrial gas suppliers. "Luckily for Air Products, gases do not have a 'China effect' because you cannot import gases. With that being said, Air Products' customers compete against cheap Chinese products, so we are impacted indirectly and must remain competitive. Taxes in Brazil are relatively high for any type of importation, which gives incentive for companies to import chemical concentrate and make the mix here, which is cheaper. In terms of our products, even one drum of our additive makes a large volume difference to our customers' product line. Air Products is known for its innovation and operational excellence in addition to high its ethical standards and health and safety," says Riveros.

These qualities have translated into a very successful operation in Brazil, specifically in the Camacari area. "We are the leader in hydrogen production. Our customers need reliable sources of hydrogen so we sell on-stream, high reliability plants and use our global expertise to avoid any interruptions to production. We also provide capital efficiency and a strong value proposition because we are not only selling a gas, we are selling a solution. Air Products has an entire staff team focused on using gas to improve our customers' business processes." •



Courtesy of BASF

Interview with Magnus Karlson &

BUSINESS MANAGER AND CHAIRMAN BRAZIL

Clemis S. Miki

DIRETOR PRESIDENTE PARA AMERICA DO SUL,
LINDE GASES LTDA.



Could you provide us with a brief overview of your personal background and how you came to your current role(s)?

MK: I started off my career in the gas business, working in Sweden, Austria, Hungary, Colombia, Argentina, and then moved to Munich to work in the Linde Gases Ltd. headquarters for eight years. I was then looking for an opportunity in an operative function and I was asked to come out here to Brazil to take the position of Business Manager and Chairman for Linde's Industrial gas division in Brazil.

CM: I have been working throughout South America in Ecuador, Venezuela and Colombia and then began managing the entire region for Linde Gases around six years ago. Our main challenge is capturing the opportunities for growth. We are a business that depends on B2B, so we depend on the performance of others in the value chain like Braskem or DuPont. In our industrial chemicals division, we are very dependant on our customers in the steel, mining and pulp and paper industries, meaning that if they grow, we can grow faster.

Could you provide an overview of Linde's business and operations in Brazil?

CM: Here in Brazil, Linde is focused mainly on our gas business and we also provide engineering services to petrochemical companies. We have a strong reputation and are well positioned in the South American market. We are finding specific opportunities for investment and growth here, especially in Venezue-

la (we are the only international company investing there at the moment), but we believe in the future of the whole region. We have a long-term focused business that is capital intensive so we must believe in the future. We have been here for close to 100 years and we will continue to be for hopefully another 100.

MK: The molecules that our competitors are selling are not different to ours so we focus on gas applications, which are considered the "door opener" that allows us to build our customer relations. Many chemical companies have become customers of ours in engineering and other areas after we began working with them on the application side. Linde's business is segment oriented and we have a strong team of application engineers that visit our current and potential customers to show them how to use the gases to improve their operations.

This model has meant that a bulk portion of our business is now in the application of air gases, but also gases such as hydrogen and CO2 that can be applied in many different ways. For instance, you can use oxygen for furnaces in a steel plant as well as medical gas in hospitals or water treatment for our chemical customers. Linde Gases has become the market leader in hydrogen applications due to our extensive experience and strong solutions offering.

How important are CSR initiatives to Linde's operations in Brazil?

MK: We have a special group at Linde Gases focused on environmental con-

cerns. Of course, many gas applications are linked to the environment and health and safety issues due to the fact that we use a lot of oxygen to reduce the use of chloride for our customers, which today is a worldwide standard process in the production of paper. In the chemical industry, gases are also used to recover product that would normally go straight into the atmosphere or gas can be used for the treatment of water. The idea is to help our customers work more productively through gas application while also protecting the environment by using less fuel and creating better burning to reduce emissions. We are also currently working on an initiative with Daimler on the use of hydrogen as a combustion fuel, which is very promising.

ABIQUIM estimates that over \$165 billion USD is needed to foster the needed growth in Brazil's internal chemical industry, what do you think can be done to attract this investment?



MK: The cost situation facing companies in Brazil is a challenge for not only the chemical industry, but also all companies that face high energy costs, expensive raw materials, and the lack of highly skilled labor. Chemical production in Brazil is currently very stable while consumption and demand is increasing quite a lot. However, for any company coming in to Brazil the biggest challenge is the bureaucracy and fiscal system, which is among one of the most complex in the world.

CM: The size of Brazil's economy is interesting for any company looking to invest, and it means there is the guarantee of an internal market. Brazil did not suffer greatly in 2008 because the economic crisis; it was only the companies that were reliant on exports to Europe or the United States that suffered. Brazil's lower class is emerging and they want to consume more, so there is great potential for the size of Brazil's market to grow and create profitable opportunities for any business.

What is your final message to the readers of Chemical Week?

CM: Brazil is always said to be the country of the future, but it is also the country of the present: Brazil's time is now. A key strength of Brazil is that we learned to survive in the tough environment of the last years that brought us periods of high inflation and economic downturn. However, for those who know how to survive, they will take the best wave. It is a good wave we are in now for Brazil: the future is not tomorrow, it is already here. •



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Interview with Pedro Manuel Riveros &

MANAGING DIRECTOR

Fernando L. O. Matta

COMMERCIAL MANAGER EPOXY AND SPECIALTY ADDITIVES, SOUTH AMERICA REGIONAL OFFICE, AIR PRODUCTS AND CHEMICALS INC.

Lets begin with a snapshot of your personal background and how you came to your role at Air Products?

PMR: I have been with Air Products for about 18 years, I started with the company as an intern in the United States and worked on various assignments in the United States and Sao Paulo. It has been two years since my return to take overall responsibility for the Brazilian entity.

FM: Twenty-two years ago, we opened the chemical division in Brazil. Air Products needed a person with technical, commercial and marketing background because we were a small company. At the time, the company included just one secretary, and myself. We then started to grow and brought in more product lines, which helped us develop our current position with four platforms to offer our customers.

Could you provide a brief overview of your industrial gas business?

PMR: Industrial gas is a very exciting business that is exposed to a wide array of different markets. From traditional uses of gas on the medical side, to industrial steel mills, oxygen in glass factories and hydrogen used for refinement; there is a large array of applications. Air Products has been operating in Brazil since 1976, and will be completing 40 years here in Sao Paulo very soon.

If you look at the gases side of our business, we have three major customer

groups, which includes a cylinder division that serves other small businesses, bulk liquid which caters to medium-sized customers and finally large customers that require us to build a plant exclusively for them on-site. Each group has very different consumption profiles; typically the cylinder and bulk business is tied to industrial production in the local market, and on-site production is much more related to project based work. Due to the high energy costs in Brazil, a number of our customers across all three groups use gas as a way to reduce their costs.

What portion of the business would you say is related to the petrochemical industry?

A sizable portion of Air Product's business is related to petrochemicals due to our activities in Camacari, which provide for several major chemical players like Dow, Eleceros and BASF. Air Products has a large plant there that supplies to larger customers via pipeline and sells liquid bulk to smaller operations of big companies or directly to smaller companies, which is an important segment for us.

In an industry predominately dominated by multinational players, what has contributed to your success supplying to Dow and Braskem?

What Air Products is known for is innovation and operational excellence, in addition to high ethical standards and health and safety. This has translated

to our success here, specifically in the Camacari area, where we are the leader in hydrogen production. Our customers need reliable sources of hydrogen so we sell on-stream, high reliability plants that will use our global expertise to avoid any interruptions to production. We also provide capital efficiency and a strong value proposition because we are not only selling a gas, we are selling a solution. Air Products has an entire staff team focused on using gas to improve our customers' business processes.

Comparing both of your divisions, what would you say is unique to the industrial gas business in Brazil?

Electrical power is a significant part of the cost for production of gases in Brazil; which account for more than 50% of the cost structure. Brazil has the third most expensive power costs in the world and with the power potential that Brazil has, this is the topic of constant discussion in the industry. In addition to high costs, distribution is also a challenge and fairly expensive from a productivity standpoint. There is an opportunity to increase productivity by improving our roads, because where the major of industry is located, high level of congestion is regularly encountered.

How has Brazil's industrial gas sector been impacted by cheap imports from foreign markets?

Luckily for Air Products, gases do not have a "China effect" because you can-

not import gases. However with that being said, Air Products' customers compete against cheap Chinese products, so we are impacted indirectly and must remain competitive.

Taxes in Brazil are relatively high for any type of importation, which gives incentive for companies to import chemical concentrate and make mix here, which is cheaper. In terms of our products, even one drum of our additive makes a large volume difference to our customers' product line.

What is your final message to our readers about the Brazilian chemical industry?

At Air Products we stay competitive through innovation and believe that every time a customer has a problem, we have an opportunity. We aim to launch at least 10 new moleculars every year. We also spent such a long time operating in a period of inflation, that we learned to respond very quickly because everyday was a challenge to survive in a difficult economy.

In the past we had more product lines but Air Products made the strategic decision to sell all commodities and keep our focus on specialty solutions for our customers. This decision means we are better able to adapt to individual customer needs, in a creative way. We strongly believe that the openness to innovation is the greatest characteristic of Brazil, and this prevails in the market place. •





Supplements to the Economy: Brazil's Pharmaceutical Sector

“What I see in today is the government pushing Brazilian companies to raise their standards and asking them what needs to be changed. The government realises that there are things that need to be improved. This does take a long time, but the government is very much open today to hear from the pharmaceutical sector, even if there are still some regulatory issues to be addressed.”

*- Peter Martin Andersen,
CEO, Grupo Centoflora*

Brazilian Pharmaceuticals

An introduction to Brazil's pharmaceutical sector

As the emerging economies of the world continue to grow, one of the first things their citizens look to spend their newfound wealth on is their health. The rising profile of the BRICs (Brazil, Russia, India and China), both as consumers and as producers, is notable in just about every global industry segment. Yet few sectors are seeing such huge potential and profound change as that of the pharmaceutical industry.

The BRIC markets have a combined population of 2.9 billion people, yet their combined pharmaceutical market was valued at just \$132.2 billion in 2011; a total value that falls below the value of leading market the United States (with 313.42 million people) and only just above Japan (with 127.8 million people). Indeed, together with the European Union, these three markets account for over 50% of the total global pharmaceutical market, which should give some hint of the length the emerging world has to catch up.

But catching up they are. China is forecast to become the world's second-largest pharmaceutical market by 2016. With growing middle classes and efforts from the governments of the BRIC countries to provide universal healthcare (China, for example, plans to extend to create a platform for universal healthcare by 2020), these markets are growing by the day.

Brazil can already claim the to be the ninth-largest pharmaceutical market in the world, and the second largest in the emerging world (after China). It is the third-largest pharmaceutical market in the Americas, comfortably beating all its Latin American neighbours. This po-

sition should not be underestimated; the Latin American pharmaceutical market is one of the fastest growing in the world, with double-digit growth expected over at least the next six year.

In some ways, its opportunity for growth is not as pronounced as some of its BRIC peers; it already boasts a healthcare system (the Unified Health System, or SUS) that offers access to all of its citizens. Its growth rate for the 2011 to 2016 period is expected by some analysts to be lower than other emerging markets, partly due to the possibility of a weaker local currency.

Pharmaceutical Total Market Sales (2008)

Sources: IMS Health; Ministry of Health / Portal da Saúde

	(R\$ billion)
Retail	26.1
State	7.6
Hospitals & Clinics	2.9
Total	36.6

Yet these slight hurdles should not detract overly from what is otherwise phenomenal growth. 2010 saw total revenues in the Brazilian pharmaceutical sector of \$16.7 billion, after a compound annual growth rate of 10.5% for the 2006 to 2010 period. And while some analysts predict a slight slow down in this growth, others predict acceleration; some forecasts see the market valued at close to \$30 billion by 2016.

Multiple factors contribute to this growth. First and foremost is the rise of the Brazilian middle class, now over 120 million strong with disposable income to spend on health. A growth in the number of elderly in the country, particularly those aged above 65 years, is contributing to the consumption of drugs treating conditions such as Alzheimer's disease, rheumatoid arthritis and osteoarthritis.

The actions of Brazil's government have also helped. Dilma Rousseff has shown support to the industry; her first foreign visit as president, to Mozambique, included a symbolic visit to a pharmaceutical factory.

More tangible, although also controversial, results came from the strong stance taken by the previous administration in legal battles, such as their willingness to override Merck's Efavirenz patents in 2007 to allow generic equivalents to treat HIV. While it may have been expected that this disregard for intellectual property would discourage foreign investment, Brazil's support for the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement (combined with a market for prescription drugs worth \$8 billion in 2010) appears to have been enough to reassure companies. According to the IMAP Pharmaceuticals & Biotech Industry Global Report 2011, Brazil is the preferred country for new drug launches out of all the emerging markets.

In the meantime, the generic drug market has gone from strength to strength, accounting for 19.2% of the pharmaceutical market in 2009 and 20.6% of the pharmaceutical market in 2010. Between 2002 and 2009, total sales jumped from R\$588 million to R\$4.8 billion and continue to grow at a higher rate than the overall pharmacy sector. In 2011, there were over 100 generic companies operating in the market, led by EMS, Sanofi's Medley, Germed and Eurofarm.

Aside from the strong position of generics, there are two other distinct trends worth pointing out in the Brazilian pharmaceutical market. Firstly, despite the strength of the industry, Brazilian companies themselves only account for roughly a third of the market. The government is keen to encourage the domestic industry and have implement-

ed a number of regulations and initiatives designed to support local players. Despite this, however, there does not appear to have been much restriction placed on foreign companies, whose generally larger global investment in research and development often provides a competitive edge. Existing conformity to international standards also help in a market where ANVISA, the government's national health surveillance agency, is pressuring companies to upgrade their facilities. The government is especially keen to encourage the development of biosimilar drugs. ANVISA announced guidelines for this segment in 2011 and is expected to announce further guidelines in 2012. Various agreements have already been signed between the government (specifically the Ministry of Health) and local companies.

The second trend is one of consolidation. The pharmaceutical market is still highly fragmented; Novartis AG, the leading player, still only generates 9% of the market's value. The past three years have been ones of mergers, acquisitions, and partnerships for the industry; Aspen acquired six medicaments owned by Myrallis; Stride Arcolab an-

M&A Activities at a glance

Sources: Thomson M&A Database, IMAP

2010 vs. 2009	2009	2010
Transactions value (USD billion)	161.2	51.6
Top 5 transactions	78.4%	38.8%
Top 5 Countries in 2010	No. of transactions	Value (USD mn)
United States	114	25.6
Germany	18	5.4
India	48	4.9
China	105	3.4
Brazil	13	1.9

nounced a joint-venture with BioChimico; Pfizer's purchased 40% of Teuto; Valeant acquired Bunker Delta; Sanofi acquired Medley; and Hypermarcas acquired Neo Química, to name but a few of the more prominent deals.

With around 540 pharmaceutical companies currently registered in Brazil, 2012 promises further consolidation in the marketplace. The same trend is occurring in the distribution of these drugs, with five leading pharmacy chains fiercely competitive and smaller wholesalers (of which there are 300 in

Brazil). A number of major deals in 2011 look to be repeated in 2012, as those left behind seek to boost their market position.

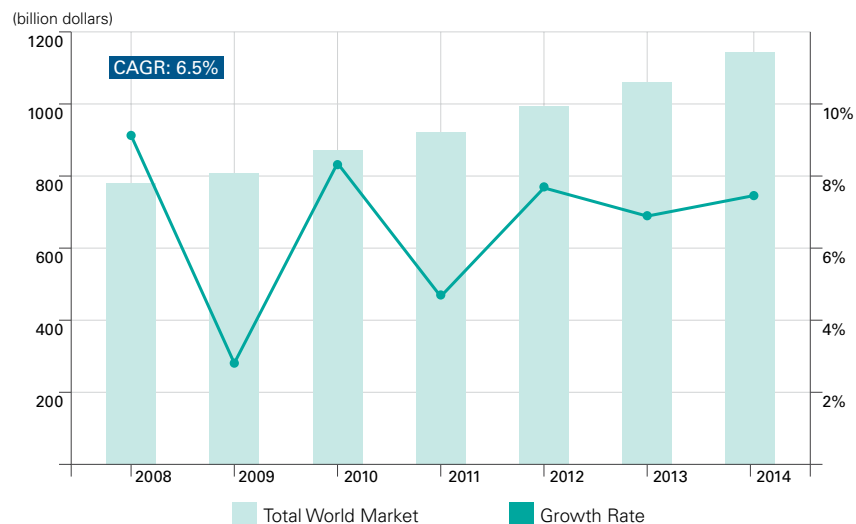
This mixture of huge growth and rapid consolidation offers an exciting market for investors, both foreign and domestic. The market is still very fluid, with no company or group of companies yet managing to grab a dominant position. With new fields opening up, and new consumers constantly emerging, it is not too late for a newcomer to carve out a sizeable niche. •

	US	Europe	Japan	China	Latin America	RoW	Total
Undisclosed Deals	47	79	16	26	7	64	239
Up to 20 Million USD	21	24	6	58	2	55	166
20 to 50 Million USD	13	10	2	13	5	17	60
50 to 100 Million USD	11	7	2	3	2	4	29
100 to 250 Million USD	10	3	0	2	1	4	20
250 to 500 Million USD	4	5	1	2	1	0	13
Above 500 Million USD	8	6	0	1	1	5	21
Total	114	134	27	105	19	149	548

Sources: Thomson M&A Database, IMAP

Global Pharmaceutical Market Estimate

Sources: IMS Health, IMAP



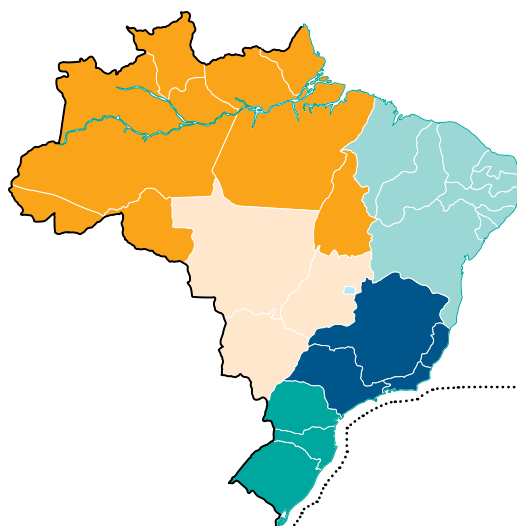
List of Pharmerging Countries

Sources: IMS Health, IMAP

Tiers	Countries	2009 GDP based on PPP valuation (trillion USD)	Incremental Pharma Market Growth from 2009-13 (billion USD)
Tier 1	China	9	40B+
Tier 2	Brazil Russia India	2-4	5-15B
Tier 3	Venezuela Poland Argentina Mexico Vietnam South Africa Thailand Indonesia Egypt Pakistan Ukraine	<2	1-5B

Brazilian Market Regional Distribution (2008)

Sources: IBGE, IMS Health



Region	Population	GDP	Market
BRAZIL	190 billion	R\$2,890 billion	R\$26.1 billion
North	7.9%	5%	4.6%
Northeast	28%	13.1%	15.6%
Center-West	7.2%	8.9%	6.8%
Southeast	42.3%	56.4%	56.3%
South	14.5%	16.6%	16.7%

Generics Market Share 2009

18%
in units

15%
in value R\$

Source: IMS Health

Source: IMS Health

The Medical Market

Curing Brazil's healthcare problems

The Unified Health System (SUS) is an impressive network of health coverage for a country as large as Brazil. Fulfilling the promise of the 1988 constitution, in which the right to healthcare for every citizen is enshrined, SUS is one of the few single-tier health systems in Latin America.

The Brazilian government has utilized this system well. Their response to HIV, for example, has been impressive; all citizens have access to monitoring test and therapeutic medication, supplied by the government. Three-quarters of the country's population are estimated to rely exclusively on SUS, with the remainder supplementing it with private healthcare. A decentralized system, with over 90% of Brazilian municipalities partially managing their own networks and 10% having complete autonomy (as of 2007), allows more flexibility and efficiency that would otherwise be expected from a system this size.

The advantage of such widespread healthcare to the pharmaceutical industry is obvious; more people able to access medication means more consumers of the industry's products. With the percentage of the population below the poverty line only recently dropping under 20%, this opens up a market that would otherwise be inaccessible. Yet the comprehensiveness of the system should not be overstated. 60% of all spending on healthcare in Brazil is still private, a percentage higher than that of the US, aptly demonstrating the huge disparity in coverage that still exists. Spending on SUS accounts for a mere 3.1% of GDP. Indeed, the standard of healthcare became an issue in the 2007 election.

In many ways, this is a win-win scenario for the Brazilian pharmaceutical

industry. Government efforts to address these shortcomings, for example the expansion of treatments to include medication for diabetes and heart disease last year, increase the demand for medication across the whole of society. Support for investment and exports come in the form of special credits (to the tune of \$300 million per year) through the Profarma program (Support Program for the Development of the Pharmaceutical Productive Chain), run by BNDES (the national development bank). Subsidies are available for innovation, especially in fields such as that of biotech, where a full 70% of all Brazilian biotech companies benefit from some kind of government incentive (non-reimbursable funds, low interest rate loans, or tax exemptions).

Meanwhile, the deficiencies of the system are leading to increasing numbers of private providers and low-cost insurance options for people to access those providers. While this market is undoubtedly smaller (15% of the population still account for 50% of consumption), it is growing in size, in spending power and in need. One of the most notable trends is the growing number of elderly people: a social sector that, per capita, spend more on healthcare worldwide than any other age group. In 2000, Brazil had 13.9 million people aged above 60. By 2020, that number is expected to reach 30 million.

Health is an increasingly important issue in Brazil, with its future direction as yet undecided. The government is stepping up its efforts to bolster an already impressive universal healthcare system, but in such a large country fixing all the problems will be difficult. In the meantime, Brazilians are increasingly turning to private providers. Both paths are good for the pharmaceutical industry; one providing access to a mass market, the second to a smaller but wealthier pool of health-conscious consumers. •

Brazilian Medicine Exports Major Destinations (2009)

Source: Ministry of Development, Industry and Foreign Trade



Latin America	61%
European Union	25%
United States	6%
Asia	3%
Africa	1%
Other	4%

Brazilian Pharmaceutical Foreign Trade - 2009

(usd million)

Imports
2,702
Exports
667

Source: IMS Health

Brazilian Biotech

Organic growth through advanced technology

Brazil's biodiversity, bolstered by the Amazon rainforest, is outstanding. It is no wonder, therefore, that the biotechnology sector is attracting increasing attention. The country is already a leader in ethanol research and production and agricultural research holds a prominent position.

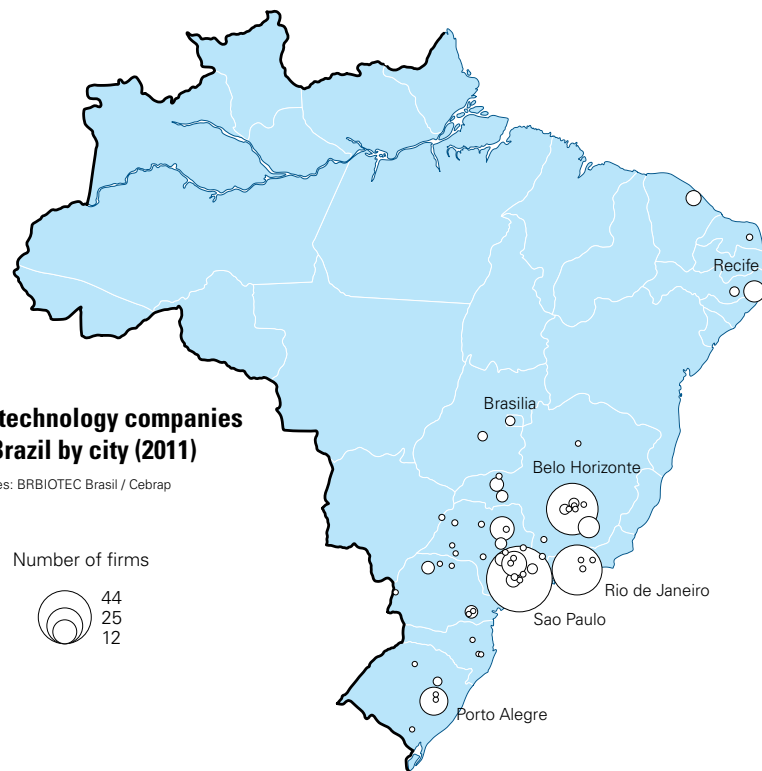
Out of all the activity in this sector, the focus on human health stands out. Of the over 200 companies are now estimated to be working in this segment, 38.7% are focused on human health. The average annual growth for the past few years has been over 20%; revenues from the herbal medicines segment alone exceeded \$1 billion in 2010.

As always, foreign players have a head-start. Yet it is in their interests to partner with locals. For a start, anything to do with the environment is a sensitive topic: foreign-owned research centres in the Amazonian and Northeast region of the country may lead to accusations of "biopiracy". On a more positive note, collaboration with domestic companies and institutions may benefit from financial support and incentives from the government.

The Brazilian industry in this field is young: 63% were founded in or after the year 2000. The majority also remain small, with up to 20% do not have any revenue stream. Yet government support has ensured the framework for rapid expansion is available. There are, for example, 13 business incubators or technology parks with a focus on biotechnology.

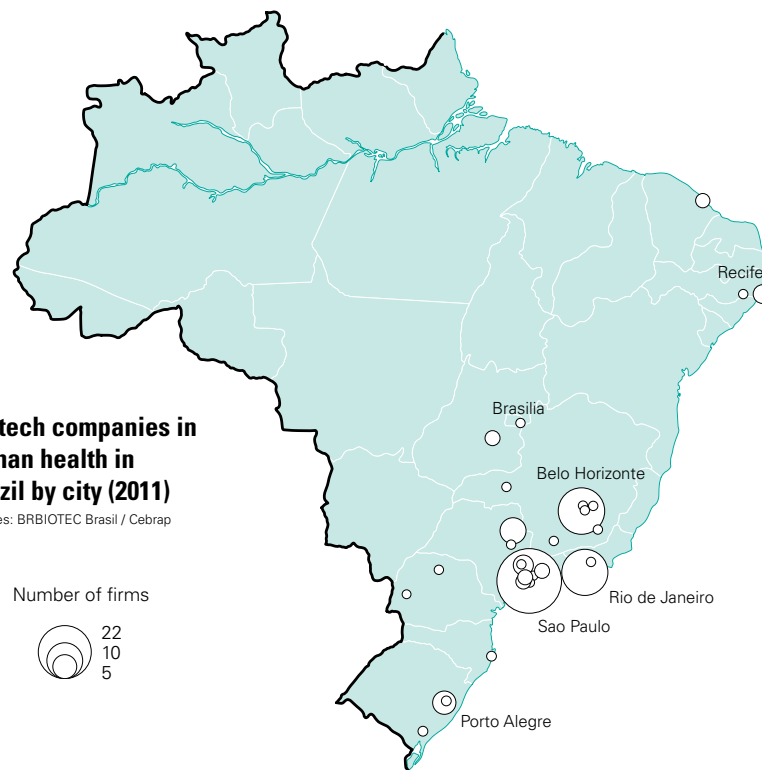
Biotechnology companies in Brazil by city (2011)

Sources: BRBIOTEC Brasil / Cebrap



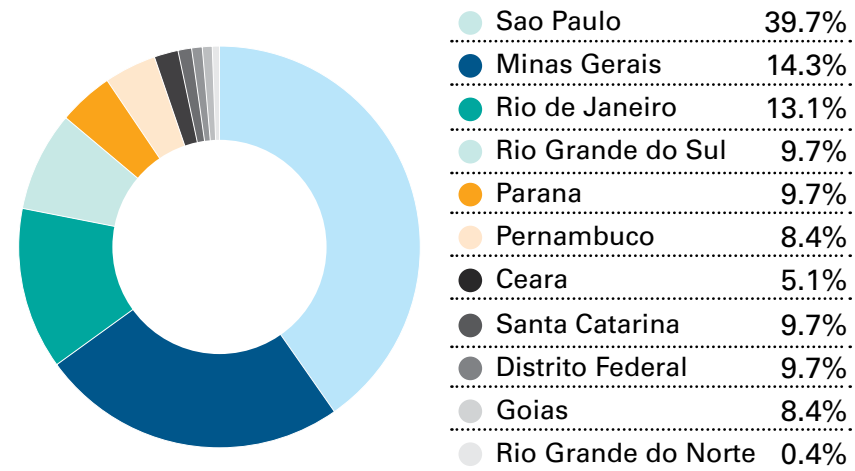
Biotech companies in human health in Brazil by city (2011)

Sources: BRBIOTEC Brasil / Cebrap



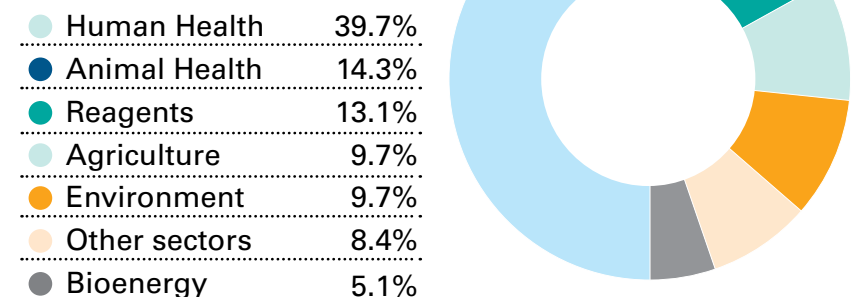
Biotech companies by Brazilian state (2011)

Source: BRBIOTEC Brasil / Cebrap



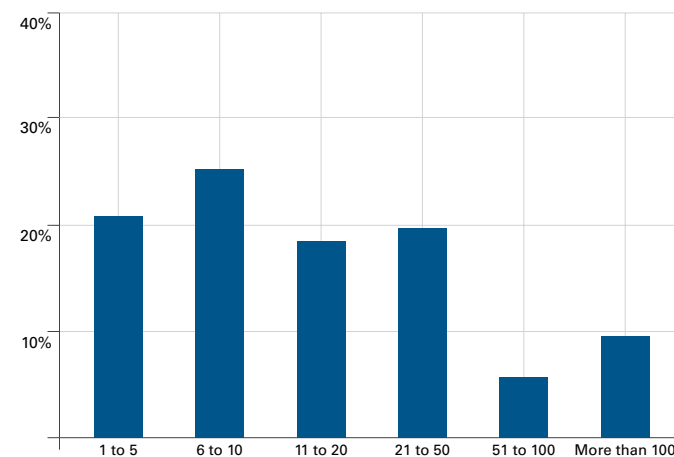
Biotechnology companies by area of activity (2011)

Source: BRBIOTEC Brasil / Cebrap



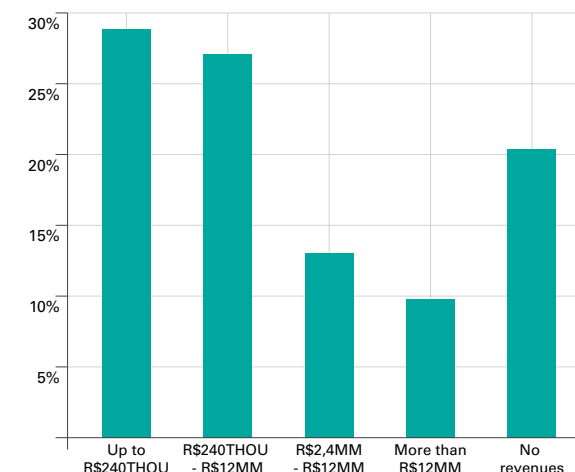
Distribution of companies per number of employees (2011)

Source: BRBIOTEC Brasil / Cebrap



Distribution of companies according to annual revenues (2011)

Source: BRBIOTEC Brasil / Cebrap



Biotechnology companies

63%

were founded after the year 2000 (135 companies)

Source: BRBIOTEC Brasil / Cebrap

Latin America: most common destination

25%

had exported in the last five years

Source: BRBIOTEC Brasil / Cebrap

86%

use imported products or services

Source: BRBIOTEC Brasil / Cebrap



A Complex Market

The Challenges and Opportunities of Brazil's Chemical Industry

"Firstly, investors need to accept that Brazil is a unique place to do business. We have a lot of laws, and a lot of things that make everything a little bit more difficult. One must understand that Brazil is a country like that and it is not going to change overnight. Secondly, investors need to find good partners who can help you to drive through these roadblocks."

*- José Roberto Croce Campos,
Country Manager, BDP International Brazil*

Rules and Regulations

An Introduction to Brazil's Regulatory Framework

Brazil's economic freedom (2012)

57.9

Source: Heritage Institute 2012 Institute of Economic Freedom

One of the main hindrances to foreign investment, it seems, is the perception of Brazilian bureaucracy as slow and inefficient. Despite the favorable demographic situation and the wealth of raw feedstock that has the potential to soon come online (if it has not already), improvements in the analysis processes and efficiency in the release of credit have been flagged as concerns.

The administration of President Luiz Inacio Lula Da Silva (2003 to 2010) was regarded as a success. Economic growth speeded up, political stability was maintained, and sensible macroeconomic policies put in place. The election of his chosen successor, Dilma Roussef, in 2010 was perceived to herald a continuation of sensible policies. The as-of-yet relatively short tenure of President Roussef has so far met with widespread approval, and her substantial efforts to stamp out graft has been appreciated by the private sector.

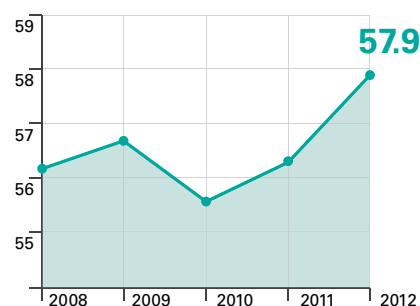
Nonetheless, the administrations of these two figureheads have been a mixed blessing for foreign investors, both in the chemical industry and in other sectors. While two ratings agencies granted investment grade status to Brazil's debt in 2008, the same year also saw its score on the Heritage Institute's Index of Economic Freedom fall to its lowest since 1999. Its score fell yet further in 2010, in which it ranked 112th out of 183 countries, having been 58th in 2003. A sharp rise in 2011 and 2012 still leaves it behind both the world and regional average.

The World Bank's Doing Business Report for 2012 shows a similarly bleak picture. Brazil has dropped six places from its 2011 ranking and now sits 126th in the world, resting between Bosnia and Herzegovina above and Tanzania below. While in some areas, such as Protecting Investors, it ranks more respectably, other areas pull it down.

Taxation, for example, is an issue that

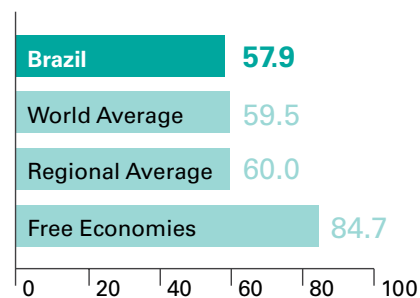
Country's score over time

Source: Heritage Institute 2012 Institute of Economic Freedom



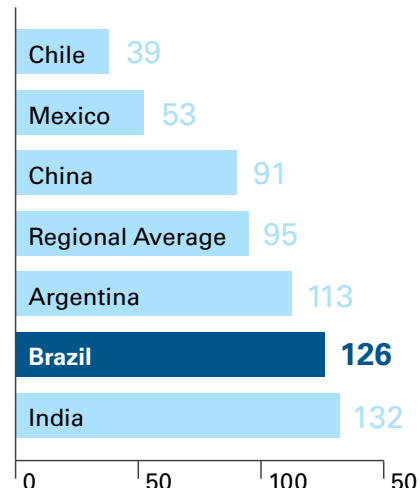
Country comparisons

Source: Heritage Institute 2012 Institute of Economic Freedom



Ease of Doing Business

Source: Doing Business database



is notorious difficult for companies. Fernando Figueiredo, executive president of ABIQUIM, calls the tax issues "a predominant concern for companies who want to install in the country".

Labor shortages, a common problem worldwide, have also not spared Brazil. Despite a strong education system, the difficulty of finding qualified and experienced engineers and chemists is widespread. Adding to this is a rigid set of employment laws that, in the eyes of many, unfairly penalize employers (and in doing so indirectly hurt employees). In 2009, for example, a massive 2.1 Brazilians opened cases against their employers in the labor courts.

"Labor costs are high and the whole system is not very favourable today to industry, with little flexibility and very rigid frameworks," says Cristiano Melcher, Managing Director of Fosbrasil.

Not at these regulations are detrimental to the industry, however. Increasingly stringent quality controls and regulations, aimed at bring Brazil in line with international standards, should open up new export markets and make domestically-produced products more competitive with exports. Yet without a further streamlining of other processes and rules, companies are in danger of being overwhelmed with red tape.

Yet not all companies see the situation as so bleak. Many say that with knowledge of the market comes increased ease in doing business. "It is difficult, but it is more difficult if you do not know the market," explains Sergio Sousa, Nalco managing director for Latin America. Obviously, for all the companies currently in Brazil, the benefits outweigh the difficulties. As Figueiredo of ABIQUIM says: "Brazil has a framework of legal security, is experiencing positive growth rates, macroeconomic stability and a stable democracy which for many offset the obstacles faced by investors interested in expanding or entering into Brazil." •

"We have a big problem in Brazil with the taxation system. For every invoice that I do I pay 34% in tax. Last year, in fact, IBG invested less as a company than we paid in taxes. Our policy is to invest all cash flow. The other major issue is labor justice. The problem in Brazil is that labor justice is not justice; it is for the employee, not the company. When you fire somebody you have to deal with the trade union, and the trade unions all have lawyers who are free for the employee."

Newton de Oliveira, founder and president, IBG

"I think Brazil is getting more and more restrictive. For some of commodities there is not a huge barrier to entrance; if you have \$1 million you can come into the country, obtain a warehouse and distribute resins. However, there is a huge barrier for some specific products. For example, to manage pharmaceuticals you have to have 10 or 20 licenses. So when you go into those business models, if you do not have enough critical mass you will not be able to make money in a sustainable position for a long time."

Mateos Raduan, CEO, Arinos Quimica

"In terms of the regulatory framework, it is often very difficult in Brazil to understand what line you have to follow in order to accomplish registration or another process. There is always a different law, or a new regulation, that is introduced when you are already moving. The regulatory system is a big challenge for all business but particularly in the agrochemical or pharmaceutical industries."

Craig A. Rogerson, Chariman, President and CEO, Chemtura

"What we currently lack in Brazil is the means to make political speech become reality. How do we ensure that the political desire to make water and waste treatment a priority becomes actuality? Compared to the international standards, the laws and regulations in Brazil are very first world. However, it is a question of how we implement them in such a huge country. As a country we do not lack resources, and we have a lot of resources from international agencies, but they need back up from local agencies."

Eduardo da Gama, CEO, Grupo Bauminas

Interview with Renato Addas Carvalho

MANAGING DIRECTOR FOR SOUTH AMERICA, SENIOR
VICE PRESIDENT GLOBAL NO BAKE, ASK CHEMICALS

Please can you provide us with a brief background on the history and evolution of the company in Brazil and the implications of this new partnership on your Brazilian operations?

The company has been in Brazil since the early 1970s. We are the leading supplier of products to the foundry industry. We supply mainly binders, resins, factory coatings and other auxiliary products. Since the beginning through our strategy of differentiation we have had a strong niche market share. Our product is a premium product and the total cost to the customer is lower as the performance of our products are better than the competition.

In some places the three companies were competing together in the same marketplace and so the formation of the JV was taken to have a bigger company with just one focus, the foundry market. Combining the three businesses we have a truly global presence, a very complete product line and the strength of a combination of all the technologies from Ashland, Sud Chemie and ASK Chemicals.

Do you have representation of all your product lines in Brazil and do you have plans for diversifying the product line offerings?

Brazil is a great contributor to the overall results of the company on a global basis. We have a good market share on refractory coatings and additives and we are very strong in binders. From the 10 product lines we offer, we are competing on four in Brazil. We are starting to offer products and services from the other lines including filters.

The Brazil plan is to continue with the differentiation strategy and combine with a more complete portfolio of products.

How do you see the industry evolving in Brazil and what is your strategy to capitalize on that?

Currently, 58% of the foundry business is related to the automotive industry and

as you know the automotive industry is growing very fast and will continue to grow. If you compare the number of inhabitants in Brazil to the number of cars, it is still very high. We are six inhabitants to one car as compared to Mexico, which is four to one, and below two to one in developed countries. This shows we have a lot of room for growth. The government's actions in the past years have been to improve the purchase power for class C and D and this creates new opportunities not only for cars but also for many other products.

We also serve the mining industry, which is very dependent on worldwide growth and an important contributor in Brazil. Also, the railroad industry is only in the beginning stages, right now all transportation is done by trucks and there is no way this country will be able to grow without investment into infrastructure.

The trend for the foundry industry is good. However, we are faced with a strong local currency, which means the foundry's are losing competitiveness to countries such as China and India. If you look at the growth of the automotive industry compared to the foundry industry the automotive is growing faster which indicates the import of materials. The other risk is the Brazilian costs; the energy cost is becoming one of the most expensive in the world and with a strong real labour costs are very high.

Although Brazil's costs continue to increase, so do internal market demands, therefore to what extend does this make further investment into the Brazilian market possible and profitable?

For some of our product lines we have enough capacity, but to get into the market for other product lines we need to invest in a plant. We cannot import and distribute, everything needs to be manufactured in the country. If you do not manufacture here you are not going to be competitive. We also pay very high duty

tax on imports and this is a big problem as well.

In Brazil, we have a lack of availability of chemicals. We need to import a lot of raw materials for our business and Brazil is a unique case. For some of the commodities we do not have the size to build a big plant and the small plants are not cost competitive enough, for example phenol.

How important is investment into sustainability and green chemistry for ASK Chemical's operations?

A major differentiator is our environmentally-friendly products. The more restrictions the government and companies implement the better it is for our business. For instance, our products have zero free formaldehyde, which is much safer for the employees. Companies now see value in this and we are the only company in the market to produce this product.

Sustainability for ASK is not only to supply environmentally friendly products but also for the sustainability of our company. We are here to help the country develop the industry and sustainability is a major part of our strategy.

What is your outlook for the future of both the Brazilian chemical industry and the role of ASK Chemicals within that?

Brazil is a country to invest. We have a huge demand and a lot of room for growth. We still have a lack of capacity and we are still very dependent on products from outside of Brazil. We have a high quality industry, the foundry business in Brazil has one of the highest qualities in the world and this is why we are competitive against the bigger producers such as China and India. ASK chemicals still has a great room for growth in Brazil. •



Courtesy of Trust

The Brazil Cost

Unique expenditures for Brazilian business

In 2011, the national consumption of chemical products for industrial use in Brazil showed a growth of 9.68%, according to the Situational Monitoring Report (ABIQUIM). Yet even as consumption increased, there was a fall in production of 3.83% and a 4% decrease in domestic company sales; in other words, a heavier reliance on foreign products.

In a country with no shortage of domestic chemical manufacturers, many well established and with a technical expertise comparable to anywhere else in the world, the \$26.5 billion trade deficit in chemical products seems almost inexplicable. The reason is the unique costs associated with the country; what is known as the "Brazil Cost".

Every country has costs of doing business; higher labor costs in some, security costs for unfortunate others, those of a more nationalist persuasion have higher taxes, and so on. Yet there are few jurisdictions around the world where these costs are so specific and significant that they have warranted the coining of their own phrase.

This term, the "Brazil Cost", relates to a number of factors: poor infrastructure, excessive bureaucracy, high taxation, and expensive labor; all exacerbated by a strong local currency. The Brazilian real is considered by some to be the world's most overvalued currency.

The Economist's "Big Mac Index," a currency value measuring mechanism based on the theory of purchasing-power parity that, in simple terms, measures the cost of a McDonald's Big Mac in different countries, shows the Brazilian real to be the fourth most overvalued currency in the world, coming behind Switzerland, Norway, and Sweden. It would cost you \$5.68 to buy a Big Mac in Brazil, compared to \$4.20 in America; arguably not the most accurate (or serious) measure-

ment available, but by all accounts a fair reflection on other industries. The dollar to real exchange rate is now almost 1:2, imposing a significant cost on producers. While Oxiteno and some of the major players, including Ajinomoto, BASF, Braskem, Dow, Lanxess, Rhodia and Unigel, have the economies of scale necessary to be leading exporters, for smaller producers exports are not always financially feasible; even their own home market is often too competitive. President Renaldo Silva Duarte of Columbian Chemicals Brazil comments on the possibility for local profitable investment: "we need to compensate for the low infrastructure and high costs of business in Brazil. For instance, at an exchange rate of BRL1.6 to the USD labor costs in Brazil are now more expensive than in the United States. Thus it is very difficult to be competitive. For future investment the risk in Brazil is very high. If worldwide demand decreases, investment here is almost impossible, as it makes us uncompetitive when exporting to worldwide markets. There are some movements from the government, but there are a lot of things that still need to be done."

Bann Quimica, founded in 1954, evolved from a trader to a producer of chemicals for the rubber industry. Over time, due to exchange rates and competition from countries such as China, the business has been forced to refocus. Dwight K Bann from Bann Quimica Ltda comments: "as part of our strategy, Bann Quimica built the Paulinia site to make the raw materials for the rubber chemical plant. In essence, Goodyear gave us the boost to increase our presence in the industry, Monsanto gave us exposure to new technologies and together this consolidated our position in the marketplace. Since we needed a certain level of capacity we needed to find another product line to utilize the raw materials. At the time the government suggested making Indigo Blue, as then it was 100% imported. Thus we built the plant and

took over the market. Back then Brazil was a protected market and the government increased duties on imports to encourage the industry to evolve. So now our two lines of business are chemicals for tires and chemicals for textiles. We shut down the rubber chemicals plant in 2007 due to exchange rates and competitiveness from China, but we were the last producer in South America to shut down."

Yet the exchange rate and foreign competition are not the only obstacles faced by domestic producers. Purchases of foreign chemicals have grown not only due to the appreciation of the real against the dollar but also as a result of state tax incentives for imports. The international crisis has consequently led to a global surplus in chemicals, which in turn drives import growth.

Marcos A. De Marchi, president of Rhodia Latin America explains: "we need a reform in our tax system; Brazil has imported products paying less taxes than the home made products... this has to be addressed, as well as the logistics and infrastructure, including the ports and roads and if we address these issues on time, we will be in a position to be amongst the top five chemical industries worldwide in the next five years."

"Brazil is competitive to the door of the plants, then everything is more expensive with tax and miscellaneous costs," explains Rubens Medrano, president of Makeni Chemicals (a family owned distribution business celebrating 30 years of operation this year) and president of Associquim. "Imports are a big risk to the chemical distribution industry, considering the commitment of capital, risk of exchange rates, logistic costs and competition."

Wanderlei Passarella, chief executive officer of local chemical company GPC, also comments on the cost of raw materials and the resultant need to diversify into other segments such as renewable energy from biomass: "the national pact for the chemical industry is the blueprint

for growth and if we do not negotiate this with government we will not see any growth in this industry. The profitability after taxes makes little incentives for investment-with almost 50% allocated to taxes, this means GPC will continue to grow as a company, but we have to grow in areas where we do not have the presence of the state."

Taxes burdens have arguably been increasing under the administration of Dilma Rousseff, as a resort to protectionist measures resulting from the "Brazil Cost" have pushed up the price of imports.

"Luckily for Air Products, gases do not have a 'China effect' because you cannot import gases. With that being said, Air Products' customers compete against cheap Chinese products, so we are impacted indirectly and must remain competitive. Taxes in Brazil are relatively high for any type of importation, which gives incentive for companies to import chemical concentrate and make the mix here, which is cheaper," says Pedro Manuel Riveros, managing director of Air Products.

Founded in 1940, Air Products not only provides large and small volumes of nitrogen, oxygen, and hydrogen gas as well as gas separation and purification technologies and technical support to the chemical processing industry, but they are also a chemical company, unique among the major industrial gas suppliers.

The Cost of Power

Buying electricity is expensive business. In an industry such as chemical manufacturing, it is more expensive than most. In Brazilian chemical manufacturing, the costs can be shocking.

As of last year, according to data from Brazil's National Agency of Electrical Energy (ANEEL), Brazilian electricity prices were the fourth highest in the world (for those countries for which data was avail-

"The chemical industry is suffering from a profitability issue in Brazil. What we have seen over the last three years is that the real is becoming stronger and stronger; on average a 10% appreciation per year versus the dollar. When you have a very strong real then you make imports more attractive and exports less attractive, which does not help the industry in general. Yet the real issue is that for a lot of specialty chemical material, the price is based in dollars. What this means is that our effective price is actually decreasing; the local price is real is 10% cheaper each year, yet the average salary is increasing 8% to 10% each year. However, there is a correction coming. There is intent from the government to reduce the strength of the real."

Jean Francois Bailly, Regional President, Latin America and Commercial Director, Life Sciences, Dow Corning

"The government is trying to get inflation in Brazil under control but, nonetheless, it is a little worse than it has been in past years. The other point that the government is trying to improve is the interest rates, but at the moment they are prohibitive. If I have to invest in Brazil, I have to bring money in from abroad. We also have to deal with a lot of bureaucracy to get things done. If you want to open a company or make a change in your operations, you have to spend money and a lot of time and effort to make that happen."

Fabio Sousa, Latin America Regional Director, Purolite

"Brazil does have some issues. Energy costs are a significant burden on us. Logistics is also very complicated; we are very dependent on truck transport within Brazil and on ports for export, and we have significant bottlenecks in both. We have to manage these costs. Labor costs are also high in Brazil and the whole system is not very favourable today to industry; the whole framework of labor laws has little flexibility and very rigid frameworks."

Cristiano Melcher, Managing Director, Fosbrasil

"In South America in general, and Brazil is certainly included in this trend, governments tend to be quick to change their minds. This makes it very difficult to have a long-term strategy and this makes it harder to effectively plan costs. We need to plan better. An alignment between the private sector, the government, and Petrobras is fundamental to making decisions."

Marcelo Lacerda, President, Lanxess Brazil

able). In 2011 a study by the Institute for Applied Economic Research (Ipea) showed that when taxes were taken into account electricity in Brazil cost, on average, two-thirds more than it did in the United States. In a country where electricity use grew 7.8% in 2010 and is set to continue rising, significant investment is needed (and planned) in order to ensure that supply keeps up with demand.

Determining the price of electricity in Brazil is often difficult. The regulated energy tariff is determined every five years in each concession area by ANEEL and revised annually on the basis of a computational model; energy tariffs are thus geographically differentiated taking into account the specific generation, transmission and market attributes of each concession area. Moreover, in accordance with Law 8.987/1995 approved in 1995, the energy tariff established by ANEEL has to guarantee the economic and financial balance in each concession area. Since 2004, with the approval of the law 10.848/2004, the cost of the energy bought by distribution companies to generators is determined through public auctions, thus providing increased transparency as well as improved competition on energy prices.

Nonetheless, Charles Lenzi, President of the Brazilian Association for Green Energy Generators (ABRAGEL), points out the discrepancy that still exists despite this competition: "in Brazil tax burdens on the electric sector are high; Brazil has some the lowest electrical production costs in the world, but some of the highest tariffs on consumers."

On this same matter José Simões Neto, president of the Brazilian Association of Electric Energy Concessionaires (ABCE), adds: "in the tributary question, Brazil has a long road ahead in order to have a better-resolved tax relation. We have much inefficiency in our tax structure and this is penalizing the electric power industry."

One of the contributing factors to this problem of high prices is the geographic monopoly in power distribution. Each distribution company is confined to a limited area and, as such, there is no real competition between them. Indeed,

only customers having a power demand over 3 MW can choose their power supplier, with the rest being bound to the respective distributor operating in their area. Energy tariffs are segregated between the part corresponding to the energy itself and the fraction equivalent to the transmission of this energy. According to Nelson Fonseca Leite, President of the Brazilian Association of Electricity Distributors (ABRADEE), this implies that companies "do not make money on energy but on the delivery of the energy."

Yet these high prices should, hopefully, gradually be reduced. One of the distinctive features of the Brazilian power sector is the holding of energy auctions as the procurement mechanism for distribution companies to acquire energy to serve their captive consumers. The current auction model has been effective since 2004 when Law 10,848/2004 and Decree 5,081/2004 were enacted. The competitive nature inherent in this model should not only allow for improved productivity and efficiency but, most importantly, introduce a downward pressure on energy prices that benefits final consumers.

Yet even as this process slowly starts to have a positive effect, another difficulty looms on the horizon. Today, one of the primary concerns agitating the Brazilian energy sector is the controversy raised around the renewal of the concessions in 2015. An impressive number of concession contracts were extended for a 20-year period in 1995 and are thus set to expire in 2015: this includes 112 generation units representing 28% of the total generation capacity; 37 distribution contracts corresponding to 40% of the regulated market; and nine transmission contracts amounting for 73,000 km of transmission lines equivalent to 82% of the total extension of the existing grid. According to Law 10.848/2004 for generation concessions and Law 9.074 for distribution and transmission ones, legislation currently in force does not provide for a second renewal of the concessions; on the contrary it envisages a coming back of the concessions to the federal state for a prospective reattribution.

If the current legislation remains unchanged, the government will have to transfer the expiring concessions to new players, or implement a bidding process where companies will compete for new contracts. The latter option is supported by consumers and industrial associations who forecast that the convocation of new auctions will considerably reduce energy tariffs. Many private investors also back this possibility as they consider that it will bring new investment opportunities.

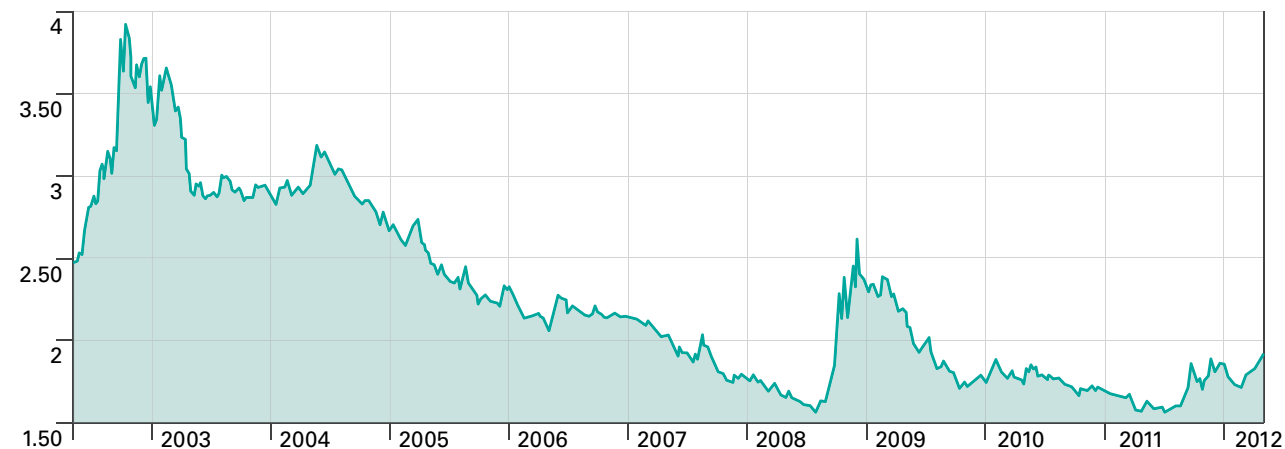
The alternative would be to modify the existing legislation and allow current contract holders to extend their contracts for a third concession term. This last option is backed by those companies concerned by the renewal; amongst them the Brazilian energy giant Eletrobras as well as other relevant players like Companhia Energética de São Paulo (CESP), Companhia Energética de Minas Gerais (CEMIG) the energy company of the State of Minas Gerais, Companhia Paranaense de Energia (COPEL) the energy company of the State of Paraná and the privately owned transmission company ISA-CTEEP. João Carlos de Oliveira Mello, President of the Brazilian energy consultancy firm Andrade & Canellas, justifies the support for a renewal of the concessions: "today the Brazilian energy sector is in the middle of a large expansion stage and without the assets from the old concessions, companies will not be able to support their development plans."

A compromise has also been put on the table. This would consist of the renovation of the concession's contracts together with a downwards revision of the energy tariffs that will take into account the individual features of each conceded facility. This will satisfy consumers' demands without jeopardizing the position of the current concession operators.

At the time of writing, the indications were that Dilma Rousseff would be renewing electricity concessions due to expire by 2015, although with some changes to the current terms. However, as of yet no definite announcement has been made. In the meantime, electricity continues to be yet another contributor to the infamous "Brazil Cost".

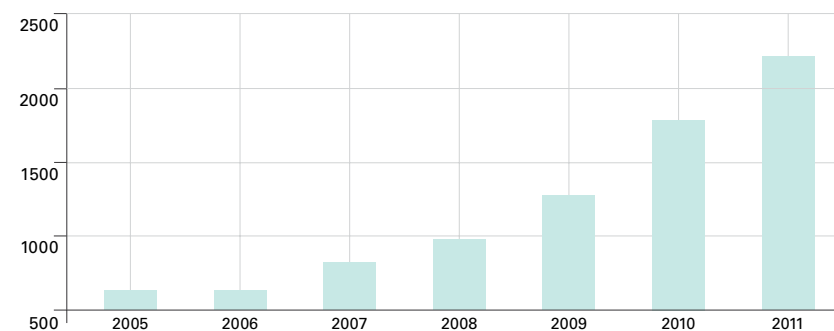
USD to BRL exchange rate

Source: Federal Reserve



Cost to export (USD/container)

Source: World Bank



The Big Mac Index (2012)

\$5.68

Source: The Economist

Power costs by country

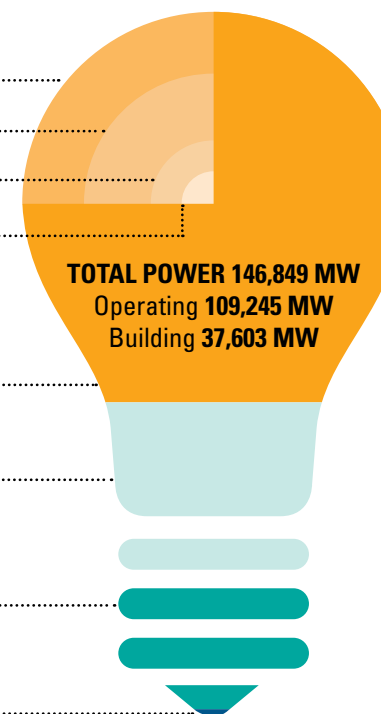
Source: Various

Brazil	34.18 US cents/1kWh
Chile	23.11 US cents/1kWh
United States	11.20 US cents/1kWh
Argentina	5.74 US cents/1kWh

Power Generation in Brazil

Source: FGV Projetos

72%	Hydroelectric Power
24%	Thermal Power
3%	Nuclear Power
1%	Wind Power



TOTAL POWER 146,849 MW
Operating 109,245 MW
Building 37,603 MW

Property Prices (USD/m²)

Source: Global Property Guide

Brazil	\$3,836
Argentina	\$3,144
Colombia	\$2,102
Mexico	\$2,085
Uruguay	\$1,959
Chile	\$1,794

Cost of Living

Source: Global Property Guide

Brazil	\$1.09
Uruguay	\$0.95
Chile	\$0.86
Mexico	\$0.71
Colombia	\$0.69
Argentina	\$0.61

Interview with Dwight K Bann

PRESIDENT, BANN QUIMICA LTDA

Columbian Chemicals has a rather unique product. Could you explain how you came to be in the carbon black business and what this is?

My grandfather started with the importation and reselling of chemicals into the local Brazilian market. Eventually, he was approached to develop a specific chemical, FACTICE, used in the production of erasers. This was his entrance into the rubber industry and the business evolved from trading chemicals to developing them. At this time, the volumes started growing and he started making other chemicals for the rubber industry. Then Goodyear Tires asked him to make a specific chemical for them, which gave him a big jump in the rubber industry, and eventually his portfolio of products grew to more than 10. Later my grandfather announced to the market that he would expand the business and produce all chemicals for the rubber industry and at the same time Bayer said they would also set up a factory in Brazil. Monsanto was interested to come into the market and made a 15-year partnership with Bann Quimica; Bann Quimica would build the plant and Monsanto would do all the sales of the products.

In essence, Goodyear gave us the boost to increase our presence in the industry and Monsanto gave us exposure to new technologies and together this consolidated our position in the marketplace. As part of our strategy Bann Quimica built the Paulinia site to make the raw materials for the rubber chemical plant. Since we needed a certain level capacity we needed to find another product line to utilize the raw materials. At the time the government suggested making Indigo Blue, as at the time it was 100% imported. Thus we built the plant and took over the market. At that time

in Brazil, it was a protected market and the government increased duties on imports to encourage the industry to evolve.

So now our two lines of business are chemicals for tires and chemicals for textiles. We shut down the rubber chemicals plant in 2007, due of exchange rates and competitiveness from China, but we were the last producer in South America to shut down.

Although Brazil's costs continue to increase, so do internal market demands, therefore to what extent does this make further investment into the Brazilian market possible and profitable for Bann Quimica either alone or in joint venture?

Brazil is growing we are looking for partnerships with multinationals looking to enter into the market. We would like to explore options in mining, agrochemicals and biofuels, all areas that Brazil is strong in. We are open for conversations for joint ventures or tolling services with companies that have no presence in South America and do not want to capitalize at this moment due to the risks of the Brazilian market. The swings in exchange rates and government regulations makes it very difficult for new investors. We can be an excellent local partner and have the capability to make quick decisions, we have the know-how and can pass the strict audits of their safety and environmental departments. we are also open to discuss opportunities with multinationals that are present in S.America and would like to expand their operations without delay through a local partner.

How competitive is the marketplace?

Prior to the 90s we experienced normal local competition. During the 90s, Brazil

dropped tariffs, opened its market, and globalized competition. At that time, local companies suffered as we tried to adapt to a global market. Whoever was inefficient shut down, was bought out or left the market. Brazil has its particularities, which make it more complicated to survive against the multinationals. As a family company we always questioned our efficiency to compete with the big guys, but now we know after the last 10-15 years we are competitive and we were able to survive longer than many multinationals. Now competition is more from China.

How do you see the industry evolving in Brazil and what is your strategy to capitalize on these changes?

As a family owned business we consider ourselves a regional company. The automotive industry in Brazil is very strong, thus the rubber industry has a lot of potential to grow. The textile industry is suffering because of exchange rate and competition on the cloth from China. We want to diversify our lines of business, look for partnerships with well established companies looking to enter into Brazil through the hands of a Brazilian company that can offer the comfort that rules and regulations will be followed.

What are the key issues Brazil must address to ensure its continued growth and success?

Brazil is the place to be, fifteen years ago I did not have that same view. But the ways things have changed have position Brazil to be a leading investment destination and a country that can help the world in sustainable ways.

We have a family vision to continue investing in Brazil and grow with the country. •



Looking to invest in Brasil?
Need a local partner?



Bann Quimica is a 50+ year old 100% family owned chemical business located in São Paulo, Brasil. Bann Quimica provides its customers with quality products and high quality tolling services for a wide range of industrial sectors. Aside from ample land for expansion, Bann Quimica maintains an engineering department, a laboratory research facility, a pilot plant facility, a metal shop for basic chemical equipment, and a biological waste water treatment facility for your needs. Constantly audited under the ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 standards, and Responsible Care Program, we are committed to the highest operating and safety standards demanded by international companies. Come talk to us. We'll be glad to help you get started in South America.



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Interview with Renaldo Silva Duarte

COLUMBIAN CHEMICALS BRAZIL

Columbian Chemicals has a long history in the Brazilian marketplace. Please can you provide us with a brief background of the history and evolution of the company in Brazil?

Columbian Chemicals has been in Brazil since 1958. For many years, we worked with Anglo American producing carbon black and fertilizers. Currently we have six units plus a cogeneration plant to produce carbon black in Cubatão and in 2007 we built a new plant in Camaçari.

In South America we have carbon black plants only in Brazil. The carbon black market in Brazil represents 71% of the total carbon black market in South America, which is why we have local production here. Today 10% to 12% of the total carbon black consumption is imported and we are seeing about a 3% growth in carbon black in Brazil. The second largest market is in Argentina, and although the market is small the growth is higher.

Although Brazil's costs continue to increase, so do internal market demands, therefore to what extent does this make further investment into the Brazilian market possible and profitable?

We need to compensate for the low infrastructure and high costs of business in Brazil. For instance, at an exchange rate of 1.6, labor costs in Brazil are now more expensive than in the United States. Thus it is very difficult to be competitive. For future investment the risk in Brazil is very high. If worldwide demand decreases, investment here is almost impossible, as it makes us uncompetitive when exporting to worldwide markets. There are some movements from the government, but there are a lot of things that still need to be done.

For a petrochemical company, the cost of natural gas is two to three times higher than the United States and up to 15 times greater than the cost in Asia. We have legislation in Brazil but we lack implementation; we have the law but do not have the rules of law to be applied to the market.

We have a monopoly in Brazil, which has made it very difficult to use natural gas as a raw material. Even in a carbon black market we can use part of our raw material as natural gas, but we do not have any incentive for this in Brazil like we do in any other country worldwide.

The incentives we have in Brazil are a stable economy and the growth in local demand.

Columbian Chemicals was recently acquired by Adytia Brila Group, as part of their strategy to get a stronger foothold in South America and Europe. How will this change the dynamics of Columbian Chemicals in Brazil?

We are in the process of integration with the Adytia Birla Group and we can see a lot of synergies from both companies. They are leaders in Asia and Columbian Chemicals has had much more of a focus on the Americas and in Europe.

After the acquisition we believe we will have more opportunities to invest together with our customers in the market and the growth of our company will be more in line with the growth of our customers. Will see a very good future of growth in selected regions such as Brazil.

With operations across the globe, how important is Brazil to the overall operations?

South America represents only 6% of the global carbon black market demand, but in comparison to other regions the growth in Brazil will be greater and more strategic. Thus there will be more opportunities here to increase in the market instead of other regions that have a more stabilized market.

As a member of the council for ABIQUIM, please can you highlight some of the key issues affecting the competitiveness of the chemical industry in Brazil?

When we look at how to improve the competitiveness of the chemical and petrochemical companies in the country, we



need the government to clearly define the regulations around investment.

Globally we are seeing an increased pressure for more sustainability and environmentally friendly solutions. How is this principle infused within the operations of Columbian Chemicals?

We are a signatory for Responsible Care and we have received the ISO 9001, ISO 1400, and ISO 18001 certifications. The culture of the company is to use the minimal amount of water and have the minimal CO2 impact. We have developed a lot of technology to ensure we reach those targets.

What market segments do you see as having the most growth potential in Brazil?

Plastic is growing but there are a lot of imports. We see a lot of opportunities in tires; this year we will produce 3.6 million cars in Brazil.

What would be your final message to our readers about the Brazilian chemical industry and about Columbian Chemicals?

Brazil continues to be the land of opportunities. Historically we can see improvements in the economy. The government is working hard to stabilize the economy in Brazil and inflation is now under control. The next step is first to have one specific legislation about investment as the rules change very fast. We are also seeing some movements to control corruption. When we have success in those areas this will create a more positive environment in Brazil to invest.

Columbian Chemicals will continue working together with the market and to remain the highest producer with more than 50% of the market share in Brazil. •



The Labor Shortages

Attracting Intellectual Capital

The shortage of skilled workers is so prevalent, both in terms of the industries it affects and its global reach, that it seems churlish to add it to the list of challenges facing The Brazilian chemical industry. After all, it is hardly a unique problem.

Nonetheless, Brazil's problem is particularly acute. According to a study carried out by the Institute of Industrial Development Studies (IEDI), Brazil is facing a lack of qualified engineers and is not producing either the quantity or quality of engineers required to compete in the world's hi-tech markets. The IEDI report states insufficient education as a source of the problem, in addition to the cost of engineering programs at the university level, which are restrictive for students. This deficiency in the local market has led most large Brazilian firms to create their own internal training programs.

Marcelo Garcia Stenzel, executive vice president for SGS Brazil, explains: "the main challenge now is in finding qualified labor in all areas of our business, so we are making a large investment in the training of our personnel. We are running training programs, apprenticeships and sending professionals to the United States to train at our laboratories in bigger facilities."

Edson Bouer, president of the Brazilian Association of Chemical Engineers and vice president of the engineering firm Engevix, describes the situation facing his company: "a growing challenge for Engevix has been a skill shortage of highly qualified labor. What Engevix has done is to take experienced employees with 20 to 30 years of work to coach new hires from universities in Brazil and provide training on-site. We are aiming to make these recruits productive in a

short amount of time so we have accelerated the training process by showing them life in the plants, and providing them with a realistic preview of work in the EPC industry."

Engevix is a company that is distinguished in the implementation of engineering, procurement and construction projects and which has maintained its focus on the engineering side rather than shifting its focus to construction, despite similar moves by competitors. "We understand that what we have is intelligence and not just manpower. We have around 800 engineers including chemical engineers," says Bouer. Brazilian engineering company Odebrecht has a revolutionary approach to human resource management: one that has been applauded by Harvard University. "Odebrecht has a long tradition of employee satisfaction. Those seeking employment with us plan to retire with

us. Our management philosophy is very specific: we work with total autonomy, 'a small contract is a small company'. The decentralization level is incredible. A Mexican director, for example, will behave and make decisions as the business owner and is rewarded based on results. Few companies in the world have this level of independence," comments Odebrecht's director of industrial engineering, Marcio Da Silva. Da Silva also outlines how Odebrecht uses its compensation strategy to help deliver the company's goals and objectives: "we have a policy of profit-share base on the projects results, which allows people to take big responsibility and be compensated accordingly. The shareholder policy is to drive results, make new business investments and provide growth opportunities for our employees. As such, we have invested heavily on people's training and the per-

son who is trained is awarded. In the industrial engineering division we have over 1,000 interns and trainees at one given time."

Odebrecht has maintained a reputation for high employee satisfaction with over 1,000 employees in 2002 having worked for the company for more than 25 years.

In terms of Brazil's acknowledged labour shortage, the IEDI concludes that the private sector needs the public sector to more actively plan the future creation of Brazil's qualified human resources. Despite many education reforms by the Brazilian government, it will take time and investment to bring Brazil's academic system to an internationally competitive standard.

It is obvious that despite the drawbacks in the area of human resources, companies in the field are not limiting their growth prospects in Brazil. •

Interview with Marcelo Garcia Stenzel

EXECUTIVE VICE PRESIDENT, SGS DO BRASIL



To begin, could you please provide us with an overview of your personal background and what brought you to your current position as head of Brazilian operations?

I am a civil engineer with a Masters in Business Administration and I have been with SGS for 14 years. For the last eight years I have been the Head of SGS' industrial sector and I am now Vice President in charge of Brazil. Over the last eight years SGS Industrial grew around 40% a year and the company recognized the need to have someone that will continue to drive the business in this manner and someone that is commercially oriented. Brazil is now in the media spotlight and the SGS group expects very aggressive growth, in line with the country's future.

SGS has been established for over 70 years, please provide a brief history of the company and your main goals and objectives.

70 years ago, when we started our operations in Brazil, SGS was much more into the grain business and the international trade of commodities but is now quite diversified, with the largest portion of our operations in oil, gas and chemicals, which makes up 30% of our operations. We have two lines of business related to the chemical industry, which are lab analysis and commissioning services. We started offering a commissioning service for new factories in 2008 when SGS acquired PID, whose main focus was the chemical industry. We also provide certification for transporters of chemicals under the Responsible Care program, which ensures that transportation companies comply with a series of rules determined by the ABIQUIM association.

SGS is very powerful in Europe and Asia and the Brazilian market is amongst our 20 largest operations but has not yet reached its full potential. We strongly believe there is room for substantial growth as SGS is currently undersized to fully serve the country's demand in the sector. In four years, we should be four times larger than we are today through a blend of organic and acquisition growth. SGS is currently in the process of acquiring two companies that we are in the due diligence stage with and we expect to close the deals before the end of 2012. The companies are in different fields from SGS but are related to inspection and testing, and laboratory services, which will help to complement our current service offering.

What sets SGS apart from its peers in terms of competitive advantage?

With 32 operation sites in Brazil, SGS has a strong network of offices that provide a good coverage of the country, and we are based in all major chemical complexes including an operation near the Camaçari and Triunfo complexes and a branch in Santos, the import and export hub for petrochemicals, which is very important for SGS.

What challenges do you see with the current regulation of Brazil's chemical industry?

A major challenge facing the industry is the uncertainty in the access of pipelines. The industry has had a strong government funding in the past, and there are still some uncertainties in the access of other players to the pipelines and terminals.

Currently there are many bottlenecks in the industry, especially with the poor port situation and logistically, there are

many improvements to be made. However, it is very good to see that companies are investing in the country, we are here to help them realize their business aspirations in Brazil.

The main challenge now is in finding qualified labor in all areas of our business so we are making a large investment in the training of our personnel. We are running training programs, apprenticeships, and sending professionals to the United States to train at our laboratories in bigger facilities.

If we were to return to in two to five years time, where would we find SGS Brazil?

SGS is a leader in our market and we will continue to maintain this position. In five years time we will be more diversified, and hold a stronger position in other markets like upstream and lubricants and we are developing several new products in the area of health and safety which is inline with our audit and certification services. In terms of our growth strategy, wherever the market is heavily regulated we will be looking for acquisition to support faster growth. For example, in the environmental, industrial and automotive sectors, there are high demands for accreditation from government agencies, which will cause delays in our growth objectives as outlined in SGS' 2014 company plan, we will have to grow through acquisitions. •



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WHEN YOU NEED TO BE SURE

SGS



Engineering Progress

Services Available to the Brazilian Chemical Industry

“Right now, and for the next 20 years, we will be seeing an expanding chemical industry in Brazil, with top-level technology and a lot of foreign investment. This will be driven firstly by all the materials and raw feedstock that we are producing for the chemical industry, and secondly by the fact that we have a big market to attend to; both in Brazil and in Latin America.”

*- Alfredo Collado,
President Latin America, Skanska*

The Support System

Service providers for Brazil's chemical industry

Brazil is home to a plethora of service companies, creating a network of support for chemical manufacturers that compare favourably with any country in the world. These companies provide the technology, technical expertise and specialist knowledge required to integrate and manage projects in the unique business environment that is Brazil's chemical sector.

As with any market, the presence of global players in the manufacturing sector means that the leading service providers cannot be far behind them. International names providing a range of services have all set up shop in Brazil. Multinational logistics providers such as Vopak are bringing their skills to bear in face of infrastructure challenges. Engineering giants such as Foster Wheeler have had an established presence for many years. Companies such as SGS provide testing and certification.

SGS is a good example of the commitment that foreign companies are making to Brazil. In a country of Brazil's size, it is not enough to simply have a representative office. Instead, Brazil is one of SGS' top 20 operations and their physical presence in the country is impressive. "With 32 operation sites in Brazil, SGS has a strong network of offices that provide a good coverage of the country, and we are based in all major chemical complexes including an operation near the Camacari and Triunfo complexes and a branch in Santos, the import and export hub for petrochemicals, which is very important for SGS," says Marcelo Garcia Stenzel, Executive Vice President of SGS do Brasil.

The attractiveness of the market to service providers is not a recent development, even if it is becoming more so. Yokogawa Electric Corporation, for example, opened their first affiliate outside Japan in Brazil, back in 1973. Then, as now, they are providing technological solutions in measurement, control and

information. Then, as now, the market is an exciting prospect; Yokogawa in Brazil has grown by an annual average of 10% over the past 10 years.

Although Yokogawa provide solutions for a number of different segments, it is the chemical market that has proved the most profitable. "In the chemical area in Brazil there are several large chemical companies that are customers of Yokogawa, and we customize the solution to fit their needs. We have automated refineries and fertilizer plants, both owned by Petrobras. Yokogawa also has automated plants for Braskem who control the three largest petrochemical complexes in Brazil. Yokogawa supports customers in many different segments of Brazil including chemical, petrochemical, oil and gas, pulp and paper, mining, and plants for sugar and ethanol. Chemical and petrochemical sales account for 60% of our sales averaged over the last 10 years so it is a major focus of our business," says Nelson Ninin, Chairman and CEO of Yokogawa South America Ltda.

Engineering, procurement and construction firms such as Technip are similarly abundant, with a similarly long history. Technip has been in the country since 1976. While perhaps best known for the services they provide to the offshore and onshore oil and gas industry, their work in the petrochemical and chemical sector is substantial; last year they were awarded a contract by Petrobras to provide basic and front end engineering services on a fertilizer complex in Minas Gerais.

Yet foreign companies do not dominate. A healthy Brazilian-born service sector has developed, offering yet more choice to manufacturers. At its peak, local giants such as the Odebrecht conglomerate participate in a staggeringly wide variety of fields, from offering engineering, procurement and construction services, to investment and management.

While Odebrecht can trace its roots back to 1944, its move into chemicals, or more specifically petrochemicals, dates from the late 1980s and early 1990s. As the value of the chemical industry continues to grow and be recognised, this expansion of scope is being seen more and more among service companies.

Engevix, for example, is a local company dedicated to providing engineering services. Today, the company is very focused on the infrastructure industry, but also has an important and established industry division service the chemical sector. Traditionally, however, Engevix was known as an important player in the oil and gas industry. As the chemical market grows, more and more compa-

nies are making this logical move downstream.

Despite the competition suggested by the sheer number of companies, most service providers seem very optimistic about the future. "Even with the onset of the global economic crisis, Brazil provides attractive opportunities in the chemical and infrastructure sectors. These industries are profitable and Brazil is developing a solid investment base, with many exciting projects in the pipeline to make the country's chemical market an attractive investment opportunity," says Edson Bouer, Vice President of Engevix.

Odebrecht's director of industrial engineering, Marcio Da Silva, perhaps best

explains the situation: "in Brazil, there are many engineering companies, national and international: some American, others Asian and European, but the challenge to meet Petrobras' needs are huge. Inside Odebrecht we are structuring ourselves to attend specifically to the clients. At Odebrecht we employ around 160,000 employees in Brazil and abroad and approximately 32,000 employees are part of the industrial engineering division. Despite this large base of skilled workers, in order to meet the demands of Petrobras and Braskem, our most important clients, we need the support of major multinational companies in partnership with local players and this is part of Odebrecht's strategy." •



Interview with Nelson Ninin

CHAIRMAN & CEO, YOKOGAWA SOUTH AMERICA TDA.

Can you tell us more about the solutions Yokogawa provides in Brazil with some specific examples of how they work in the production facilities of your customers?

Yokogawa sells both standalone products and complete solutions; our standalone products for maintenance and repair are to keep companies operational and sold by our representatives, but our major business is new projects for the expansion of companies or new plants and we offer complete solutions for industrial automation. To improve the efficiency of operations we also have field instruments for flow, level, temperature, pressure, and analytical products to measure gas or liquid. We train our customers and have a comprehensive after-sales and installation team available 24/7 for technical support.

How important is the chemical industry to your offering and overall performance? In the chemical area in Brazil there are several large chemical companies that are customers of Yokogawa, and we customize the solution to fit their needs. We have automated refineries and fertilizer plants, both owned by Petrobras. Yokogawa also has automated plants for Braskem who control the three largest petrochemical complexes in Brazil. Yokogawa supports customers in many different segments of Brazil including chemical, petrochemical, oil and gas, pulp and paper, mining, and plants for sugar and ethanol. Chemical and petrochemical sales account for 60% of our sales averaged over the last 10 years so it is a major focus of our business.

Can you outline the competitive environment for chemicals in Brazil, and describe what competitive advantages Yokogawa has in comparison to its peers?

All our global competitors are present in Brazil: the advantages we have over our competitors are our level of new and

existing technology, we have excellent structure to support our customers which includes a factory for integration, modification, repair, a quick response team, a high level of technical expertise across our company, and a competitive price structure. There is no one company that is our overall competitor; each segment of the chemical industry presents an individual main competitor.

ABQUIM is estimating that the industry requires USD\$165 billion of investment by the year 2020 in order to foster the internal growth of the industry, how can the industry attract more investment, and what are the greatest challenges currently for Yokogawa's operations?

Every year we hear different numbers from associations, but it will be a case of whether companies can support this investment by supplying the state of the art technology, the suitable specialized qualified staff that training centers would have to produce. Our greatest challenges are maintaining our good market performance, to sustain our current expertise within Yokogawa by resisting poaching from our competitors, and sourcing people to work for us with the necessary experience.

What is the five-year growth plan for Yokogawa in Brazil, and in which industry will your new projects be?

Our growth plan is to continue the last 10 years' average annual growth of 15%; in 2009/2010 we were 38% up on new contract business. We forecast that 2011 to 2015 will show a larger increase in new contract business, because there are some large projects on the horizon. The new projects will be in pulp and paper, oil and gas, power, petrochemical and chemical, mining, ethanol, but the majority will come from oil and gas through Petrobras who will also be involved with new fertilizer plants. •

Interview with Romero Dantas

DIRECTOR, COREMAL

Please can you provide us with a brief overview of the history and evolution of Coremal in the Brazilian marketplace?

Founded in 1952, Coremal is a family business that evolved into the distribution industry 32 years ago. Today we are among the main distributors for 31 major local and international producers, including Solvay, Dow, Exxon Mobil, BASF, Petrom, Braskem, Eastman, Cristal, Lanxess, Nalco and Cabot. We have a footprint across the country, including São Paulo, Rio de Janeiro, Minas Gerais, Bahia, Pernambuco and Ceará.

We also offer a range of services to our clients through our transportation and logistics business, including packaging and blending. Our transportation company, Mercotrans, uses our own trucks for liquid and dry cargos and almost 50% of our freight is done by IT. This helps us to provide high standards of quality to our customers.

We are seeing a lot of mergers and acquisitions within the distribution industry. To maintain your position as one of the largest distribution companies in the Brazilian marketplace does this form part of your strategy for growth?

We have an expression in Brazil "a bola da vez", meaning that everyone wants to come to our country. Currently there are more than 130 companies operating in the distribution business according to ASSOCIQUIM and only a handful of them are international; Univar (recently acquired Arinos), Brenntag and Pochteca, and the remaining players are, with the exception of Quantiq (owned by Braskem), mostly family businesses.

Consolidation has happened all over the world in the distribution industry; in Europe, in the US and most recently in other continents. Now this trend is stronger in South America and Brazil is prepared for that. When Brenntag entered Brazil in the 1970s the larger distribution companies worldwide starting paying more atten-

tion to South America and now everyone wants to come to Brazil. The Brazilian chemical industry is well positioned in the top seven in the world. Coremal, like other companies, is open to discussing deals – buying, selling, merging, etc – that may bring value to its operation.

In the upcoming years Coremal will make the right move to grow the revenue and become even more attractive for the suppliers. Today Coremal is a \$135 million distribution business, ranking among the top 10 distribution companies in Brazil. To compete in the global and more competitive market such as Brazil is becoming, Coremal has to aim to double its revenues in the next four years.

Although Coremal is looking to expand the business, today you are amongst the top 10 distribution companies in the country. What do you believe has enabled Coremal to be at the top of the sector?

Time, work and loyalty. We reinvest in the company, and suppliers appreciate that. At Coremal we have a strong dedicated team that has built Coremal into a modern company. At the end of the day, we believe a lot in what we do and we have a very open management, which means we are straight and honest with our suppliers and customers and that is the biggest secret to continue growing.

What would be your final message to our readers about the Brazilian Chemical Industry?

Finally the time has come for Brazil. Despite the challenges the country has to deal with in the near future, mainly in building infrastructure, we are seeing new companies come every year to invest in Brazil and, particularly, in the chemical industry. And just as you have done your homework, any company that wants to come to Brazil will speak with ASSOCIQUIM and find the right distributor for their business and, more times than not, this one is Coremal. •

Interview with Fabio Rios

MANAGING DIRECTOR BANDEIRANTE BRAZMO

Could you give a brief overview of Bandeirante's role in the industry?

Bandeirante belongs to a Brazilian group called the Pharmatek group, which is a diversified group. Brassco was a distribution company that belonged to the Pharmatek company for over 10 years and we acquired Bandeirante five years ago. Brassco was very much focused on being a trading company; buying and selling and finding our customers what they needed. With the acquisition of Bandeirante this all changed because Bandeirante is purely a distribution company. The first three years our objectives were to be the biggest distribution company. This changed over time and now we want to be a solid and sustainable cash-generator for our group. We want a solid and large base of customers we work for and we want to offer solutions in logistics and technical knowledge to small- and medium-sized companies.

Would Bandeirante be open to acquisitions and mergers?

Pharmatek have done many acquisitions in the past and Bandeirante was one of them. In the past 10 years we have acquired five companies in the distribution business. If we look at acquisitions in Brazil, businesses are too expensive. We continue to look at consolidation options but green-field projects are proving a better way to grow. Distribution in Brazil has become very professional in the last 15 years in the way companies support businesses in the market, which marks a distinct change from the 1990s. When international companies come to Brazil it is good for our company as it brings more professionalism to the business market with regards to environmentalism, serving customers and distributing products from big chemicals companies. Distribution companies that understand the specifics of chemicals is what the industry wants and needs.

How would you describe the investment environment in Brazil?

Brazil is a difficult place for business, in terms of bureaucracy and the time it takes

for business matters. However, corruption has been reduced. For foreign companies, Brazil is a booming market so long as they are based here; it would be hard to operate in Brazil from overseas. It is an interesting market and with so much potential such as the development of property, infrastructure etc.

Do you think the government has taken positive steps to improve the challenging situation here with regards to bureaucracy, taxes etc?

Brazil is growing in the right direction, however de-bureaucratization, political or tax reforms in Brazil is yet to come. With regards to investment in infrastructure there is a lot being done; this is being propelled by the advent of the World Cup and the Olympics.

Right now how competitive is the market place for distribution companies?

The market used to be dominated by family-owned companies but now it is more dominated by professional companies and corporations. We still have to deal with informal, small distribution companies but in the past this dictated how successful we could be in certain markets and regions. However this situation has improved and in terms of a level playing field, these days everyone is on the same level so long as they do their homework. We do have to be careful of a few aspects and payment terms is one of them. Bandeirante concentrates on how to drive working capital down.

How do you think we will see the chemicals distribution industry evolve in 5 years time?

The chemicals industry needs more and more distribution as a perfect channel working together. The chemicals industry is becoming scaled in Brazil so it needs a very strong and prepared commercial arm to deliver the products to the larger markets. It requires a commercial service providing distribution solutions for the customers. So we see interesting growth



for distribution; taking more of the market share, offering more services besides just buying and selling products. Growth for chemicals in general is happening in more remote areas and Bandeirante is prepared for this logistical service.

Do you have a final message about Brazil and Bandeirante?

Brazil is an interesting country that is growing very fast. We have a significant number of people moving out of poverty in to the middle classes. This means there is an increasing internal demand for consumption; from houses to food to toys pharmaceuticals etc, the potential for growth is high in this country. On the other hand it is still very bureaucratic; we pay about 40% of GDP in taxes and yet still we have to pay for public services such as schools and healthcare etc. The Brazilian surcharge is significant and so the government had adopted a culture of protectionism. In order for us to be able to compete with foreign imports they put barriers to entry so imports have to come in at a premium. There is enormous potential for companies willing to be based here in Brazil and not do business from a distance.

Bandeirante wishes to be more sustainable with regards to ecology, investments, technologies and logistics. We are building more labs to serve construction, home and personal care as we see growth in these areas. We also want to be more proficient on the technical side so we can help small and medium sized customers to grow. Bandeirante wants to be closer to our customers. We are happy with our business during the past three years since the crisis in 2008 as growth has been steady and consistent. On the commercial side we bring differentiation to our customer in the sustainable products we offer, which sustains customer satisfaction. •



Courtesy of Vopak

The Distribution Network

Imports, exports and around the country

Brazil's distribution business has been through several changes over the years, from the liberalization of the industry in the 1990s to the introduction of the Responsible Distribution Process. This development remains ongoing, with a current trend of consolidation reshaping what is traditionally a business dominated by family-run companies.

Leonardo Roisman, board assessor for Sulatlantica, a local distribution company with over 55 years of experience, describes these milestones: "the evolution of the distribution industry started many years ago. Brazil emerged from hyperinflation and in the last fifteen years we have endured an inflation rate of only 150%. Although this inflation is nine times higher than Americans, Europeans or Canadians, for Brazilians, who have been used to having huge inflation, it was a much easier percentage to run a business with. Companies with a structured business were the only ones to survive and Sulatlantica was one of them, but for many years, the business stagnated. The industry did not have a way to buy, there was an abnormal protection that did not allow the competition into the industry. Then in the 1990s we opened our ports and our market opened and we began a 'quality phase': more quality and more competition."

Another key milestone in the distribution business was Brazil's Responsible Distribution Program (PRODIR), which was ameliorated in 2010 in line with the standardizations of the Canadian and United States practices. The program requires members to continuously improve performance in protecting health, safety, security and the environment.

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Interview with Rubens Medrano

PRESIDENT OF THE NATIONAL ASSOCIATION OF
CHEMICAL AND PETROCHEMICAL DISTRIBUTORS
IN BRAZIL (ASSOCIQUIM)



What role does Associquim play in the industry?

Associquim is an association whose members work in the imports and distribution of chemicals and petrochemicals. We do not produce nor consume, we just do the trading and logistics. Our association was founded in 1960 and we have a long history in the chemicals sector in Brazil; our members started before the chemicals sector in Brazil began to grow so we helped the industry significantly when it was being established here. We provided the right channels for distribution of chemicals and petrochemicals.

How have you seen the association evolve in terms of its key roles and objectives over time? And what strategic goals are you hoping to achieve over your next three years as president?

The chemicals sector is always under the spotlight with regards to health and security. So 10 years ago we launched the Responsible Distribution process and now our association members are very concerned about the environment, security, transportation and their employees. Besides that, our members

have been investing substantially in facilities. We have a big country, however the business is still 90% majority in the southeast. Yet we are now starting to see the industry developing in the northeast and to accommodate that substantial investments are being made: in logistics, storage, and capacity. We are in the middle of business and the consumers.

What are the key challenges facing your members within the next three to five years?

Brazil has a lot of logistical problems; our transportation system is on road and not rail and the cost has become very expensive. Logistics has been very difficult, particularly with regards to imports. So we need specialized people to deal with this. We have a very important function because we go in to the international market to research new applications for the products and also we have to make it competitive to our customers. So we are constantly in touch and looking. Also we have the conditions to consolidate cargos and reduce the costs of imports.

What effects are you seeing upon your members with the rise of the real against the dollar?

The question of the dollar is not a question of whether it low or high. It is instead the fluctuation of the exchange rate that is a problem for us as it creates risk. 90% of our costs are avoidable costs, so the costs of the devaluation can have a big impact on our bottom line in this industry.

What kind of predictions do you think we will see for 2011 to 2012? Do you think we will see the same kind of

high growth curve as in 2010?

The Brazilian distribution business is growing constantly as we see more and more demand from the producers. We see more consolidation in the chemicals industry. They are concentrated more on the key customers and requesting that the distribution system do the same. In 2014 Brazil is hosting Football World Cup and in 2016 we are hosting the Olympic Games. We are starting to see a lot of demand from companies making huge investments in logistics and construction, and also the government has been giving a lot of financial incentives for the construction of houses for the medium and lower classes. So the construction industry is increasing rapidly and so here we see growth potential.

Do you think that the industry is receiving the kind of support from the government that it needs to move forward?

Unfortunately the government is not providing enough support. We have a strong regulation on chemicals brought in to Brazil. Right now we have a new regulation where you have to collect used packaging, but we do not see enough incentives from the government to help us with the problem. They just make the regulations but the costs are in our hands. So this is a big challenge we will see for the next couple of years.

To what extent is Brazil's regulations and legislations a hurdle for distribution companies?

Brazil has strong regulations on chemicals. Right now, for example, we have a new regulation where you have to collect used packaging, but we do not see enough incentives from the government to help us with the problem. They

make the regulations but the costs are in our hands. The regulatory framework in terms of dangerous products has very complicated taxes legislation, not just with regards to the costs but also the bureaucracy that you have to have in the company to achieve all the requirements the government is asking of the private sector. When you need to make an investment and expand your business it is very important to have the finances, but the rate of finances in Brazil is still very high so this makes things very difficult.

Do you think that in the next five years you would have seen more opportunities for growth, where do you see the industry?

Right now Brazil is doing very well and the future is here; there is a lot of potential for growth. One good realization of the government was to bring in the power of consumption. The domestic market is doing very well and there is good demand and growth for the next coming years. Our concern is that when you see expansion in demand but there is not the same level of growth within the industry, we will see the need for imported products. With the chemicals industry we have not seen much investment in production and so when production stagnates there is a gap, which is fulfilled by imports. The Brazilian government has taken some measures to protect the Brazilian industry but we have realized you have to be careful because you cannot put too many difficulties on the import of raw materials; the local production in Brazil is simply not enough. The government must approach the import market with a different strategy; implementing differently tiered regulations on different imports; luxuries and raw materials, for example. •

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Recognizing this important milestone, Rubens Medrano, president of The National Association of Chemical and Petrochemical Distributors in Brazil (Associquim), can safely comment: "now, producers worldwide can find distributors in Brazil with the same level of service quality. This facilitates new trade agreements and strengthens Brazil's commitment to sustainability in the sector."

In an emerging market such as Brazil, that is experiencing increased levels of foreign trade with countries all around the world, this is a vitally important step. In fact, much of Brazil's trade is with countries of quite strict standards; in 2011 foreign trade results reveal the largest volume of imports came from the European Union (29% of total imports), followed by North America (27%) and Asia (17%), whilst 22% is exported to Mercosur (only 5% imported), followed by 21% to the EU and North America respectively and only 9% to Asia.

Given this global scale and the logistics it requires, it is perhaps surprising that the distribution industry in Brazil is as fragmented as it is. Associquim has over 120 member companies involved with the distribution of chemical and petrochemical products, accounting for more than 50% of the consumer industry. This industry is led by just a handful of major players, with the largest (Brazilian chemical distributor QuantiQ, now owned by Braskem after the acquisition of Ipiranga) holding a market share of between 10% and 12%. The remainder is composed predominantly of family-owned businesses.

Yet the large and rapidly-growing nature of the Brazilian chemical distribution market means multinationals are paying close attention and locals are being propositioned. This was apparent in the recent acquisition of Arinos Química by Univar, a leading global chemical distributor. Another successful family-run distribution business established in 1952, Coremal, is among the top 10 largest in the country. Coremal's director, Romero Dantas, has also seen the enthusiasm from abroad: "we have an expression

in Brazil, 'a bola da vez', meaning that everyone wants to come to our country. Only a handful of distribution businesses are international; Univar (recently acquired Arinos), Brenntag and Pochteca; the remaining players are, with the exception of QuantiQ (owned by Braskem), mostly family businesses."

Across the globe one can see this trend of market consolidation amongst distribution companies. According to Dantas: "consolidation has happened all over the world in the distribution industry in Europe and in the US and most recently in other continents. Now this trend is stronger in South America and Brazil is prepared for that. When Brenntag entered Brazil in the 1970s, the larger distribution companies worldwide starting paying more attention to South America and now everyone wants to come to Brazil. Coremal, as with many other companies, is open to discussing a deal that may bring value to its operation-buying, selling, merging, etc."

As Brazil lowered some domestic market barriers to allow more competition from products manufactured abroad, which of course resulted in the opening up of trade, the industry saw large spikes of import growth amongst the chemical industry as well as the automotive, textile and food sectors. The chemical industry also experienced high export growth rates. In light of these changes in the marketplace, Jan Felix Krueder, director of Anastacio, a local Brazilian distribution company, reconstructed the face of his business from a producer of fatty acids to exclusively a distribution business: "our annual sales in 1997 were \$3 million. Over the next five years we invested in new equipment to increase production and in 2001 we decided to expand our business into the distribution of imported products with a similar product line to ours. This business grew so quickly that after two years we decided to stop production of glycerine and fatty acids and to focus solely on the distribution business. In these eight years we expanded to be one of the biggest distributors in Brazil, with sales in 2010 reaching \$200 million."

Such growth is difficult to sustain. Anastacio has added a complimentary segment to their business to continue expanding and servicing their customers. "We have decided to import products from around 30 different countries, to buy from local producers and to buy local or imported materials and outsource them in six different industries. The outsourcing business has been successful, as we have found a lot of companies with good technology and good quality but lacking the financial structure to run by themselves and with our strong sales department we can offer very competitive purchasing. We are very fast in making decisions and one of our biggest strengths is our agility... there is also a plan to make partnerships with local distribution companies in other countries in Latin America. The next step would be to explore opportunities for fusion with these distributors and at that time we will need a bigger capital injection to buy participation and expand in Latin America," adds Krueder. Companies looking to take advantage

of this consolidation to enter the market or expand their position would no doubt be making a sensible move; distribution plays a vital role in the business plans of any manufacturer, especially in a country as large as Brazil. Yet there are some issues that must be taken into account. Firstly, Brazil's infrastructure is, in parts woefully inadequate, presenting a substantial challenge. Secondly, unique difficulties present themselves in both the culture and the currency of the country. "A challenge we face as distributors is with the culture of the local producers. The average distribution participation in the chemical industry is around 20% but in Brazil we are close to 12%, this means there is a lot of space to grow in the market, but we need to change the mindset of the producers. We are seeing progress, and producers are learning that distributors has a very important role in the market; previously it use to be only 7%," says Victor Cutait, director and shareholder of M. Cassab, one of Brazil's largest distribution companies.

"Distribution grows alongside the industry and international growth. If consumption in Brazil increases, so does the distribution. Distribution companies have a lot of variations in their operations. For instance, if it is cheap in China, we bring it from China; if it is better in India, we import from India. However, there are two sides to this, if you start bringing too many foreign products, your client will stop buying your products because they are imported or else they will stop producing," says Roisman of Sulatlantica. "Therefore, we have a dilemma in Brazil. We have the exchange rate favoring some products that come from abroad and use cheaper labor, including China and India. I do not think it is a good option to stop these imports knowing that Brazil also exports to these countries. One of the largest consumers of our products is China, so if you stop these imports you can also stop China from buying our products. There are a series of nuances and variables but Brazil has big opportunities." •

Interview with André Luiz Façanha

EXECUTIVE DIRECTOR, GRUPO TONIATO



Grupo Toniato is part of a larger organisation. Could you provide a brief explanation of this structure?

The company is more than 38 years old and has an extremely strong management team with a wealth of knowledge pertaining to the industry. Brazil stopped investments in construction 20 years ago, which is when our owner made an investment and bought some land. This land you see around you turned out to be a good, strategic investment. Today we have an impressive facility with ample space that allows us to provide quality service to all of our clients, at all times.

We are a group of four companies; Skuassil Transportes, Ebamag Logística, Transportes Toniato, and Grupo Toniato. All but one of these companies (Skuassil) was built by us. Our clients are segmented into their specialty of operation. We have special chemicals, paints, varnish, agrochemicals, gas and liquids, logistics, and glass. We are also working with engineering companies to erect buildings. Our management team consists of experts who are knowledgeable in every one of these fields in order that we can provide specialized and personalized service to our clients, rather than just simple transport. We are very strong in the Southwest region of the country and our strategy is to increase this presence slowly, step by step.

We exist to help our customers sell their products. We do not simply think as a transport company, we think as a chemical company. We sit down with our clients for a proper analysis of their needs and discuss this within our management. Not only do we have to provide specialized service, but we have to have competitive costs, innovative equipments and we really have to break some paradigms. Even in this industry, it is important to do things differently.

We spend a lot of time traveling to other countries to learn new ways of doing business, and this is something I feel is appreciated by our clients, which include DuPont, BASF, and Bayer.

What is government support and infrastructure like for services like yours?

Year by year, we promote meetings with the supply chain directors of our clients to discuss a very important issue for our business. We lay out the main points on the table of government initiatives that concern the chemical industry. We need the power of the industry to demand certain actions from the government. Infrastructure, modes of operation, and legal framework are not up to par here. The chemical industry cannot use the rail because the frequency is not adequate, and it is used mainly by mineral companies. More than 90% of the load in the chemical industry is delivered using trucks.

Regulations and infrastructure are two big points. It is easy to do work when you have infrastructure. In Sao Paulo we have some restrictions concerning the width of the truck. Sometimes, we need to use a smaller truck. This does not make sense to me that we aren't advanced enough to accommodate all types of equipment. There are a lot of taxes but not enough management of the situation. They are not implemented effectively.

Brazil strives to be a leader in the chemical industry. We need better transport networks, and there is only so much that we can provide. Some of this needs to come from the government, and we do our bit to ensure that this happens. We are working on transforming our reality.

What is the competition like in Brazil for the services you provide?

The competitors we have are very focused on transport. They are not focused on the mission of helping clients. When we realised this, we increased our business a lot. 95% of the other companies are focused only on transport, not so much on their clients. We are really a full-service oriented company. Instead of just calling us to arrange for transport, clients call us to discuss their projects, their needs, and the best way to handle logistics. We are not seeing so much competition from multinationals. There are a lot of Brazilian companies in each industry and sector that provide transport, but we are still ahead. Many multinationals are buying local companies in joint ventures, but they remain Brazilian managed and operated. We have had many people knocking at our doors, but remain focused only on building our company and maintaining our clients' satisfaction at the moment.

What are your goals for the next five years?

We make our plans 15 years in advance. Our strategy is to consolidate in this region and then expand. We are thinking about 15% growth a year for the next five years and expansion into regions where we do not have operations already. Our company size has tripled in the past seven or eight years, and we hope to continue to see such positive numbers. •

We are here to help you sell

At Grupo Toniato, we are committed to developing complete solutions in transportation, logistics and engineering, with warehouses built to suit.

Almost four decades of experience in providing excellence to our customers in the segments in which we operate.

We are trusted by the chemical industry's leading players. They choose Grupo Toniato to safely transport their valuable assets.

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Interview with Francisco Borlenghi

PRESIDENT, CESARI



Cesari has been successful with international and national clients. What sets you apart from other in the market?

Cesari has been in the market for over 60 years, but it's only been 20 years since it was purchased by current owner who were already experienced in the transport segment. When Cesari was first purchased by the family, the company operated solely in the transport segment, but over time the company grew and soon we embraced other segments such as storage, logistics, isotanks, and containers where we saw opportunities for growth. Today Cesari offers a full logistics solution to our customers that meets their individual needs.

Cesari wanted to provide its customers with something unique, so we developed a department solely focused on providing customized solutions for our clients. In this department, we assume the product from storage and manage the logistics all the way through transportation to exportation. We aim to offer logistics that meets the customer's need of time and often cost availability. We have today terminals where we receive and distribute other chemicals derived from liquid bulk. We often store the isotanks here to export to customers in foreign markets, which is an important part of our business. We have all areas covered for logistics, including air, land and ocean. In addition to the terms of delivery, we perform the maintenance of the containers, sanitation and decontamination of the equipment because today's environmental regulations in Brazil are very strict in both transport and terminal legislation. Cesari is certified by a number of international organizations and is one of the few companies here in Santos that has the quality and environmental certification necessary to provide this service, and we see it as an area of growing need for our customers.

This has helped Cesari to achieve a large part of the market in the region.

Can you tell us more about the size of your operations and the capacity for your logistics?

The company has been in the market for 60 years which has given us the experience over the years to work with every major player in the industry, in Brazil. We have now over 1000 pieces of equipment serving all the necessities of this market. We have an average of 200 isotank in the segment of leasing for the internal market, we have the area to support 80 million liters of liquid, in addition to over 100,000 meters square of storage space in our warehouses. Not to mention Base 1 in Cubatão that alone has an extension of more than 2 million square feet. We need to modernize the infrastructure in Brazil to be competitive in the international market. In Cesari's logistics area we have a team of over 500 employees where their focus is on developing new services for logistics solutions, and prospecting new customers. We are also active on the road, sea, and air and now with our new railway project, we are active by train. Most of our customers do not have space to store their own inventory onsite, so they need speedy and efficient delivery of their goods, that is why we are investing in railway logistics.

What type of relationships does Cesari form with its clients and how do you go about attracting new clients and expanding your business?

As a company, we no longer invest in marketing we do not have a marketing department. We like to be present onsite with all of our clients and believe strongly that the quality of our service will lead us to further growth. Companies know of our services and request to work with us based on reputation and

word of mouth. When we gain a client, the relationship is long term and we work with our customers through the evolution of their company and their logistic needs.

ABIQUIM estimates the chemical industry needs US\$168 billion by 2020, what do you think the industry can do to help to attract investment and which areas need the most attention?

The problem in the growth of Brazil is the infrastructure, which requires extensive investment. We need to do a modernization of the entire network in order to improve the infrastructure to be competitive in the international market. Now that Brazil is receiving a lot of foreign capital from outside, and Brazil is in the

global spotlight, we must shift our focus and invest in ports, transportation, and power.

We have a dream, and the dream is to be more competitive in the international market. In Brazil today, the legislation makes it difficult to have equal success and ease of business throughout Brazil, for instance in some areas there are restrictions on transportation during daytime hours. This must change if we want to continue to grow throughout the country.

We can see Cesari is very established in the market. What type of growth is Cesari looking for in three to five years?

A promising goal is not only to bring the

railroad into the company but to use a duct system which will connect the port to Base 1 located in Cubatão, SP, Base 4 and Base 5 located in Santo André, SP – connecting the ports to São Paulo within three to five years. A promising goal is not only to bring the railroad into the company but to use tunnels which will connect all ports to Cesari, within three to five years. Not only will the tunnels eliminate three trucks per hour, but it will help prevent accidents and reduce pollution to help the environment as well.

We anticipate a growth on average of 20% to 25% per year over the next three to five years in terms of sales revenue. We believe in the growth of Brazil and we are seeing the influences on our company and our future success. •

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Interview with Victor Cutait

DIRECTOR, M. CASSAB



Could you give us an overview of the background of M. Cassab?

The company started with my grandfather who came from Lebanon with his brother and cousin and started the company in Sao Paulo. My father started working with him in the 1960s. As the company grew, we added divisions, including the chemicals division. This proved to be a sensible decision as in chemicals last year the turnover was \$360 million and this year we expect \$410 million. Right now for chemicals we have around 600 employees working in Brazil and seven branches. We have a branch in Argentina and also in China..

M. Cassab has top of the range equipment able to analyze all the products we distribute to ensure quality control. Also, the regulations and laws in Brazil are very strict, so M. Cassab has a strong team for dealing solely with regulations as it is very bureaucratic. M. Cassab always looking for long-term partnerships with suppliers and customers. We understand that we are a part of the distribution model for Brazil.

In M. Cassab's four lines of business, which contributes most to the growth of the company?

Most important to M. Cassab's business is feed, with 40% of our turnover. Second is industrial chemicals, which contribute 15% to our business. Fine chemicals contribute 12%, food 10%, and the rest is with farming, however farming is growing in importance.

Do you have a strategy in place to diversify into the agro-business?

We are currently studying possible strategy for this. We do repacking and give financing advances at present in this field, particularly with regards to imports from China. We understand as a company that the past is history, the

market is very competitive and so we are having to specialize in commodities. We understand that there is strong competition; very good companies are coming in to the market. We are also moving into some other specialized areas. We are very strong in commodities but, since about five years ago, in most of our divisions we have started specialty chemicals for each segment has been a focus. It takes more time to develop, but it works for us. Another key point is that we have specialized people for each division for development and sales; we are very focused and specialized in each sector, which helps us give good service.

We started our business in Argentina two years ago; it is now our second biggest market in Latin America. We are thinking about moving in to Colombia and maybe Chile in the latter part of 2013. We are already positioned in the USA, but not for chemicals. We have a cosmetics base in Miami.

Are partnerships and acquisitions part of M. Cassab's potential growth strategy?

For the last three years we have already bought three different companies, two of which were in chemicals. So we are always open to acquisition opportunities in the market.

What are the unique challenges that the distribution business in Brazil faces?

Firstly, the culture of the local producers in Brazil. The average participation in distribution in Brazil is around 12% so there is a lot of space to grow in the market share of the total chemicals business. For this we would have to change the mentality of the producers. Also Brazil has high and complex taxes and the infrastructure could be better; as could telecommunications. Regulations here are very bureaucratic, so the government are strict on distribution businesses too.

Have you seen a progression in the culture of Brazilian distribution over the past few years?

The industry is getting better and the multinationals are more open to distribution than Brazilian producers, but there are not too many multinationals here and there is not too much difference between the philosophies of Brazilian and international business. However, they are learning that distribution companies have a very important role to the market, with regards to advance financing, repackaging, logistics etc. Some companies even currently give us business to take care of their logistics and storage already.

If we were to look at the medium to long-term view of the distribution industry, how do you think we would see it evolve?

It is already concentrated, in that around six or seven distribution companies already have more than 60% of the total distribution market share. There does not seem to be much space for more consolidation in this industry, except perhaps in some specialties. The economy is growing and so is the middle class, so more people with buying power are coming in to the market. So there will be some more consolidation but not much.

Where do you think M. Cassab will be in five years' time?

Hopefully M. Cassab will double our business in five years. We are investing, we have a good team, we are developing new suppliers both internationally and locally, and we are developing new products, so we are optimistic. Of course this would depend on the

general economic situation. However, if Brazil continues to grow on average by 5%, which is expected over the next few years, then we hope in five years we hope we can double our business.

What is your final message about the Brazilian chemicals industry and about M. Cassab?

In Brazil we always have to be optimistic. In the last 10 years the political and economic situation in Brazil has been very stable. The economy of Brazil is ready to keep growing and we have controlled expenses of the government so we do not have as much taxation as European countries. We do have the problems of weak education, health system and other social aspects that we need to improve. However economically we will keep growing and we believe that Brazil is the country of the future. •



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Interview with Ivan Camargo

DIRECTOR AND OWNER, IC TRANSPORTES

Could you please start by telling us a little about the history and the aims of IC Transportes since its establishment?

IC Transportes was founded in May 1982, inside a gas station in Campinas. I actually entered the transportation carrier business because a customer of mine at the time at my gas station owed me money and he paid me with his truck. This is how IC Transportes started and it has now been 30 years. IC works in São Paulo, Minas Gerais, Goiás and Parana, Rio Grande do Sul, Rio de Janeiro, Sergipe and Bahia and our main goal is to be recognized as the best company in Brazil in the area of transport in bulk. The seven years we also work with the transport of liquid fuels and gases from the air. Our goal is to be among the best in the transportation of chemicals, so we invest massively in technology, training and safety for the transportation.

Could you please tell us about the services you provide and your distribution network in Brazil?

Today we have 450 trucks, and 800 semi-trailers, our fleet has an average age of 11 months. Our fleet consists

of several different types of truck like, Dump semi-trailers and dump interlink semi-trailers, tanks for fuel and cylinders, which we transport gas with. In our overall fleet, 99% of our work are with trucks and semi-trailers; we do not have small trucks only, a few for the distribution of hospital gas. Built into IC's personal fleet, we have telemetrics on board each of our trucks, which provides us with total control. We have the ability to know specific details on the truck and the load at any given time, for instance we can monitor the weather and see the conditions for the journey of driver. This information is then fed back to our customers every ten days, but in some cases our customers can even receive real time information, 24 hours a day. In addition to our trucks, we have hired contractors to provide our services in the harbor area near the ports, and these drivers are autonomous and operate their own equipment, not only in operations involving the transport of hazardous products.

IC Transportes is considered by some to be the best bulk transport company. What do you do to distinguish you from the competitors and what

has led to the company's growth?

IC differentiates itself from other competitors because we have a very competitive price and we never compromise on security and safety. Safety is not a cost, but investment. It has been 10 years that our goal and priority has been safety and security and this December IC reached its goal of 150 million miles without a fatality. We are very proud of our accomplishments in this area.

Each day we see very consistent growth, at IC we believe that when we conquer a customer it is like a lasting marriage. We have been very successful at conquering business in the chemical industry and I believe our training in safety, security and environment has led to that success. We also have a very social company culture, and we are integrated into our local community.

What is the greatest challenge currently facing Brazil's chemical industry and what areas do you see for improvement?

Brazil's chemical industry has a lot to improve and every day we are learning what we have to do to develop the industry. At IC, we like demanding cus-

tomers because it is them who help make us better at what we do. We have reached our level of success because of them and they will help grow Brazil's chemical industry.

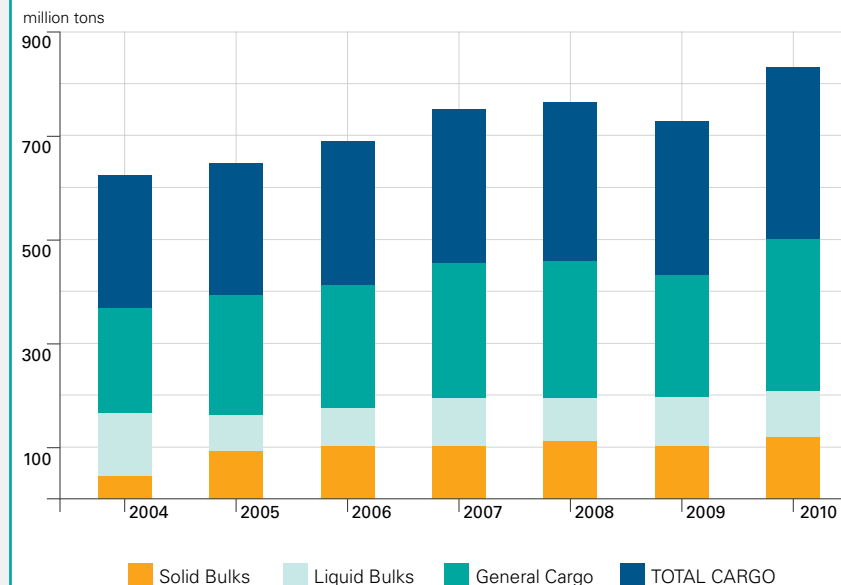
In particular for IC, we believe the port structure needs a lot of improvements, and the management of roadways in Brazil is an issue for us, as toll fees are our second highest cost in the company. Brazil has a good road network, but the costs of the tolls are very high in the state of Sao Paulo and this is directly impacting the operation of our business and ability to offer our customers competitive prices.

What steps will IC Transportes have to take to ensure its continued success and growth?

By 2014, we plan to move the company's operations to a new location, we have been in our current facilities for 11 years now and today our reality and space requirements are very different than they were 11 years ago. We need larger facilities to match our company's growth and we intend to continue growing in the chemical sector, where I am confident we have competence to make this a reality.

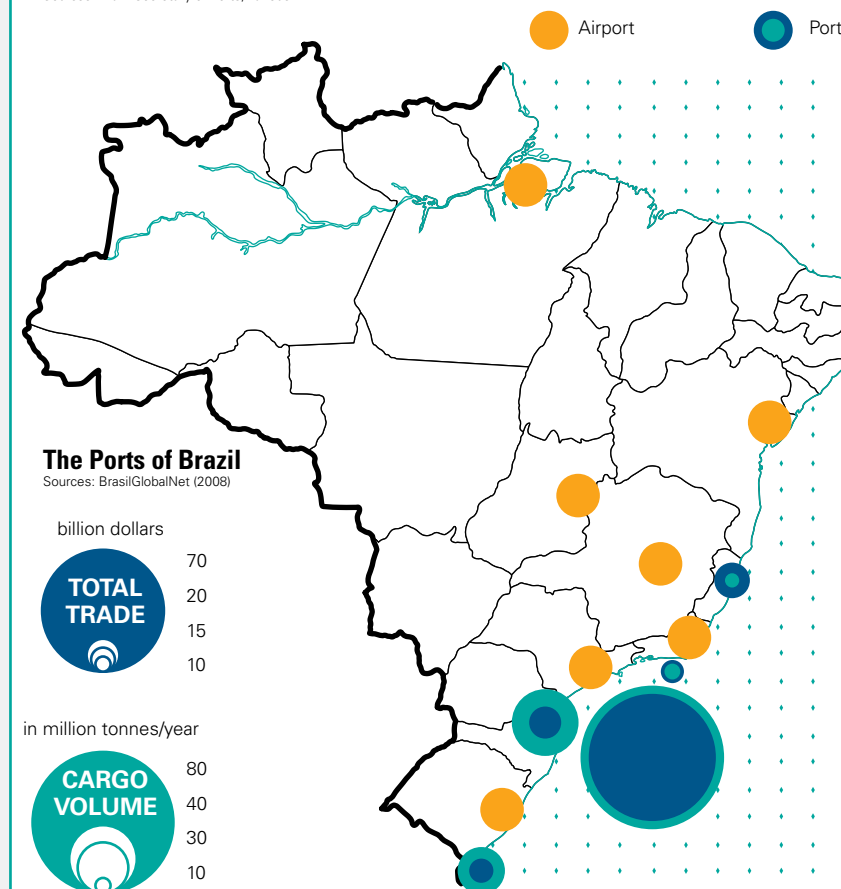
Cargo Volumes

Sources: American Association of Port Authorities



Ports and Airports in Brazil

Sources: Brazil Secretary of Ports, Various



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Interview with Daniel Lisak

PRESIDENT, VOPAK BRASIL S.A.



For the record please can you provide us with a snapshot of Vopak globally and a brief history of Vopak's operations in Brazilian?

Vopak is the global market leader in the independent storage and handling of liquid oil products, chemicals, vegetable oils and liquefied gases with 83 tank terminals in 31 countries and a total storage capacity of more than 27 million cubic meters. In 2016 the company will celebrate 400 years.

Vopak has been in Brazil for over a decade through the acquisition of two familial companies. Vopak is present at the Aratu Terminal, which is strategically located to supply the fast growing region of the North Eastern Brazil. This is a key site to serve Camacari, the biggest petrochemical complex of South America. The Alemoa and Ilha Barnabe terminals in Santos are strategically located at the fast growing number one port in Brazil; and in Paranagua through a joint venture, União/Vopak, the second most important port for liquid bulks in Brazil. Thus we are well positioned to build on the foundation we have in Brazil and grow the operations to be the leader in our field.

Operating across the globe, how important is the Brazilian business to the overall company?

Brazil is one of the most important countries in the Latin American region for Vopak. Looking at the GDP growth and related increasing logistic product flows the main possibility for larger volumes and larger cubic meters in Latin America exists in Brazil, thus Brazil is a major focus for the group.

In Latin America, we have a net capacity of more than one million cbm.

What is Vopak's strategy to achieve your aggressive growth plans for the Brazilian operations?

The strategy for growth in Brazil is linked to the global Vopak strategy. Vopak is investing in growing capacity worldwide. In the coming years an additional 6 million cubic meters (cbm) will be commissioned by the company leading to a total storage capacity of over 33 million cubic meters in 2014. In Brazil, we are improving and expanding existing terminals. In 2010 a new area was inaugurated in Alemoa adding 37,200 cbm of capacity and in October 2011 a new area was inaugurated in Aratu adding a capacity of 26,300 cbm. Also, in the first quarter next year improvements in Alemoa will result in the addition of 3,400 cbm to our existing storage capacity. To expand our presence we will also look to develop terminals in new locations in Brazil.

Vopak also developed and acquired independent import and regasification terminals for liquid natural gas (LNG), with the first earlier this year in Rotterdam and the second one also in Latin America, in México, only two months ago. This is a new business area for Vopak and we foresee natural gas as a good opportunity for diversification globally and in Brazil. We are also looking for new projects in biofuels, crude oil products and petroleum derivatives and because of the new discoveries of pre salt, this is a huge market with large opportunities.

Vopak is also looking for Brazilian companies as global customers to add to our portfolio.

As a relatively new player in Brazil, how competitive is the marketplace and what are the key factors that challenge your stance to position Vopak Brazil as the leading storage and handling company?

The market is very competitive, with competition from strong Brazilian players as well as multinationals. However, we see some initial signs of a consoli-

dation in the market over the next few years and Vopak will carefully investigate potential opportunities to strengthen our position. Brazil is not an easy country for business and multinational companies need to learn to adapt the Brazilian working culture and to understand that to implement operational excellence takes time.

At a governmental level, the systems and processes are highly regulated, for instance, all the ports are owned and controlled by the government. As a Brazilian, I understand the culture and the intricacies of working with the government and I was recently appointed as

the Director of Vopak Brazil to manage the further growth of the business here and to help position Vopak amongst the leading players in Brazil.

How do you expect the market to evolve over the next three to five years?

The Brazilian chemical industry will continue to grow at a rate of one and half to two times the GDP. The southeast region has typically been the rich area and the focus of companies in Brazil. However, today the north and northeast region are a key focus, as the new refineries create a lot of space for growth opportunities.

This has been the poor region in Brazil but today it is growing at a rate of 12% to 15% per year and Vopak Brazil foresees a lot of business potential in this area.

What would be your final message to our readers about the Brazilian Chemical industry and about Vopak?

The rapid growth of the country due to the economic stabilization in recent years and the market potential presented by chemicals, ethanol, crude oil and fuels require a quick response from all stakeholders, public and private initiative; and Vopak will be a part of this growth. •



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Interview with Marcos Rogerio dos Santos

GERENTE GERAL, ORICA CHEMICALS BRASIL

For the record please can you provide us with a brief history and evolution of the Orica Chemical Business in Brazil?

Although Orica has over a 100 years of operations globally, Orica Chemicals Brazil is a relatively young business unit, having been in operation for four years. In Brazil, Orica Chemicals began producing and delivering products initially for the Orica Mining Service (OMS) division.

Our main activities in the Orica Chemicals business unit are as a chemical distributor. Orica chemicals has a strong presence and track record worldwide in this business model and we are advancing and replicating this in Brazil. We rely on operational excellence, credibility and security that has been developed and accumulated throughout our history globally.

Since the inception of the Orica Chemical's business in Brazil we have seen a lot of opportunities in the marketplace and today we are one of the largest additives distributors for fuels to Petrobras.

As a new player in Brazil, how difficult has it been to secure partnerships with some of the largest players in the chemical industry and what is your future strategy to maintain this track record?

Four years ago we started from zero and last year we reached revenues of almost \$70 million, thus we are showing extreme growth in the marketplace despite the competition of well-established distribution companies. These revenues correspond to some of the top distributors in the Brazilian distribution industry. Orica sees Brazil as a huge growth potential, although we recognize that it is a very particular and sometimes challenging market to work in the distri-

bution of chemicals.

Orica chemicals is the fastest growing group globally with the highest rates in Brazil. In Australia and New Zealand we are the largest distributor and we are looking to achieve the same results in Latin America. To do this, we are always introducing new activities and segments into our portfolio.

What market segments are driving the Orica Chemical business in Brazil?

Chemicals for the mining business is of course a key driver to our business in Brazil and globally. However, in addition we provide chemicals through our isolation and construction business as well as our industrial chemicals division. These include petrochemicals and cosmetics and some commodities issued to plastics or paintings companies.

We plan to diversify and to import our technology from the other countries where Orica is very strong. For instance in PCT, a clean technology that is used to package products and services for the food and feed industries in order to manufacture in the proper sanitation conditions. This is a new product that we will be launching in Brazil in 2012.

Orica is also looking for opportunities to invest in Brazil. We believe that according to Brazilian culture, although distribution is a good business, we need to produce locally and distribute. This is an important strategy to expand in Brazil.

What would you describe as the key challenges for the distribution companies operating in the Brazilian chemical industry?

There are a lot of producers interested in sending products to Brazil, but starting at the harbour we begin to face many operational challenges. The structure of the harbours are not conducive to cost

effective business; there are huge lag times, and the systems and processes can be extensive.

Also, the Brazilian taxes and duties have the potential to make a very cost competitive international manufacturer not cost competitive with local manufacturers. For instance, there is the availability of a good source and a good principle, but when you arrive to the country the operations are very expensive because you lack adequate options.

Taking into account these challenges, how do you see the future of the Brazilian industry and Orica Chemicals Brazil?

There is excellent potential in the Brazilian industry, but we are suffering the effects of the country structure, which include the most expensive electric energy in the world, and major bottlenecks in the ports and throughout the logistic chain. For instance in petrochemicals, Brazil purchases almost 50% of raw materials from foreign countries, as we do not have the availability of cost competitive materials here in the Brazilian market. This impacts directly on the production chain.

Despite these challenges, the Brazilian chemical industry is performing very well, and we will have to grow to follow the growth in the Brazilian economy. Huge investments will be made in the chemical industry from local and international players and in ten years time, the scenery of this industry will be very different.

Orica chemicals is growing fast and looking for acquisitions. We are very clear in our strategy; we are adding value to the market with our operational standards to distribute speciality and commodity products with a flat services platform to our clients. •



Courtesy of Vopak

The Infrastructure Issue

Road, rail, and ports

Infrastructure arguably presents the single largest threat to the competitiveness and continued advancement of Brazil's chemical industry. Despite its massive size, Brazil spends only 2% of its GDP on infrastructure: a third of the expenditure of China and half of the expenditure of India. Estimates have put GDP growth at an average of 2% higher per annum if Brazil had the quality of infrastructure seen in Costa Rica or Chile.

The lack of suitable infrastructure ranks among the biggest concerns of logistics and distribution companies in Brazil. "A lot of investments are needed in infrastructure. If we are the seventh largest economy in the world, our infrastructure is not at all aligned with the growth of the country," says Jan Felix Krueder, director of Anastacio, a local distributor.

The Brazilian government is not sitting idle however. In recent years, upgrades and expansions, especially of the country's many ports, have been carried out and further improvements are planned. A new port is being constructed in Rio de Janeiro state that should go some way to easing the bottlenecks that currently exist. Yet the scale of the necessary improvements can be daunting and capacity and time delays at ports make it harder to achieve efficient delivery. Victor Cutait, director and shareholder of M. Cassab, affirms: "when products arrive in Brazil, they take 15 days to clear the ports. This in comparison to a country like Singapore that takes one day."

The largest port in Brazil, the Port of Santos, remains a major bottleneck. In Santos, the port is congested, costly and highly inefficient. "There is a need

for the creation of an efficient logistic system by the government. Today we are failing; ports and cargo loads cannot be delivered on time and they are extremely expensive. The roads are in terrible conditions and trains, that should be the main part of a logistic plan because they are cheap, are almost non-existent in Brazil... The way things are now, we pay less to bring something from China to Brazil then from Rio to Sao Paulo," says Sulatlantica's Leonardo Roisman.

Facing such challenges, Brazil's plethora of transportation and logistics companies have proved innovative and adaptable. M. Cassab, for example, have adjusted their payment schedule to reflect the hurdles. "We pride ourselves on our service division and we offer packaging and finance solutions," says Cutait. "For instance if we import from China, the time it takes from shipment date, to transit to clear the ports can be lengthy. Therefore, we pay the suppliers one or two months before we receive the payment from the customers."

TrustTrading and Logistic, a company offering personalized solutions in trading, import and logistics, built their business around the port of Santa Catarina to take advantage of the lower operation costs. "As a part of our solution, we look for the port with the best tributary cost for that specific operation. At this point the best port in terms of costs has been Santa Catarina. That's why we opened a unit there, with an area of around 80,000 m2 and 8 km from Itajai and Navegantes ports where we receive the raw materials. We have built a business center for our customers to open their branches. Our facilities are ready to receive any chemical products," says managing director Juliano D'Almeida Victorino.

Future Solutions

Cesari, a storage, transport and logistics solutions provider, shares the belief of Sulatlantica's Roisman that railways should be the solution to Brazil's infrastructure challenges. The company is

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Interview with Jan Felix Krueder

DIRECTOR PRESIDENTE, ANASTACIO



How has Anastacio adapted to the changing Brazilian chemical industry over its years of operation?

My grandfather founded the company in 1941. We were focussed initially on glycerine production and then entered into other products including fatty acids. Until 1990 Brazil was a closed market and we did not see a lot of imported products. During this time, like many other companies, we did not invest a lot and when the market opened up, we decided to innovate, invest and increase our sales. Our annual sales in 1997 were \$3 million USD, and in the next five years we invested in new equipment to increase production and in 2001 we decided to expand our business into the distribution of imported products with a similar product line to ours. This business grew so quickly; that after two years we decided to stop production of glycerine and fatty acids and to focus solely on the distribution business. In these eight years we expanded to be one of the biggest distributors in Brazil, with sales in 2010 reaching \$200 million USD.

It is not easy to keep this same rhythm of growth, so we have decided to import products from around 30 different countries, to buy from local producers and to buy local or imported materials and outsource them in six different industries. The outsourcing business has been successful, as we have found a lot of companies with good technology and good quality but lacking the financial structure to run by themselves and with our strong sales department we can offer very competitive purchasing. We are very fast in making decisions and one of our biggest strengths is our agility. Today we have we have three logistic sites: two in Sao Paulo and one in Santa Catarina.

What key market segments do you serve and how do you see this diver-

sifying in the future?

We have three main divisions; personal care division (cosmetics, animal health), industry division (paint, household, lubricants, polyurethane and agriculture) and the third is food and animal feed. Nowadays, 40% of our revenue is from our personal care, 40% from industry and 20% from food. We believe this is a good balance, we will continue growing proportionately in these areas. More than half the Brazilian population now belongs to the middle class and this population is now consuming a lot of personal and household products. We also see that a lot of investments are needed in infrastructure. If we are the seventh largest economy in the world, our infrastructure is not at all aligned with the growth of the country. This means a need for a lot of investment and together, with our different market segments will have good capability to increase together with the market demands.

We are seeing a lot of mergers and acquisitions within the distribution industry. To maintain your position as one of the largest distribution companies in the Brazilian marketplace does this form part of your strategy for growth?

In the future there are opportunities for consolidation but in the short term this is not interesting for us. First of all, we are increasing alone without any other partnership. Perhaps when we notice we cannot grow organically we will explore other opportunities. Secondly, there would not be a big advantage at the moment in terms of market. We have the necessary financing for all that we need and we do not want to lose our agility in decision-making.

However we have recently started exporting to Latin America and we already began to make our total sales, 8% is from the region. Currently we are dis-

tributing from Brazil, but there is a plan to make partnerships with local distribution companies in other countries in Latin America. The next step would be to make some fusion with these distributors and at that time we will need a bigger capital injection to buy participation and expand in Latin America.

How does Brazil compare from an operational perspective to other distribution industries in Latin America?

I believe that each country has its reality in terms of the local business handling legal issues and the credit. In Brazil we have a very good credit system. In other Latin America countries it is not so easy to handle the debt credit to the customers.

How do you see the industry evolving in Brazil and what is your strategy to capitalize on these changes?

I believe we will see a more concentrated market in terms of distribution. There are a lot of legal demands for distributors and companies that do not have a good structure not just in legal but also in level of scale to be competitive will not survive.

The distribution market will open more in Brazil, if you compare to US and Europe there is a lower percentage of purchasing per distributors in Brazil. I believe the distribution market can increase in Brazil.

What is the mission of Anastacio for the future?

Anastacio is here to best serve the customer in an agile and flexible way, providing the exact quality the customer needs with the best possible logistics and financing. •

continued from page 118

in the process of extending a railway line from their terminals at Santos and Guarujá ports, which will stretch 20 km from the ports in either direction. Francisco Borlenghi, president of Cesari explains: “we need to modernize the infrastructure in Brazil to be competitive in the international market. In Cesari’s logistics area we have a team of over 500 employees where their focus is on developing new services for logistics solutions and prospecting new customers. We are also active on the road, sea and air, and now, with our new railway project, we are active by train. Most of our customers do not have space to store their own inventory onsite, so they need speedy and efficient delivery of their goods, which is why we are investing in railway logistics.”

Cesari has around 200 isotanks for leasing in the internal market and the area to support 80 million liters of liquid, in addition to over 100,000 m² of storage space in its warehouses. Cesari’s business has adapted with the development of Brazil’s regulatory framework in the chemical industry and the company has recognized the requirement for companies in the sector to tighten their environmental policies to remain not only compliant, but also competitive.

Cesari’s president, Francisco Borlenghi, states: “we have today terminals where we receive and distribute other chemicals derived from liquid bulk. We often store the ISO tanks here to export to customers in foreign markets, which is an important part of our business. In addition to the terms of delivery, we

perform the maintenance of the containers, sanitation and decontamination of the equipment because today’s environmental regulations in Brazil are very strict in both transport and terminal legislation. Cesari is certified by a number of international organizations and is one of the few companies here in Santos that has the quality and environmental certification necessary to provide this service, and we see it as an area of growing need for our customers.”

IC Transportes works in the states of São Paulo, Minas Gerais, Goiás and Paraná, providing top tier solid and liquid bulk transportation services to the area. The company’s main focus is the transportation of raw material for fertilizers, such as sulphur, potassium chloride, phosphate rock, MAP, nitrate, and urea, and they use technology to help secure their place in the market. The company has implemented a state of the art GPRS tracking equipment and satellite technology to the company’s 1,000 vehicles that provides its customers with online information about the logistics and safety positions of their goods. Director and owner Ivan Luis Camargo says: “we have telemetrics on board each of our trucks which provides us with total control. We have the ability to know specific details on the truck and the load at any given time; for instance, we can monitor the weather and see the conditions for the journey. This information is then fed back to our customers every 10 days, but in some cases our customers can even receive real time information, 24 hours a day.

Camargo explains the impacts that Brazil’s challenged infrastructure brings to his company: “the port structure needs a lot of improvements, and the management of roadways in Brazil is an issue for us, as toll fees are our second highest cost in the company. The road tolls are very high in the state of Sao Paulo and this is directly impacting the operation of our business and ability to offer our customers competitive prices.”

Andre Luiz Façanha, executive director of Grupo Toniato, agrees that Brazil’s infrastructure leaves much to be desired in terms of efficiency. In trying to deal with this lack of infrastructure, Grupo Toniato has taken the lead in the transport sector by acting as a liaison between companies and the government. “Year by year, we promote meetings with the supply chain directors of our clients to discuss the very important issues for our business. We lay out the main points on the table of government initiatives that concern the chemical industry. We need the power of the industry to demand certain actions from the government. Infrastructure, modes of operation and legal framework are not up to par here.”

Façanha believes that it is necessary for companies related to the chemical industry to lobby for the changes they desire, taking an active role in “transforming our reality.” Problems vary from access to railroads which, when existent, are used almost entirely by mining companies, to the state of the roads which the chemical industry so heavily relies on. Many of the high-capacity trucks that companies such as Grupo Toniato have in their fleets are not able to successfully pass because of restrictions on size. With 90% of the load in the chemical industry transported by road, this reality needs transforming sooner rather than later.

In addition to working with clients to address their concerns with the industry as a whole, Grupo Toniato also prides itself on providing a thorough portfolio of services. Established over 35 years ago, the company holds a strong presence throughout the southwest region of Brazil and has developed its capabilities alongside the chemical industry.

Where Façanha feels that the company stands out in comparison to others is in its relationship with its clients going beyond transport: “we are really a full-service oriented company. Instead of just calling us to arrange for transport, clients call us to discuss their projects, their needs, and the best way to handle logistics.”

By creating four separate companies under one umbrella, Grupo Toniato has managed to specialize its services to meet the widely varied needs of their clients. “We have special chemicals, paints, varnish, agrochemicals, gas and liquids, logistics, and glass. Our management team consists of experts who are knowledgeable in every one of these fields in order that we can provide specialized and personalized service to our clients, rather than just simple transport.”

As multinationals begin penetrating the Brazilian market further, Façanha sees Grupo Toniato maintaining its position as a key leading player in the transport industry. “There are a lot of Brazilian companies in each industry and sector that provide transport, but we are still ahead. Many multinationals are buying local companies in joint ventures, but they remain Brazilian managed and operated. We have had many people knocking at our doors, yet at the moment remain focused only on building our company and maintaining our clients’ satisfaction.”

The Multinationals

Despite the unique challenges, or perhaps because of the opportunities they provide to those who can overcome them, an increasing number of foreign logistic providers are entering the Brazilian market. They tend to be the major players; to thrive in such a unique environment one must have either the knowledge built up over years of local operation or the resources and expertise of a multinational.

Vopak, the global market leader in the independent storage and handling of liquid oil products, chemicals, vegetable oils and liquefied gases with operations in more than 31 countries, has identified

“The cost of Brazil, when we refer to that, is the cost of infrastructure, expensive logistics, not enough or not adequate transportation, many things being transported by trucks rather than rail; you always have to spend more money on infrastructure. In some states, like Sao Paulo, you have very good road infrastructure, but when you go up to the northern or northeast part of Brazil, it is not the same. What we see in Brazil, which is no different to the rest of Latin America, is that freight cost is a significant component.”

Sergio Sousa, Managing Director for Latin America, Nalco

“To move material in the Gulf, you can move through barges and you pay \$3 or \$4 per ton for that. Brazil has a huge coast but we move chemicals by trucks. The freight rate for trucks between, for example, Camaçari and Sao Paulo can be over \$100 per ton. This is a problem with our infrastructure but also due to the fact that the major petrochemical complex is located in the wrong place; it was a political decision, not an economic decision.”

Guilherme Gerales, Managing Director for Latin America, Ineos Phenol

“Brazil opened up very fast to global competitiveness, and as a result we are facing difficulties of infrastructure. However, if we now try to protect the local industry we will cause problems in the export market. So the government needs to invest in creating better conditions, especially for logistics. Dealing with transportation and logistics currently increases our costs so much that, if we could improve this, Brazilian companies would be much more competitive in the global marketplace.”

Luiz Francisco Da Cunha, Executive Director, Schütz Vasitex

“In Brazil, if you move things fast you save money. If you do not move things fast you spend a lot of money. And if you do it wrong you pay fines and additional expenses. That is how it works and there is no way to change that scenario. Therefore, things like logistics and customs expertise is a must in this country.”

José Roberto Croce Campos, Country Manager, BDP International Brazil



Courtesy of Cesari

Brazil as a major opportunity for growth. Recently appointed director for Vopak Brasil S.A, Daniel Lisak, comments: "Brazil is one of the most important countries in the Latin America region for Vopak. Looking at the GDP growth and related increasing logistic product flows, the main possibility for larger volumes and larger cubic meters in Latin America exists in Brazil, thus Brazil is a major focus for the group... Vopak has been in Brazil for over a decade through the acquisition of two familial companies and is present at the Aratu Terminal, which is strategically located to supply the fast growing region of the north-eastern Brazil. This is a key site to serve Camacari, the biggest petrochemical complex of South America. The Alemoa and Ilha Barnabe terminals in Santos are strategically located at the fast growing number one port in Brazil; and in Paranaguá through a joint venture, União/Vopak, the second most important port for liquid bulks in Brazil. Thus we are well positioned to build on the foundation we have in Brazil and grow the operations

to be the leader in our field."

As the country develops and new complexes are constructed, service companies are expanding their geographical footprint. Vopak is just one example of companies seeing opportunities in areas that were previously thought less profitable. "The southeast region has typically been the rich area and the focus of companies in Brazil. However, today the north and northeast region are a key focus, as the new refineries create a lot of space for growth opportunities. This has been the poor region in Brazil but today it is growing at a rate of 12% to 15% per year and Vopak Brazil foresees a lot of business potential in this area," says Lisak.

Another multinational expanding its footprint in Brazil, Mammoet, entered the market 10 years ago in a joint venture with a local company called Irga. Under the terms of the partnership, the market has been split into three segments. Irga oversees telescopic range equipment and over-the-road transport, equipment ranging from 200 metric

tons to 600 metric tons is distributed and operated jointly, and work involving larger loads is done exclusively by Mammoet. Michel Booden, director of Mammoet Brazil, discusses some of their pioneering equipment being used in the country: "we have just mobilized the newest generation of PTC cranes, which is a 3,200-metric ton cap crane. It is in Rio Grande do Sul, and once it is assembled it's going to lift heavy modules up to 1,600 metric tons onto a FPSO ship."

Mammoet has an advantage as the only multinational in its line in Brazil for the past decade. Booden hints at the potential for further growth, saying: "we are currently still relatively small compared to other parts of the world in Brazil. The expectation for the coming years is to make a big jump. There is no one in the market that supplies the truly heavy equipment that we do. Our clients realize this and have confidence in us; we have proven ourselves to the Brazilian market, so we are very well positioned at the moment." •

Interview with Juliano D'Almeida Victorino

MANAGING DIRECTOR, TRUST TRADING & LOGISTIC



What is the history and primary business model of Trust Trading & Logistic?

I created Trust Trading & Logistic in February 2005 to provide import services in chemical raw materials and trade. At that time, Brazil's exchange rate situation was very favorable for exporting and Trust Trading & Logistic started exporting finished products from some of our clients. We made good partnerships in China and prospects for new products and development in China, India, Korea and Taiwan.

We offer our clients personalized solutions in trading, import and logistics in Brazil. We enable companies to receive products and build credentials with the Receita Federal (Brazilian IRS), Army, Anvisa (health Department) and Federal Police to import, storage and distribute products in Brazil. Our clients do not need to worry about a thing; that is our business. In this way, they can meet the ever-growing Brazilian market demands. Trust Trading & Logistic have clients from abroad with no structures in Brazil. They come to us to build a complete project for them from start to finish. We can provide a complete tailor-made solution, by finding what client needs to do this type of operation.

As a part of our solution, we look for the port with the best tributary cost for that specific operation. At this point the best port in terms of costs has been Santa Catarina. That is why we opened an unit there, with an area of around 80,000 m² and 8 km from Itajaí and Navegantes ports, where we receive the raw materials. We have built a business center for our customers open their branches. Our facilities are ready to receive any chemical products, with environmental license from Federal Police, Army, An-

visa Sanitizing, Cosmetics, Pharmaceutical and Food.

We have decided to focus mainly in the chemical area because our history and knowledge in this segment. We have expertise working with pharmaceutical, cosmetics, sanitizing products, explosive products or any area, like the Military, Federal Police or Anvisa.

There has been a lot of consolidation throughout the value chain in the Brazilian chemical industry. Is this something that Trust Trading & Logistic would consider as part of your growth strategy?

Organic growth is already happening and we are evaluating the possibility of new projects with potential partners. If this is interesting, it can be an option to be developed.

How competitive is the industry and what distinguishes Trust Trading & Logistic from some of the bigger players?

For the market segment we work and the solutions that we provide, we have no competitors. Our competitive advantage is that we are experienced in the chemical industry, as we were chemical industrial and distributors need. We develop a customized solution to our customers, with transparency and safety; that is why our name is Trust.

We are dedicated to the import, logistics and export segment and we are always seeking the best cost for our customers. If the client has its own structure, they will need to do a series of fixed investments including all the licensing. Once hired, we will complete the licensing and can offer an extension of their

licenses which is a simple bureaucratic process and still uses our license, this means the cost of operation is much less for them.

If we were to return in five years, how would Trust Trading & Logistic evolved?

We have projects lined up for the next five years. We have recently purchased new space so that we can have our own port in Itajaí and other strategic terminals for the chemical industry. We are also investing heavily in technology, information management so that the client feels secure regarding the status of their operations. We want to bring the best solution to our customers, in terms of import, logistics and export.

Brazil, in the next 15 to 20 years, will have huge growth and not only related to the pre-salt discovery. Even with the international crisis, Brazil is seen now with more financial credibility, and the country is growing. •

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- Executive search service
- Service of import and storage of chemical raw material
- Warehouses with all required licenses
- Logistics service



Interview with Michel Booden

DIRECTOR, MAMMOET BRAZIL



How did Mammoet enter the Brazilian market, and what are its main services?

Mammoet arrived about 10 years ago in Brazil, entering into a joint venture with a local partner called Irga. In this joint venture we've been supplying the market with crawler cranes ranging from a 200 to 600 tonne capacity. Any equipment lower than that (telescopic range and over the road transport) is being dealt by our local partner, and cranes over 600 tonnes and other specialized operations like self propelled transporters, strandjacks, skidding, jacking etc is being done by Mammoet Brazil directly. So we have split up the market into three segments. Below 600 tonnes is taken care of by Irga, 200 to 600 tonnes is the joint venture, and over 600 tonnes is done by us directly.

What percentage of your business worldwide is in Brazil, and what is Mammoet's involvement with petrochemicals in Brazil?

We are currently still relatively small in Brazil compared to other parts of the world. The expectation is for the coming years is to make a big jump. We currently operate on about €20 million a year which is a small amount compared to other offices. The main segment for us is the petrochemical and offshore industry, which generates about 80% of our revenues. Besides this, we are also involved in some civil work on stadiums, power plants, hydro-dams and mining work.

What are some of your bigger projects that Mammoet takes care of directly?

Last year we did two load outs for Petrobras through a consortium. They were 6,000-tonne load outs. We pulled the offshore platform onto a barge; we did the engineering, the ballasting, and so

on. The barge was provided by the client, but the engineering was ours.

We have just mobilized the newest generation of PTC cranes, which is a 3,200-tonne cap crane. It is in Rio Grande do Sul, and once it is assembled it's going to lift heavy modules up to 1,600 tonnes onto a FPSO ship.

Looking at with the Brazilian market, what is the nature of your clientele?

The market is really heating up here. The amount of enquiries we are getting is quite amazing. When we work for big companies like Petrobras, it is almost always through a consortium rather than directly.

What is the nature your competition in Brazil, and what competitive advantages does Mammoet have?

There are some other multinational competitors looking at Brazil, but we have a 10-year head start in this case. There is no one in the market that supplies the truly heavy equipment that we do. Our clients realize this and have confidence in us; we have proven ourselves to the Brazilian market, so we are very well positioned at the moment. Almost all multinationals have sales guys knocking on doors as well, but our 10 years of experience has a lot of weight. Relationships matter here, and our performance has enhanced these relationships. We might not always be the cheapest, but we are the most reliable.

As the market expands, there will be other people wanting a piece of the pie (it is a big pie) but we will maintain our focus on quality and safety and our people.

Are you finding there to be a shortage of skilled labour?

Finding somebody qualified is a big challenge at the moment. Our main focus is on in-house training. We try to train peo-

ple from the bottom up. They come in as a helper or a rigger, and if they have the qualities we will get them into operating a crane over a time period, depending on their development. But we put a lot of emphasis on in-house training.

What sort of needs do you see in terms of infrastructure in Brazil?

The challenges are with the infrastructure and capacity of the ports. Also for new refineries, transportation to the refinery with very heavy equipment is difficult when the roads are not prepared.

We discussed briefly the challenges to working in Brazil? What about the challenges to investing here, from a

business perspective?

Our biggest challenges are related to importation of equipment. We are getting better at it, but it seems like there is not one strict policy that counts for all places. It's very challenging to deal with this without delaying projects, and this lack of consistency in policy, combined with high tax rates, can be a hindrance.

Tell us about your safety practices.

Safety is definitely one of our main focus points. In our mission statement it also says that people are our greatest assets, and I take a lot of pride in this. It can be quite challenging, but we have regular internal campaigns to address safety issues. I always mention

to the teams when I visit projects that they have the right to stop the work if they feel it is unsafe, and we will back them up. I noticed that here in Brazil, it is quite common when the client pressures you to do something, you just do it without regard for safety. I am trying to break away from this. We have our challenges but at the end of the day our record is good, and can always be better. So far we have had no serious incidents in Brazil.

What are Mammoet's goals in Brazil for the next five years?

Our goals in five years are to maintain first position in the market and to substantially grow. •

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Interview with Edson Bouer

VICE PRESIDENT, ENGEVIX



To begin, please provide us with a brief history of Engevix and an overview of the company's goals and objectives?

We have four companies which all belong to a holding company named Jackson: Engevix, Desenvix, Ecovix and Infravix. Engevix is dedicated to providing engineering services. Today, Engevix is much more focused in the infrastructure industry, however traditionally for the last 10 years, Engevix was placed as a very important player in the Oil and Gas (O&G) industry, mainly in Engineering Procurement Construction (EPC) and consulting engineering services for Petrobras. Now, we have an important piece of our revenue and market share in the energy industry, mainly in hydroelectric plants, windpower plants and biomass plants, we are also involved in some important engagements in the airport industry and roadways. Engevix has an Industry division that serves the chemical sector.

The strategy of the company is to consolidate in the fields where we are well positioned, recently we decided that we wanted to expand into the offshore industry and based on this, we created a company last year dedicated to offshore services, it is called Ecovix. Under this company, we were awarded with a Petrobras project that led us to our decision to acquire a shipyard in the south of the country, which we understood to be a good opportunity for the group.

In terms of our global operations, Brazil represents more than 95% of the business; we have a strategy for the Latin American market and the African market for countries like Angola. In South America, besides Brazil, we have businesses in Columbia, Ecuador, Peru and Central America.

Could you tell us more about your

offering and experience in chemical industry?

Historically, we have had many clients in the chemical industry. Nowadays we are much more focused on the Oil and Gas industry. Petrobras is certainly our main client by far, in terms of total revenues. We just finished a typical gas treatment plant for Petrobras, valued at 1.5 billion Brazilian Reals, which is linked to the chemical industry. Our revenues are around 75% contributed from Petrobras and I would say we have a major importance in the chemical industry indirectly, through a representative position.

Who are your peers in the Engineering field?

I would say that today we are not a big construction company but at the same time we are positioned as one of the major service provider within infrastructure industry. One major differentiator in comparison with our competitors is that we have kept engineering as our focus when other companies have decided not to have their strength on the engineering side, and instead focus on construction. We understand that what we have is intelligence and not just manpower. We have around 800 engineers including chemical engineers.

Petrobras serves several sectors related to the chemical industry, how does this impact your growth strategy?

We are historically strong in the energy sector and we have a recognized importance in relevant projects in Oil and Gas besides roadways, airports, industry and others. Our growth in the oil & gas industry, due to the kind of engagements, brings to Engevix the opportunity to be well positioned in the chemical industry and also develop its technical skills within the market.

What is the greatest challenge currently facing Engevix?

Engevix's greatest challenge will always be to keep in mind the significance of the deliverables quality. Our creed is to offer quality in services with environmental and safety responsibility. It may have been difficult to get here but it will be even more difficult to keep our place and grow even further. Our view is that since we deliver good projects and solutions to the client, and strive to be a one-stop shop for all things related to engineering, growth will be an inevitable consequence for our company.

A growing challenge for Engevix has also been a skill shortage of highly qualified labour. Engevix has done is to take experienced employees with 20 to 30 years of work to coach new hires from universities in Brazil and provide training on-site. We are aiming to make these recruits productive in a short amount of time so we have accelerated the training process by showing them life in the plants, and providing them with a realistic preview of work in the EPC industry.

What is your final message to our readers?

I believe in Brazil's growth potential and even with the onset of global economic crises, Brazil provides attractive opportunities in the chemical and infrastructure sectors. These industries are profitable and Brazil is developing a solid investment base, with many exciting projects in the pipeline to make the country's chemical market an attractive investment opportunity. •

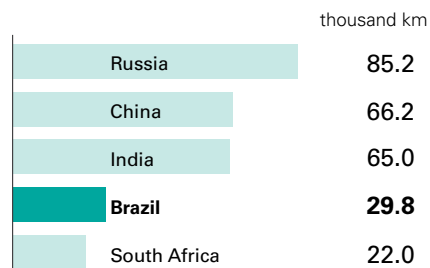
Brazilian Railways and Roads

Source: Minister of Transport



The BRICS: Rail lines (total km)

Source: World Bank



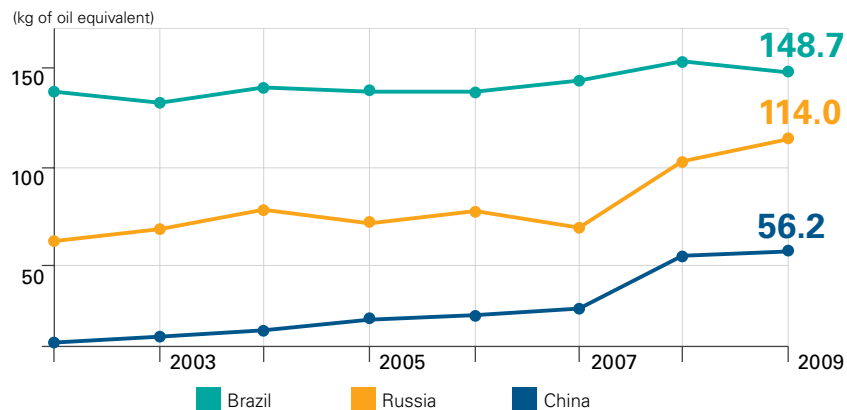
Road Sector Energy Consumption (2009)

24%

Source: World Bank

Road Sector Diesel Consumption Per Capita

Source: World Bank



Interview with Leonardo Roisman

BOARD ASSESSOR, SULATLANTICA

Could you provide us with an overview of the history and evolution of Sulatlantica in the Brazilian distribution industry?

Sulatlantica is a distribution company, founded 55 years ago. We went through all distribution cycles in Brazil – including living through all ups and downs. The evolution of the distribution industry started many years ago, Brazil came out from hyperinflation and in the last fifteen years we have ensured only about 150% inflation. Although, this inflation is nine times higher compared Americans, Europeans or Canadians, but for Brazilians used to having huge inflation it was a much easier percentage to run a business with. Companies with a structured business were the only ones to survive and Sulatlantica was one of them, but for many years, the business stagnated. The industry did not have a way to buy, there was an abnormal protection that did not allow the competition in the industry. Then in the 1990s we opened our ports and our market opened and we also started a quality phase: more quality and more competition.

It was at this time that Sulatlantica became certified in ISO9000 as companies needed to meet the new regulations.

Distribution grows alongside the industry and international growth. If consumption in Brazil increases, so does the distribution. Distribution companies have a lot of variations in their operations, for instance if it is cheap in China, we bring it from China, if it is better in India, we import from India. However, there are two sides to this, if you start

bringing too many foreign products, your client will stop buying your products because they are imported or else they will stop producing. Therefore, we have a dilemma in Brazil. We have the exchange rate, favoring some products that come from abroad that use a specific labor including China and India. I do not think it is a good option to stop these imports knowing that Brazil also exports to these countries. One of the largest consumers of our products is China, so if you stop these imports you can also stop China from buying our products. There are a series of nuances and variables but Brazil has big opportunities.

What would you describe as the key challenges to the distribution business in Brazil?

The main challenge in distribution in Brazil is logistics. There is a need for the creation of an efficient logistic system by the government. Today we are failing with ports, cargo loads cannot be delivered on time and they are extremely expensive. The roads are also in terrible conditions and trains that should be the main part of a logistic plan because they are cheap, are almost inexistent.

How do you secure the partnerships of many multinational companies?

Sulatlantica is Panamericana and BASF's distributor for some of their products and with our longevity in the

marketplace, our solid reputation and quality service delivery we will continue to attract the business of both local and international clients.

Our strategy to grow in the market depends on the market's demand. We always try to adapt to the market. Last year, we had high consumption. This year is much lower as there was a decrease in profit. I see the future as an adaptation process. Things are happening much differently than was planned in terms of economy. Nobody knows what will happen next year. We expect that Brazil will grow at a rate of 3% to 4%. However we thought this year we would grow 5% and we are currently at 3% and thus we have had to increase our storage to keep our products. Now our strategy is to grow in other states and this will happen through good offers from abroad or nationally.

We are seeing a lot of mergers and acquisitions within the distribution industry.

To maintain your position in the Brazilian marketplace does this form part of your strategy for growth?

We have been sought out by larger distribution companies, but this has not transpired into anything at the moment. There have been some mergers in the past 10 years with many joint ventures and several large distribution companies came to Brazil by acquiring some of the smaller players. Our strategy is to stay, we have no intention to sell Sulatlantica.

We are a mid-size company in the distribution segment that is able to provide satisfactory results to our shareholders. Thus, to be sold we would need to have a very good offer. That does not mean we will never sell, but we are a 57 year-old company. Now, if there were companies that could bring a huge know-how to the evolution of our business, we would consider this.

What is your final message to our readers about Brazil's position in the Chemical industry and Sulatlantica?

Sulatlantica will continue to move ahead for Brazil. Brazil is in an excellent position, it has everything to become one of the top five chemical industries worldwide.

What is needed? For us to move ahead without mistakes. Our government needs to make decisions wisely and consider the chemical industry as an important economic driver. Brazil is the country of the future. The Olympics and the World Cup's final will happen in Rio de Janeiro. Investments here are huge; as you walk through the suburbs they are building everything. Brazil suffers from a lack of infrastructure, as the number of cars grows every year, the roads remain the same. The way things are now, we pay less to bring something from China to Brazil, then Rio to Sao Paulo. All in all there is huge opportunity and together as industry and government we need to work together to make sure we do not miss out.

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ISO 9001:2008 55



Into the Future

Final Thoughts, Company Guide, and Index

“We have the pre-salt reserves, with its enormous possibility of further development, and we have the green raw materials, which differentiate us in a new model of chemistry. The comparable competitive advantage of Brazil is huge. You have no other country in area with such opportunity.”

- Carlos Santos,
Corporate Communications, Lanxess

"The Brazilian market is certainly attractive for foreigners; firstly due to the current size of the market and secondly due to the future development of the market. In the past two years we have seen the "C" and "D" class of consumers start consuming completely different articles than they did two or three years ago. Both the consciousness of the consumer and their financial means have brought a certain dynamic to the market. The "C" and "D" class who have previously consumed very small volumes now want products on a standard comparable to the standards of the "B" and "A" class."

Wolfgang Heinz Guderle,
President, Dystar

"For me it is very clear; Brazil in the next 10 years will be very strong in the chemical market worldwide. We have petroleum, and we are the first country in the world to really use the bioethanol; produced by sugar cane in a very large quantity. In other words, we are a country that has chemical technology. In some areas we are already a market leader. Given this, I am sure that our reliance on foreigners will lessen step-by-step."

Aurelio Rocha,
General Manager, BYK

"The Brazilian chemical industry will continue to evolve. There are leaders like Braskem that are committed to its growth. The regulatory changes and pressures will require more specialty chemical solutions and the market is large enough to attract significant investment. From Chemtura's perspective, we plan to grow from a \$3 billion company to a \$6 billion company in five years. If you look at where the market is growing, \$2 billion of that growth will be from Asia and \$1 billion will be coming from Latin America."

Craig A. Rogerson,
Chairman, President & CEO, Chemtura

"The chemical industry is a sector that is very important for many other industry chains. We form the structural basis for many other economic activities. One of the most important challenges we have, therefore, is to support those industries with this awareness of how the chemical industry can contribute to big global issues such as environment and safety. We have been doing this for many years and we have to be very attentive to communicate this to the public."

Edison Terra Filho,
President, quantiQ



"Brazil has great opportunity to grow. It has a favorable business environment as a large country with a lot of room for development. The government is moving in the right direction, even if there is sometimes room to do more. It is a good time to invest in Brazil. If I was an investor with the opportunity to invest in any country in the world, I would choose Brazil. And I would invest in the chemical market. Obviously there are other opportunities for investment – infrastructure, for example, will lead the growth – but you cannot do anything without chemicals."

Fabio Sousa,
Latin America Regional Director, Purolite

"On solar technology, which is one of the things Solutia is trying to focus on, I believe that Brazil can still do a lot more. The car and architectural markets are certainly going to further increase. And Brazil has more and more middle class people and the raising of the population out of poverty continues to be the focus of the current president. So we are very positive about the end markets of Solutia's products."

Geert Van Der Sijpt,
South America Supply Chain Director & Regional Coordinator
South America, Solutia

"I am optimistic for the Brazilian chemical industry. Currently, there is a large trade deficit for Brazilian chemicals, which has led to a number of substantial investments aimed at strengthening the local industry. This presents a significant opportunity for companies operating here. For Helm, I am optimistic that we can contribute to this growth and help companies improve their productivity."

Thomas Britze,
Managing Director, Helm do Brasil

"Brazilian companies have to be open to acquiring new experience and new managing systems, to be more efficient and improve productivity and competitiveness. We are a young country and we have to prepare and train new employees so they can enter the market. I have good expectations, not only for Projectus, but for the market in general."

Marcio Alberto Cancellara,
President, Projectus Consultoria Ltda

This list represents a selection of the companies operating in the Brazilian chemicals industry and should not be considered a comprehensive guide. GBR holds an exclusive and extensive chemicals database for Brazil and the wider region. For further information on database access packages, please contact info@gbreports.com or call +44 20 7612 4511.

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