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Winds of Change in Australia's Chemical Industry

This report looks at the restructured sector's efforts to turn Australia's resources and environmental expertise into a competitive advantage. Authors are Elouisa Dalli and Sandro Grünenfelder from Global Business Reports.

To most of our readers, Australia is known as the country of kangaroos. Few of those involved in the chemical trade know that Australia boasts a chemical industry with a structure, products and strategies as particular as its fauna. As the industry finds itself in the endgame of transforming from import-substitution to providing high-value added chemicals and services, it looks back on two decades of change – and a challenging future ahead. Reasons enough to have a look at the continent's rich chemical past, present and future.

Building on market-oriented economic reforms introduced in the 1980s and intensified in the 1990s, over the past decade Australia has experienced the longest run of uninterrupted economic growth in its post-war history. As the OECD notes, neither external factors, like the East Asian economic crisis, nor internal junctures, such as repeated droughts, have significantly impacted on Australia's growth. They attribute the economy's resilience to its flexibility, healthy public finances and consistently low inflation. After posting GDP growth of 3.1% and 3.6% in 2003 and 2004 respectively, Australia recorded 2.7% real growth in 2005, with a slight acceleration to 3% expected for 2006. The unemployment rate, in the last decade oscillating around 8%, is currently at a record 28-years low of 4.8%. Despite increasing shortages on the labor and production side, inflation currently stands at a moderate 3.5%, averaging 2.8% over the last three years. As Noel Williams, Dow Chemical's Managing Director for Australia/New Zealand reaffirms: "Australia has been a very good country to do business in; very stable from both a political and a financial point of view, particularly over the last 10 to 15 years."

Yet, in terms of visibility to international investors, nothing exemplifies Australia's status over the past two decades better than what the Ancient Romans referred to as 'terra australis incognita' (the unknown land of the South). In the shadow of the frenzy over the economic boom (and bust) of the Asian Tigers and the subsequent enchantment of investors with China, the Australian economy has silently made a strong return. As Renato Coneliano, Director of chemical distributor Redox confirms: "We are the second last continent, often forgotten and rediscovered."

Australia's return on the radar of international investors owes much to the country's burgeoning resources sector. With the sector's contribution to GDP of A$ 33bn in 2004 (up from A$ 25bn in 1994), Australia is currently surfing the wave of Asian economic expansion. This upturn and the increasing competition from Asia have revived and pointed at the fault lines of another traditional sector of the Australian economy: The chemical industry.

After decades of active industry policy and what John Fetter, Orica's Group Manager Corporate Affairs, refers to as being 'shielded behind high tariff barriers', the industry is about to transform from an import-substituting part of the economy to a provider of more value-added specialty chemical solutions. With its function in the domestic value chain altered, Australia's chemical sector has undergone a significant change in structure and strategies. To understand where the industry is heading, first have a look at the factors which have been shaping it: History, government and competitive advantages/disadvantages.

Initially intended to meet the needs of the new colonies, the chemical industry quickly evolved into a supplier to the expanding agricultural and mining sectors. It was in that period that the forerunners of some genuinely Australian chemical companies, such as Orica and Incitec-Pivot laid the basis for today's growth. Until the 1960s, Australia saw an expansion of the spectrum of both producers and products, helped by a shift

of European (and especially British) chemical operations to Australia during WWII. With help from the government, the 1960s and 1970s saw the building of most of the bulk production facilities the industry has been relying on until today – but also the erection of considerable tariffs, an import licensing regime and import 'consumption taxes', aimed at maintaining an industry independent of 'Mother England'.

With protectionist measures phasing out only by 1991, these measures significantly shaped the industry's structure. "We are victims of history, built behind a market shaped by 25% tariff barriers in the 1960s and 1970s, and now in 2006 we find ourselves with plants smaller than world scale," affirms Mr Williams, the outgoing president of the Plastics and Chemicals Industries Association (PACIA). From a macroeconomic point of view, the tariff wall was responsible for inflating the sector's contribution to GDP to around 2.7% at its peak in the early 1970s, before falling back to roughly 1.8% in 1996, when the last protectionist measures were scrapped. From a microeconomic point of view, the rise in import penetration has led to widespread restructuring.

At the bulk end, most ventures have been either banking on competitive advantages and investing in their presence abroad, or scaled down and refocused on the domestic market, often involving a change of ownership. Examples of the first category include Orica, which after the take-over of Dyno-Nobel in September 2005 and the reorganization of its Chemnet trading and distribution business became the world's leading blasting service provider and one of Asia's major traders in chemicals respectively. As John Fetter puts it, "Bulk manufacturing in Australia has no future anymore. We are positioning ourselves to outgrow the market." As an example of a refocus on domestic opportunities, market insiders cite Qenos, Australia's only polyethylene producer, which in 2005 was sold to ChemChina, competitive oleochemicals producer Symex and Australian Vinyls Corporation (AVC). The latter two have both been through a management buy-out and restructuring before returning to profitability. Thanks to depreciated plants and efficient operations, these companies often generate considerable cash flows which, as Symex' Mike Newton emphasizes, "are best used to further diversify the business."

Further downstream, the Australian chemical industry comprises of a significant number of home-grown companies providing special purpose chemicals from paints to food additives. Examples of this industry tier include Felton Grimwade & Bickford, a eucalyptus oil producer, Cognis Australia's natural betacarotene operation, Compco's success in producing specialty polymers for high performance pipes and Era Polymer's polyurethane business. The considerable gaps remaining in domestic production are filled by representations of multinational chemical companies like BASF, Bayer, Dow Chemicals, Degussa, Clariant and Wacker, or by increasingly competitive chemical trading and distribution companies. With chemical import needs rising fast and "major overseas companies concentrating on China," as Patrick Delaney, founder and CEO of International Sales and Marketing (ISM)

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adds, there are increasing opportunities for traders such as ISM, Swift and Redox to effectively source for a fragmented and often subscale domestic client base. Competition is fierce, however, with Orica Chemnet as an ambitious player in the market, following its Group General Manager Bronek Karcz's prediction that "chemical traders will become more important and bigger players."

Banking on competitive advantages derived from its education system and co-operative research and development organizations like the CSIRO (the Commonwealth Scientific and Industrial Research Organisation), Australia has the opportunity to excel in innovation-driven sectors such as pharmaceuticals and specialized chemicals. "Australian researchers tend to have broader, less specialized experience," says J Hutchinson Ranck, Du Pont's managing director for Australia and New Zealand, adding that their research benefits from their ability to see the possibilities which leads to creativity and innovation. As an example of an Australian innovation he cites the Sydney Olympics signs which were protected from graffiti by a coating enhanced with nano-particles. An Economist Intelligence Unit Report on the Australian pharmaceuticals industry reached a similar conclusion, praising Australia as a consistently cheaper location than the US, the UK and Germany for all the stages of pharmaceutical research. This was a reason for Roche's decision to substantially enlarge its domestic medical department, adding capacity in clinical studies and biostatistics, as Mr. Fred Nadjarian, Roche's head of Asia-Pacific says. Yet he says that after Roche's sale of its consumer products business to Bayer, "for the first time, Roche Australia has no manufacturing activities anymore," mirroring the fact that as opposed to R&D, in Australia manufacturing in general and chemical production in particular is destined to ride a rocky road ahead.

The industry's move away from a production-based ethos owes a great deal to governmental policy. Although "the Australian government's view of things is 'we are not interventionists'," as Dow's Noel Williams puts it, Michael Catchpole, Chief Executive of PACIA, complains that 'chemicals are a neglected part of manufacturing – and manufacturing is a neglected part of industry'. The 'Chemicals and Plastics Action Agenda', started in

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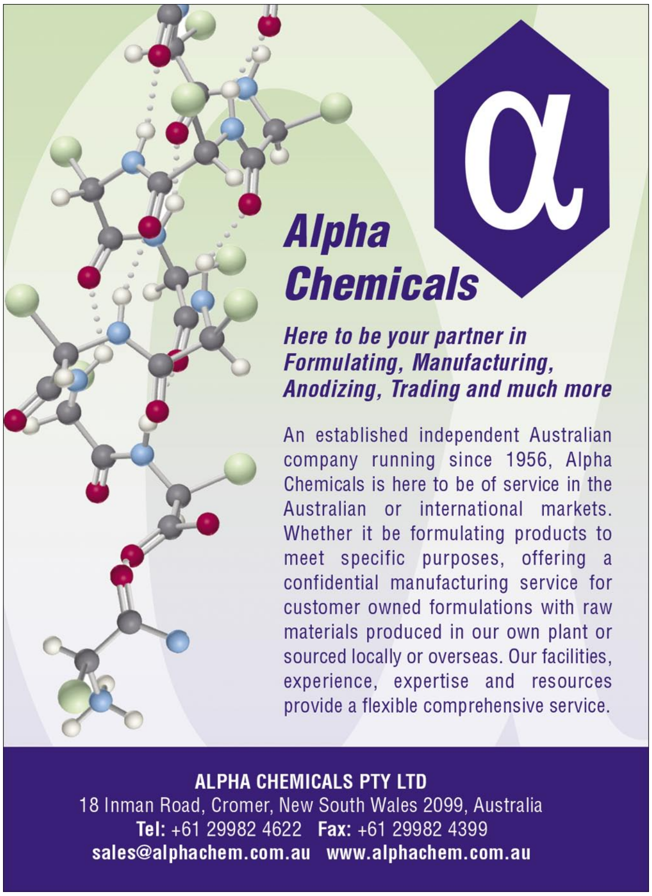

2001 and concluded in 2004, was launched by the industry to engage the government in a discussion about the sector's future. Comprising of 26 recommendations from regulatory reform to education and training, the agenda – together with a similar one for the pharmaceutical sector – has been successful in pushing for a coordinated policy approach for a sector which still accounts for a substantial share of the Australian economy.

According to the latest data compiled by the PACIA, in 2003 the Australian chemical sector turned over A$ 27.3 bn, roughly 8.8% of total manufacturing sales and service income of A$ 309.2 bn. These aggregates do not include the pharmaceutical industry which accounts for another A$ 7.8 bn in turnover. Latest employment figures show 81,000 people working in the sector in 2001, up from 77,000 in 2000. From an external perspective, however, trade figures for the sector, pharmaceuticals excluded, show a significant trade deficit of A$ 9.3 bn, stemming from imports of A$ 12.7 bn offsetting exports of A$ 3.4 bn by roughly three times.

On a microeconomic level, revenue figures confirm that the domestic manufacturing industry is experiencing difficult times. Whilst the trend estimate for company gross operating profits in the burgeoning mining sector increased 7.4% in September, the estimate for the manufacturing sector decreased by 0.1% this quarter. With high labor costs, a lack of economies of scale and Asian competition, "Australia is not seen as an investment place for the chemical industry" anymore, says Robert Zapp, Managing Director of BASF. With industrial end-users migrating abroad, the local chemical industry faces an unprecedented erosion of its customer base, leading it to reconsider Australia as a base for manufacturing. Although multinationals such as BASF, Bayer and Dow still have production on the ground, they increasingly import from their world-scale plants in South-East Asia and China, or close their Australian operations entirely, as US-based Huntsman is rumoured to do soon. As Orica Chemnet's Bronek Karcz says, "We see the chemical manufacturing industry moving and you need to move with it."

Despite these challenges, the Australian chemical industry is set to remain a significant contributor to growth, albeit with a different industry structure. It will have to switch its focus from supplying an artificially self-subsistent Australian market with the widest possible range of products to providing goods in which it enjoys a competitive advantage. This can be a passive competitive advantage capitalising on what Robert Killick, patron of Victorian Chemicals, refers to as 'tyranny of distance'. For certain chemicals, he says, "there will always be a life for a local manufacturer." This is especially true if manufacturing involves competitively priced local production factors such as Australian raw materials or energy. Competitive advantages, however, can also arise from actively taking decisions to specialize in certain products, to provide additional services or to excel through innovation. With both products and customers changing fast, a company's ability to adapt remains vital. "We can't change the direction of the wind," ISM's Patrick Delaney admits, "but we can set our sails to it." The remainder of this this Global Business Reports / Chemical Week report looks at the sector's shifting position in the value chain, its subsequent structural changes and the opportunities arising thereof and concludes that for the Australian chemical industry, "it ain't over till it's over."

'Mother Mining' or Resource Curse?

Following significant resizing after three decades of protectionism, low energy prices and a booming mining industry have revived Australia's chemical sector, providing the basis for further growth. In the long run, however, Australia's abundance of natural resources may prove to be both a blessing and a curse.

The Australian chemical industry is under strain which impacts considerably on production levels. Whilst from 1985 to 1990, the annual production of base chemicals grew at 5.1% on average, the corresponding figure for 1995 to 2000 amounts to 1.3%, indicating a considerable slowdown compared to an OECD average of 4% growth over that period and to domestic GDP growth of around 3%. The picture on the plastics and rubber side looks similar, with annual production growth decreasing from 5.8% in the 1985 to 1990 period to a mere 1.2% between 1995 and 2000. Only pharmaceutical production growth continuously exceeded OECD averages, peaking at 13.5% in the five year period starting in 1990 and slowing down to 9.2% from 1995 to 2000, reflecting a "tremendous sales growth," as Roche's Fred Nadjarian puts it.

Despite a slowdown in production, the Australian chemical industry boasts a number of companies expanding operations both domestically and overseas. Whilst covering a wide range of chemical products, these companies share a common element of success. All of them profit from Australia's rich natural resources, resulting in both cheap energy prices and the opportunity to provide services to world-competitive Australian industries such as the fast-paced mining and agricultural sectors. Examples include Orica which, drawing on domestic experience, became the major player in the worldwide explosives market – and is set to become the market leader in mining chemicals after taking over British Minova in an A$ 870m deal in late October 2006. Incitec Pivot dominates the South-East Asian fertilizer business, relying on a long history in a fertilizer-dependent home market. Yet, smaller businesses equally thrive on Australia's competitive advantages, with Symex carving out a market share in a competitive world market for oleochemicals, Compco 'joint-venturing' out to the Middle Eastern market for high-resistance pipes and Sydney-based Alpha Chemicals supplying specialized metallic compounds for batteries in critical US defence applications.

At the bulk end of production, low energy costs are crucial for producers of PVC and polyolefins. AVC's Murray Winstanley agrees that "energy costs at a fraction of the US and well below European standards are a significant Australian competitive advantage," adding that "business is all about productivity gains." This equally holds for Symex. "Capitalising on cheap energy, competitive Australian tallow and favorable freight costs, especially from Australia to Asia, Symex exports more than three quarters of our production," says Mike Newton, its Managing Director. Most of the bulk chemical sector operates plants devised in the 1960s and 1970s, making it necessary to "adapt and improve productivity and competitiveness across the board," as Dow's Noel Williams says. "But as we got through that investment cycle," he says, "we have learnt how to run the plants as efficiently as possible where environmental costs are high and community

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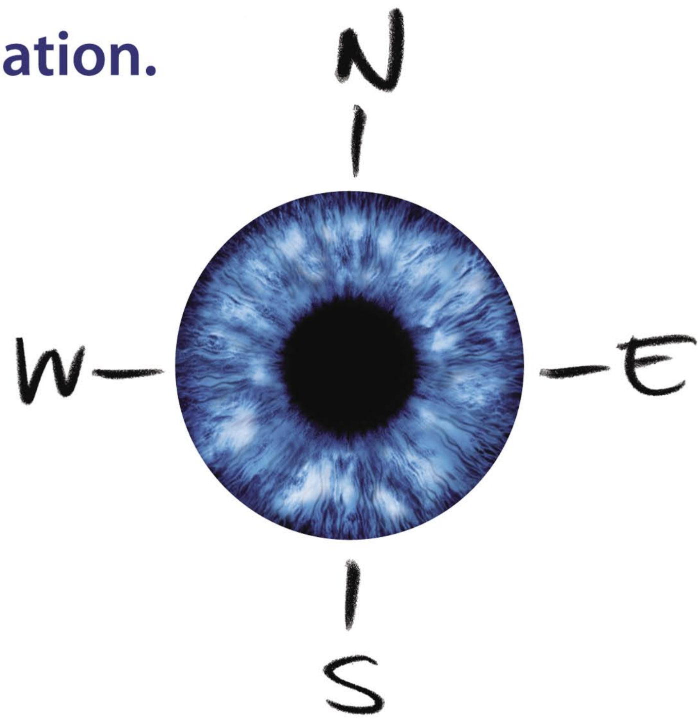

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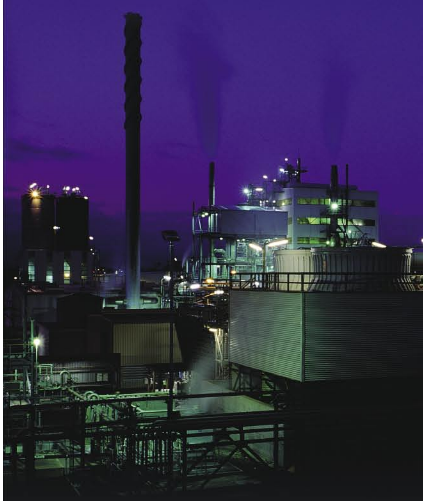

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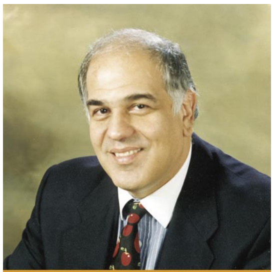
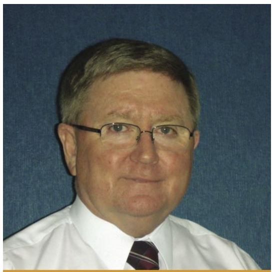


Mr. Fred Nadjarian
Roche's head of Asia-Pacific



Ross McCann
Qenos' CEO

Mr. Noel Williams
Dow Chemical's Managing Director for Australia/New Zealand

issues are important."

Considering Australia's competitive position in terms of feedstock, the two major producers of polyolefins, Qenos and Basell Australia, recently decided on considerable investments in their plants. "Given that polyethylene prices are declining in real terms at 3-4% per annum and costs are increasing," Ross McCann, CEO of Australia's only PE producer, says, "there is a need for a relentless pursuit of productivity improvements." This goal will be achieved by a recent A$ 100m investment in Qenos' complex in Altona. At the same site, BASF runs a 40kt/y dispersion plant, which according to Robert Zapp, the company's Managing Director, "has been debottlenecked and will be running as long as we can control the costs." Basell Australia recently doubled the capacity of its Geelong plant to 130 kt/y. As its Managing Director Barry Kelly says, "the project represents a significant commitment to the Australian polymer industry and will allow us to continue to supply the local polypropylene market as it grows in the future."

Further downstream, chemical and plastics companies are profiting directly from the current mining boom by supplying resources companies with their products. Era Polymers, a privately-owned Sydney-based polyurethane solution provider, has been growing at double digits over the last couple of years. "We have the ability to react, to 'tweak', as we call it internally, and will come up with a product to meet the requirements of and challenges facing our mining customers," says George Papamanuel, Era's founder and CEO. Flexibility scores equally high at SNF Australia, a major flocculants producer. "Our competitive advantage is the quick and flexible delivery of 30 to 40 tonnes of product," adds SNF's Managing Director Russel Schroeter, "sometimes a new formulation can be delivered within less than a month from laboratory tests to the final application in a mine," pointing at the importance of immediate delivery of products to keep cost-intensive mining operations running. Similarly, Sika Australia, the construction chemical company, provides chemical additives to enhance the setting of sprayed concrete. "This allows miners to reinforce galleries and get in more quickly," says Peter Scott, Sika's Managing Director for Australia and the Pacific. Emulating Orica in taking domestically acquired knowledge overseas, smaller Australian companies increasingly take on the export challenge too. "We would like to think that in the future more revenues will come from export," says George Papamanuel. Nick Megenis, Head of Functional Chemicals at Clariant Australia, sees tremendous opportunities in mining. "We are participating in that growth, not only in Australia, but also with an export perspective." Compco, a compounder of polypropylene for highly resistant applications like hot water- and mining pipes, went one step further and recently initiated a joint-venture with United Arab Emirates-based Kanoo Group. "We will contribute our R&D experience, our manufacturing expertise and a strong spectrum of products," says Bill McMahon, Compco's founder and Managing Director, illustrating a successful example of how to bank on Australian know-how acquired in serving a competitive domestic industry.

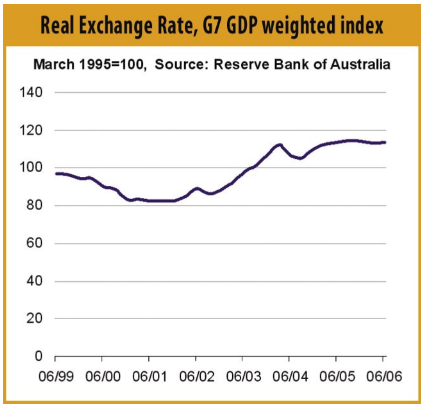
Yet, the longer the resources boom lasts, the more Australia's manufacturing sector in general and chemical companies in particular become aware of some of its negative side effects. From a macroeconomic point of view, a prolonged boom puts upwards pressure on the real exchange rate, thereby making the manufacturing sector less competitive and leading to a 'deindustrialization' of the economy. "On top of the emergence of low cost manufacturing locations like China, this creates an additional challenge for us," says André Haermeyer, the State of Victoria's Minister for Manufacturing & Export. This hypothesis, commonly referred to as the 'Dutch Disease' after the decline of the Dutch manufacturing sector following the discovery of gas in the 1960s, is backed by data showing Australia's G7 GDP-weighted real exchange rate considerably appreciating over the last seven years.

The effect on the manufacturing industry is exacerbated by the fact that often "raw materials are directly exported, without value being added in Australia," as Mike Newton deplores. Australian mining companies increasingly find it cheaper to shift processing operations to Asian end-user markets, thereby depriving the domestic chemical industry of a valuable opportunity to supply a wide range of products used for upgrading raw materials. This is a reflection of the mining companies' traditional export bias resulting from a limited domestic market. A situation highlighted by Tom Rees, Chairman of Alpha Chemicals, an outfit specializing in organometallic compounds, saying that "mining companies in Australia do not make any chemicals from the metals they produce." "With manufacturing now declining in importance relative to the resources sector, the government increasingly uses concessions in the industrial sector as a bargaining chip in free trade negotiations," says PACIA's Michael Catchpole. He hints at the ongoing negotiations with China, currently in their 6th round, which do not sufficiently cover the protection of intellectual property. A major area of concern for chemical companies, as BASF's Robert Zapp confirms.

Mr. Michael Catchpole
Chief Executive of PACIA

The current skills shortage provides another challenge to the chemical industry. With experienced engineers poached by the mining industry and even graduates being paid a median starting salary currently standing at A$ 53,000, the market for professionals is becoming tight. Although the average wage in the chemical and plastics industry is 13% higher than in total manufacturing, it is still A$ 1,000 less than mining graduates. "The scarcity of skilled professionals will be a significant challenge to the industry in the future," says Robert J. Everett, Managing Director of Rohm & Haas Australia. This is exacerbated by the fact that the chemical industry in Australia has a disadvantageous age profile, "making the transition of tacit knowledge one of the real challenges in the future," warns Solvay Interox' Managing Director Len Sharpe. Last but not least, "in Australia, which sees itself as a 'clean and green' country, the chemical industry has a bad image" says BASF's Robert Zapp.

Considering ongoing economic expansion in Asia, the Australian natural resources sector is set to maintain high growth rates. "Undoubtedly, growth in the commodities sector will not run at nine, ten, eleven percent forever, that is for sure," predicts Era Polymers' General Manager Brian Hudson, "but I do not see the global demand for Australian raw materials diminishing over the next two years." With the Australian chemical sector still undergoing structural change away from its generalist profile shaped by protectionism, the mining sector may provide it with one of the rare opportunities to specialize in more value-added products. This may not completely stop what a NIEIR report calls the 'gradual disintegration of the supply chain', identified as one of the biggest risks to the Australian chemical industry. But for those companies eager to take on the challenge, the Australian mining industry – like in the second half of last century – may again prove to be the mother fostering the infant.

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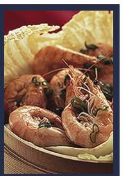
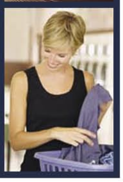

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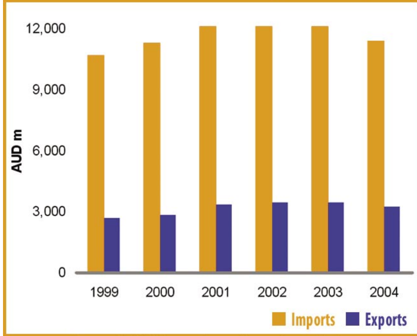
Peaking at 6.3% of GDP in 2004, Australia's current trade deficit stands at 5.6% of GDP. Accounting for 10.3% of the manufacturing sector's imports, but only 5.2% of its exports, the chemical industry adds considerably to the deficit. From a static perspective, Australia exports 17% of its base chemical production (2004), compared to an OECD average of 35%. In the plastics and rubber sector, the picture looks even more testing, with 5.1% of Australian production exported while the overall figure for the OECD stands at 30%. However, starting from a modest base after restructuring, the export of plastics products has been picking up again, recording a compounded growth rate of over 20% from 2001 to 2004. However, it has been calculated that in the 5 years to 2004, for every A$ increase in exports there was a A$ 1.26 increase in imports.

Considering these numbers, it is clear that Australia is becoming less attractive as a manufacturing and export base. Ray Cranke, General Manager of Operations at Albright & Wilson, a supplier of detergent raw materials, sees this as a double effect of the "increase in importation of raw materials from mainly China and the exodus of some of the producers of finished products elsewhere." "With such growth potential in China," says Patrick Delaney, founder of International Sales and Marketing (ISM), "countries like Australia will become less important on the radar of the multinationals," he adds, pointing at significant growth opportunities for trading companies. "20 years ago, multinationals had a presence all around the world. I don't see this being sustainable in the future." Renato Coneliano, Director of Redox, another major chemical trader, agrees. "The market for chemicals is too small to support efficient production capacity plants for many chemicals. The

Chemical and Plastics Sectors - import and Exports



Source: ABS/PACIA compilation. Year ending 30th of jun

continent is large and logistics costs are a problem for local producers trying to cover the total market efficiently. Most raw materials are not produced here and sea freight is expensive in both directions. Even if these factors were not a problem, wage rates and regulatory barriers are." Considering Australia's chemical production growth is well below the OECD average, Orica Chemnet's Bronek Karcz foresees "that there will be fewer producers with bigger capacity putting their product all around the world." He says that with customers equally moving upscale, "chemical traders become more important and bigger players."

This is especially true for Australia where in the last decade, chemical distributors have been carving out a considerable slice of the market. Besides Orica Chemnet, which, due to its size and international outlook falls into a separate category, the market is dominated by two types of distributors. The first one, comprising mostly of private companies like Sydney-based Redox, ISM and private-equity owned Swift, is dealing across a wide range of chemical solutions and includes traders concentrating on sub-branches of the chemical industry such as Polymer Direct and Sydney-based Cee-Chem. The second type is made up of manufacturing companies complementing their core business with trading in their area of expertise. Examples include Australian Vinyls Corporation trading PVC ingredients and caustic soda, and Albright & Wilson, branching out into trading specialized surfactants.

Over the last couple of years, distributors of the first type have enjoyed above-average growth. Redox, owned by the Coneliano family, turns over A$ 220m a year, with annual growth of more than 10%. With an annual turnover of A$ 170m, Swift follows closely, and is committed to "getting a bigger share of the pie, even if the pie gets smaller," says René den Hertog, Swift's Managing Director. Pat Delaney of ISM reports A$ 71m turnover, 25% up from last year, while Polymer Direct expects to push sales from A$ 35m to more than A$ 40m this year. Orica Chemnet, last but not least, recently passed the A$ 1 bn turnover mark.

With increasing imports of bulk chemicals from world-scale plants in Asia and Orica Chemnet active in the high-volume market both domestically and abroad, the smaller traders have identified distinct key areas of specialization. Redox remains active at the commodity end of the business, but focuses on customers too small to be served by the big chemical traders. With 11,000 small to medium-sized customers, "we have been described as bottom feeders," says Renato Coneliano, adding that their competitive advantage in handling a relatively dispersed customer base is Redox' highly efficient information- and logistics systems. Polymer Direct, a major supplier to the plastics industry, still generates about half of its turnover from commodities, but records much higher growth on the engineering side of the business. "We do not want to be in commodities," says Anthony Hurley, co-founder of Polymer Direct, "but we have to be; as a commitment to the market." Given the pressure on margins in the competitive commodities market, ISM and Swift are both focusing on selling specialty chemicals. "We are not a commodity trader. What we do is sell technology," says ISM's Patrick Delaney, emphasizing that the sales process involves understanding both the customer needs and the solutions sold. Swift is following a similar path, with René den Hertog underlining that they will stay away from trading commodities, thereby creating entry barriers for competitors through knowledge and a well-qualified and motivated staff.

Chemical traders have identified two common key challenges for the future. With trading chemicals increasingly becoming synonymous with providing solutions, the quality of staff is crucial. All executives confirm that successful sales people in the sector should ideally be tertiary qualified. "We want to marry technology and people skills in this business," says Patrick Delaney, therefore "personal development, motivation, rewards and – as a consequence – retention are key drivers within the business." This facilitates building relationships with customers which are key, "especially when it comes to high-value added products," says Swift's René den Hertog. Citing an Asian proverb saying that if you put wood in the fire, you get warmth, he emphasizes that by striving for service excellence companies will get loyalty in return. "If you really want to serve, you can learn a lot from Asian companies," he says, "as a company there is only one way to be and stay successful: under-promise and over-deliver." Although "there have been a lot of mergers and therefore redundancies lately," explains Renato Coneliano, attracting good staff seems to become increasingly difficult and will remain a limiting factor to growth.

Even more challenging, however, seems to be China's ascent as a global player in the chemical market. The threat to chemical suppliers is twofold. An indirect threat results from Australian chemical end-users moving their production to China, thereby reducing the size of the

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domestic market. As a strong supplier to the industry, "we have concerns that the plastics industry which has existed in Australia in the past won't exist like that in the future. Many articles will come out of China," says Patrick Delaney. A similar situation exists in the personal care industry where manufacturing has moved to Asia, says Patrick J. Carey of trader Cee-Chem. A more direct challenge is mounted by Australian companies which "go directly to China themselves," says René den Hertog. Add an increasing share of chemicals imported as prefabricated products and only an incorrigible optimist would deny the plethora of challenges facing the sector.

Moreover, while "ten years ago, Chinese companies had a pure trading mentality, dealing with me-too products," says Bronek Karcz, in recent years, the quality of the products coming out of China has rapidly improved. Contrary to most people's beliefs, "China is fast developing world class technical skills and is not just relying on low value, high volume mass produced products and outputs," warns Patrick Delaney, a regular in China for nearly 30 years. Therefore, 'if you can't beat them, join them' becomes the only strategy. For commodities suppliers like Orica and Redox, this means reaping efficiencies by sourcing from emerging Chinese high-quality producers. Orica already maintains a locally staffed office in China, while Redox, with 45% of its volume sourced from there, "may be Beijing's best export-promotion agency," jokes Renato Coneliano. For Swift and ISM, active in a more knowledge-intensive sector, products are likely to continue to come from European and US-based chemical companies. Chinese competition, however, may have a tangible effect on prices in a not so distant future once chemical companies start producing sophisticated chemical solutions themselves. "The Chinese can simply offer lower prices," says Robert Zapp, convinced that despite growing standards of living and eventual upwards pressure on wages, this is unlikely to change for a long time. A more positive outlook on the future is provided by ISM which has recently negotiated a supply agreement on a highly sophisticated process "which came directly from extensive research and development at a leading Chinese University," says Patrick Delaney, showing that China can be turned into an opportunity.

With a shrinking local market and increasing direct imports from cheap sourcing destinations, Australian chemical distributors find themselves between a rock and a hard place. It is no surprise, therefore, that market participants expect some further consolidation. "The number of distributors in Australia and New Zealand will need to be reduced further," says Renato Coneliano. In a global market place, trading companies will have to justify their existence by providing added value to their customers, either by translating customer demands into technology requests or vice versa or by providing the most competitive price for the best quality available. If chemical distributors live up to this double challenge, they will contribute both to a healthy and efficient Australian chemical sector and to their own profits. Like this, paraphrasing Swift's den Hertog's saying, distributors might not only keep the dragon at bay, but may also enjoy the warmth of its fire.

Responsibility and Opportunity

From smokestacks to a clean and green chemical industry

As Australia goes into its fourth year of drought, environmental protection ranks high on the agenda. Despite high costs, over the last decade the Australian chemical industry has quietly turned environmental restrictions into competitive advantages.

Operating in a market sensitive to environmental issues, the Australian chemical industry faces considerable scrutiny from a wide range of stakeholders. Besides working closely with the federal regulator NICNAS (National Industrial Chemicals Notification and Assessment Scheme), the chemical industry has made efforts on the self-regulatory side. As Noel Williams, past president of PACIA says, "if you start from the point that chemicals are an essential part of life, you start asking the question: How do we operate sustainably, how do we minimize the impact on the environment and society, and – ultimately – on our every day lives?"

High levels of environmental standards and occupational health and safety, however, come at a cost which may alter the competitive environment. Asian import prices also reflecting lower regulatory costs, "make it very difficult to operate," admits Noel Williams. Also legacies from the past continue to have an impact on the companies' balance sheets. Orica, for instance, committed to the clean-up of the ground below what used to be a former ICI Australia plant in Botany Bay, so far spent A$ 167m on what Group Corporate Affairs Manager John Fetter calls the "country's largest environmental remediation project."

Nowadays, the whole production cycle must be screened for environmental and community compliance. Introducing new products usually requires costly regulatory permission. However, 'considerable discounts' are available for self assessment, electronic submission and overseas assessment reports, says Nick Miller from NICNAS. Although NICNAS follows an agenda of regulatory reform, practitioners complain that much remains to be done, especially with regard to consistency of legislation across different states. Expanding production physically faces additional hurdles, both from local communities and government which seems to prefer industries without the 'smokestack image'. As for Basell's plant extension, for example, "there has been considerable negative publicity concerning a number of companies in the Geelong area which impacted upon the project approval process," admits Basell's Barry Kelly. Yet, some executives see Australia's strict environmental standards as an opportunity rather than a threat, making them a competitive advantage commanding a premium in a global marketplace. Global Business Reports / Chemical Week have identified four ways Australian businesses profit from strict domestic compliance standards.

First, legislation mandating more efficient use of resources has led to a new way of thinking about the value of waste. "As oil prices rise, chemicals are becoming more expensive and we believe

that this creates much greater pressure for recycling them," says Orica Chemnet's Bronek Karcz. Banking on the value of waste, Ozmotech markets ThermoFuel, a system converting waste plastics into diesel fuel instead of landfilling. Originally invented in Japan, Ozmotech's product has generated considerable exports. Similarly, with the ongoing drought, the need for efficient use of water will become even more pronounced than today. "We are in a crisis here in Australia at the moment. If the drought stays for another year or two, I think there will be some really strong regulations on how you can use water in this country," says Sam Howard, Chairman & Managing Director of Bayer Australia and responsible for its crop protection business. "In time, one of the big developments will come from biotechnology in the area of drought tolerance or water use efficiency." Moreover, "cost & scarcity of water is a major driving force towards reuse and recycle," says Steve Petoumenos, Country Director for water treatment company Nalco. He adds that with high domestic labor costs driving outsourcing and automation, Nalco is "leveraging existing relationships with national customers to grow with them as they expand."

Secondly, with the use of certain products restricted altogether, companies have benefited from developing substitutes and reaping first-mover advantages. Due to Australia's signing of the Montreal Protocol banning volatile organic compounds (VOCs), for example, Era Polymers foresees the polyurethane foam market switching to non-ozone depleting blowing agents. As a company with a strong technological position, "we see this as an area where we can provide assistance to Australian industry," says George Papamanuel, Era Polymers' founder and CEO. Similarly, construction chemicals manufacturer Sika sees opportunities in the development and promotion of VOC-free epoxies and water-based solvents, set to increase their share of the paint market beyond 80%.

Thirdly, considering Australia's strong environmental credentials resulting from strict legislation, chemical companies have drawn advantage from its image as 'clean and green country'. Companies like Felton, Grimwade & Bickford (FGB) use the Australian gumtree as a resource for their eucalyptus oil. "Although China supplies a bigger share of the 4000 tonnes of oil produced every year, generally the Australian oil is of higher quality," says Michael D McKelvie, CEO of FGB. As a result, it is also suitable for pharmaceutical use, which "constitutes a major export opportunity," he adds. Patrick Carey, Director of Cee-Chem Australia, agrees. "The future of personal care in Australia is in Asia," he says, hinting at Australia's strict product safety standards as one of the major competitive advantages of Australian exports. A similar argument is made by Cognis' Roger Taylor. The natural production of betacarotene by algae contributes roughly half to Cognis' domestic turnover. "Because our products mainly end up in food and dietary supplements, we take extreme care of the quality level of our plants and the raw materials and process aids used," he says. With consumers increasingly expressing a preference for a naturally produced source of vitamin A, 90% of the carotenoids are exported. Australia's favourable climate and the availability of land make it a competitive location for natural-sourced products. "We are essentially running a farming operation," comments Roger Taylor, a characterization which could be extended to other chemical companies including GSK Chemicals' Tasmanian poppy business which supplies 25% of the world's alkaloid needs.

Finally, Australian companies also profit from exporting knowledge about dealing with regulation. ChemChina which recently took over polyethylene manufacturer Qenos "is very keen on learning our systems, especially in the safety and the environmental area," says Ross McCann, Qenos' CEO. A similar export of Australian standards takes place at Orica, which according to Bronek Karcz "has won an award from the [Chilean] Chemical Industry Association for its level of safety, health and environment at our plant there." Du Pont went one step further and runs its Asian-Pacific centre of excellence for chemical regulatory affairs out of Sydney, reflecting the "expertise that we developed in complying with the Australian NICNAS regulations on chemical registrations," says J Hutchinson Ranck, Du Pont's local Managing Director. As an example, he mentions the Chinese government's recent decision to rigidly enforce its chemical registration legislation. "There is absolutely no way we could have met this deadline in China – we met it from Australia. This expertise, a by-product of Australian legislation, has put us in a new business," he says. "This is an area where Australia's leadership in terms of the environment has actually led to a business opportunity."

Whether compliance with regulation will simply remain what incoming PACIA President Barry Kelly calls a "given to do business in Australia" or will become a competitive advantage, depends on the emerging chemical powers India and China. "China will continue to be extremely competitive on price," BASF's Managing Director Robert Zapp is convinced, "but at what cost?" "If you go to some of the Asian complexes and cities, you've got huge, massive pollution", Noel Williams agrees. But "come to Melbourne, we are different. And hopefully that's the progress we will see in China, too," he adds, hinting at widespread unease about the sustainability of China's current development. However, if competition in future markets goes beyond the traditional dichotomy of price and quality, including environmental- as well as corporate social responsibility considerations, Australia may well become a role model in the region, with opportunities for the chemical sector to follow suit.

The Australian Chemical Industry: A Grand Final?

As the chemical industry shifts from a product-driven to a services-oriented paradigm, the beleaguered industry may be able to reclaim sustainable shares of both domestic and export markets.

The Australian chemical industry is stagnating. Domestically, it is threatened by product end-users moving abroad and imports increasing in quantity and in quality. Considering its ageing, sub-scale plants, investment in the sector remains, at best, sufficient. Within ten years, the investment-depreciation ratio fell from a comfortable 2.1 in March 1995 to below 0.9 in March 2004, lower than the manufacturing sectors' average of 1.2. Export success remains selective and fragile, with little more than 10% of the sector's A$ 27bn -plus turnover generated abroad (2004). This weak performance is exacerbated by the fact that exports to New Zealand amount for 22.3% – as much as exports to fast-growing China, Indonesia, Hong Kong, Korea and Taiwan combined. Despite structural problems, Australians should bear in mind that the chemical industry matters. As "an essential part of every day life," as Noel Williams says, the industry is a crucial element of an industrial value chain whose interruption would result in high economic costs. As the manufacturing industry is changing, moving low value added operations offshore, the chemical sector better change with it.

"The chemical industry has been very much a product driven industry," says Clariant's Tommy Westloef, but "today, the service component is much more important than it was and it will be even more important in the future." In order to successfully reclaim domestic and export markets in an age of internationalizing supply chains, the industry will have to focus on four factors of success; customer focus, production flexibility, competitive advantages and partnerships.

In order to turn Australia's tyranny of distance into an advantage for local suppliers, a strong customer focus is needed. As Basell's Barry Kelly says, "The value chains in the Australian polymers and chemicals industry are small and close enough that it is possible to develop new applications through collaboration up and down that value chain." This requires a flexible production structure to react to demands and increase security of supply, which according to Andrew Mackintosh, Group Manager Strategic Sourcing at mining giant Zinifex, "is one of the most important requirements of sourcing." With just-in-time supplier contracts gaining importance, a delivery time of just a couple of days "is a lot better than the month which it takes to supply out of Asia," says Noel Williams. He adds, however, that "this only gets you in the door, but then you have to provide a good price. So what happens in Australia is that the local supplier gets the business – but then has to provide the Asian price!" This can only be achieved by banking on competitive advantages. On the input side, Australia must focus on its competitive position in terms of energy, raw materials, intellectual property and its 'clean and green' image. On the output side, collaborative efforts of regulators and industry towards an efficient regulatory and trade framework ought to continue. Finally, the industry has to acknowledge the opportunities of teaming up with Asian companies for access to growing markets. Look out, therefore, for more collaboration along the lines of Compco's joint-venture with UAE-based Kanoo group, ChemChina's takeover of Qenos and Sheela Foam's purchase of Joyce Foam. As its CEO Frank van Gogh says, "As a part of a global company, we now also participate in global growth opportunities." With India and China increasingly becoming a source of foreign direct investment and with demand for Australian environmental, health- and safety- and production know-how soaring, the foreign ownership ratio in the sector is likely to rise.

As this report shows, however, much remains to be done. After spending nearly a decade on readjusting to the fall of tariffs and Asian competition, Australia has come to terms with the fact that a chemical industry with too general a focus may not be in anybody's interest. However, concentrating on producing domestically what Australia does best and importing the rest may not be politically attractive, but is almost certainly commercially viable. By banking on competitive advantages and loosening their fixation on '100 % Australian' products, Australian companies have much more than 'Buckley's Chance' to be successful in the future.

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