

# Australian Chemicals

*This research has been conducted by Katya Koryakovtseva and Joseph Hincks of Global Business Reports. For more information, contact [info@gbreports.com](mailto:info@gbreports.com) or follow us on Twitter: @GBReports*

## 'THE ENABLING INDUSTRY'

From the outside, Australia appears buoyant. Up in the Pilbara, miners pioneer increasingly automated equipment to dig deeper and more complex holes in Australia's terrain.

Operators in air-conditioned Perth offices remotely direct truck convoys through underground tunnels, and laden trains snake from the Hamersley Range to Port Hedland where iron ore is loaded onto ships bound for India and China. Here, the cogs of Australian industry are well oiled: it is largely on the back of Australia's natural resources, and its prowess

at extracting them, that the country rode through the global financial crisis with just one quarter of negative growth in 2009.

Despite murmurings of a slowdown in China, demand for Australian resources shows little sign of abating. The Gorgon LNG project, could contribute in excess of AU\$64 billion to Australian GDP over the next 30 years according to the estimates of Gorgon's American operator Chevron, primarily through exports to Asian markets. In April 2012, the International Monetary Fund (IMF) predicted that Australia would be the best performing major advanced economy in the world over the next two years.

But something insidious is occurring behind the redoubtable GDP advance; a trend that concerns blue-collar workers, governments, and economists alike: Australian factories are starting to close.

## THE PARADOX OF PLENTY

When it came onstream some 56 years ago, the Kurnell refinery in Botany Bay represented one of the largest private investments in Sydney's history; Kurnell supplied petroleum products to Australian vehicles and fueled the state's burgeoning factories.

At the time of writing, Kurnell teeters on the brink of closure: a shutdown that would follow that of ExxonMobil's Port Stanvac refinery near Adelaide and the 2011 announcement that Shell is to convert its refining facility in Clyde into a





Patrick Hilditch, managing director, Hilditch Ltd.

giant receptacle for imports. “The days of basic petrochemical manufacturing in Australia are surely coming to an end,” says Patrick Hilditch, managing director of Hilditch Limited, who has been importing oil products for almost as long as Kurnell has been in operation.

Australia’s Asian neighbours now absorb around three quarters of Australian merchandise exports and supply half of the country’s imports. But the seaborne resources trade that bolsters the Australia economy, and the regional synergies that come with it, also presents a more significant threat to the country’s manufacturing industry than isolation and protectionism, the Asian financial crisis, and the global financial crisis (GFC).

In contrast to its protected past, the Australian petrochemical industry must now be considered in a regional context. This is especially telling in an industry that rewards economies of scale. Refineries need a production capacity of at least 200,000 barrels per day in order to reach

minimum efficiency levels, and Australia’s ageing facilities cannot compete. Australia’s largest refinery processes some 140,000 barrels per day, compared to 605,000 barrels at ExxonMobil’s Singapore refinery and 500,000 at Shell’s. A succession of petrochemical infrastructure investments in Brunei, Vietnam, and Indonesia promise to further eclipse Australian capacity.

There is one hydrocarbon solvents refinery left in Australia, and the future of that is uncertain. “I really do think that Australia will see a pure import model within five years,” said Leanne Wilkins, general manager of Australian Solvents and Chemicals Company (ASCC), who became the importer for ExxonMobil products when it shut down its downstream operations in Australia.

Some argue that the root cause of the Australian malaise has as much to do with internal as external factors: the strength of Australia’s resources industry has caused the Australian dollar to surge and made it increasingly difficult for other sectors to keep up: causing what is commonly referred to as Dutch Disease. “I think the mining boom and high Australian dollar are here to stay. We are the sweet spot for resources. We are a first world country, we do not nationalise projects and yet we have pretty much got third-world rates of tax on our resources,” economics journalist Paul Cleary told the Australian Manufacturing Workers Union in March 2012.

The link between resources growth and manufacturing recession is stark, and the emergence of a multi-speed economy in Australia is increasingly

apparent. “Australia is now really not a ‘two-speed’ but a ‘three speed’ economy. The fast moving part is the booming sector, the slow moving or even declining part is the lagging sector, and the rest, where there are more likely to be gains, is the non-tradable sector,” writes W. Max Coron in his November 2011 Working Paper for Trade and Development at Australia National University.

If Australia is indeed in the throes of Dutch Disease, then this is a particularly antipodean version, and diagnosis alone is clearly insufficient; is it really so important that manufacturing in Australia is retained? Is Dutch Disease an inevitable consequence of market forces, or something that can and should be addressed in policy terms?

## BUILDING BLOCKS

The chemical sector is the third largest manufacturing industry in Australia, turning over some AU\$33.6 billion, and directly employs around 83,000 people.

Beyond this, however, it provides essential materials to almost all other sectors of the economy, including automotive, aerospace, defence, consumer products, agriculture, mining and resources, etc. “The chemical industry is central to the economic strength of manufacturing in Australia, and to its social well-being,” Margaret Donnan, the chief executive of PACIA tells us.



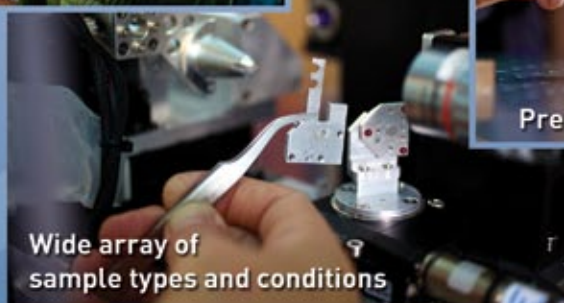
Research in progress at Australian Synchrotron



Margaret Donnan, CEO, PACIA



# turning **BRIGHT IDEAS** into **BRILLIANT OUTCOMES**



## The Australian Synchrotron offers:

- Faster sample analysis times
- More robust data
- A team of world-renowned scientists to support your project

Synchrotron light provides many advantages over conventional methods as a result of its brilliance, tunability, polarisation and collimation. With proven results, the Australian Synchrotron's unique capabilities can assist in solving a wide range of challenges found in chemical processing and manufacturing, pharmaceutical development, advanced materials production and environmental sample analysis, among many others.

Synchrotron Soft X-ray techniques are used to study many different kinds of materials from areas such as medicine, mining, energy storage, geoscience and organic electronics.

- Samples can be cleaved inside the experimental chamber, enabling researchers to study fresh surfaces
- Materials can be studied at temperatures from -123° to 1227° Celsius
- A multiple deposition system allows researchers to investigate adsorption of gases, vapours or solids onto the surface of their samples

The Powder Diffraction beamline offers rapid collection of high resolution X-ray diffraction data, ideal for time-resolved in-situ studies in mineralogy, geosciences, industrial processing, nanotechnology and energy research. A wide range of environmental conditions are accommodated:

- High and low temperatures (80 K – 2500 K)
- High pressure (atmospheric to 30 GPa)
- Different gaseous environments

Macromolecular and Micro Crystallography beamlines offer:

- Structure determination from micron-sized crystals
- High-throughput analysis: 5 – 10 mins per dataset
- Automated data processing
- Daily calibration of beamlines

To find out more, visit [www.synchrotron.org.au](http://www.synchrotron.org.au)

or contact our Business Development Manager: [industry@synchrotron.org.au](mailto:industry@synchrotron.org.au)





**coregas**  
PROUDLY AUSTRALIAN

## OUR PRODUCTS YOUR SOLUTIONS

**High quality gases  
ideal for your application**

Specialty, medical and  
industrial gases

Reliable, high quality supply  
with short lead times

Flexible supply: cylinders,  
bulk liquid tanks and on site  
gas generators

Custom engineered  
installations and tailored  
technical advice

**To find out how Coregas  
could benefit your business,  
call: 1800 807 203  
or visit [www.coregas.com](http://www.coregas.com)**

  
**Wesfarmers**  
Coregas - a Wesfarmers company

The survival of the chemical industry is not merely an economic issue, but a sovereign issue for Australia, according to Donnan: “at the moment, our supply chains are quite integrated, and it is important that control is retained over them. We do not want to have to rely on imported chlorine to ensure that we have adequate safe drinking water; there are sovereign risk issues, so recognising the strategic role of the industry is critical.”

As an industry representing 9% to 10% of the country’s total manufacturing output, and through its direct linkages to other industries including mining and oil and gas, Australia’s chemical sector is a lens through which to examine a country purportedly in the throes of the Dutch Disease. The chemical industry both requires raw materials in the form of feedstock such as ethane, and supplies what are conventionally considered to be raw materials to other manufacturing industries. As such, it is in a uniquely sensitive position. Supply constraints, such as a lack of available ethane, have direct repercussions on the chemical industry, as attested to by Huntsman’s exit from large-scale manufacturing in Botany Bay.

Supply constraints also come in less obvious forms: a reduction in steel production in Australia, for example, might lead to a shortage of the industrial gas argon used by steel fabricators in cutting and welding, according to Alan Watkins, general manager for Wesfarmers Industrial and Safety, which incorporates industrial gases player Coregas. “The huge oxygen requirement of blast furnaces used in steel production supports the presence of large Air Separation Units (ASU) that produce large volumes of gas at relatively low cost to feed to the marketplace,” Watkins explains.

With Bluescope Steel dramatically reducing the scale of its Port Kembla operation, the requirement for ASUs in Australia is much less. “There are other ways of managing oxygen and nitrogen supplies, but it is difficult to get argon cost effectively without large ASUs, and there are few predicted for new steel or petrochemical complexes that demand them,” says Watkins.



Greg Combet, Australia’s Minister for Industry and Innovation

As well as being useful as a diagnostic tool, Australia’s chemical sector could also play a curative role in addressing the Australian manufacturing malady. “Both the chemicals and plastics industry and the pharmaceuticals industry are important for Australia’s economic future,” Greg Combet, Australia’s Minister for Industry and Innovation says. “They are both are ‘enabling’ industries, bolstering the country’s innovation system.”

## PLUGGING THE GAPS

The refinery shutdowns in Australia may be damaging for manufacturing in the country at a macro level, but they also present opportunities for savvy importers to plug emerging gaps in the market.

Hilditch, who trade in base oils, fuels, crude oil and refined oil products, has seen its business quadruple over the past few years and expects to grow by another 40% to 50% over the next two years, according to managing director Patrick Hilditch.

Such growth is not assured for importers and distributors, however, and the market is competitive. As Australian manufacturers become subject to increasing cost pressures, the onus falls on their suppliers to save them money at every opportunity. “It all boils down to cost. Manufacturers nowadays are mindful of every dollar they can save, and I have got

to deliver a saving of, say, AU\$10 on a ton while still providing them with a reliable service,” Leanne Wilkins, general manager of ASCC, tells us. “It is pretty flat out there at the moment and we have to review everything because our customers are reviewing everything.”

Cost efficiencies often come down to supply chain management, and the ability to run this effectively depends on having the economies of scale. “My customers do appreciate that ASCC has tanks; they appreciate that I have got two ships on the water for a product that I only sell nine months of the year, and that I bring in 13 tons of it. They appreciate the fact that I have the logistics, the supplies, and I also have also one of the best partners behind me, ExxonMobil,” says Wilkins.

Even for established importers with strong relationships with suppliers, managing supply chains is a complex business. As refineries move offshore and more imports are required, strain on port facilities will increase. The limited availability of storage terminals is compounded by Australia’s lagging infrastructure. Sydney’s Port Botany has traditionally been the main point of entry for chemical business into Australia, yet is rapidly becoming uncompetitive. “The delay in the Port Botany upgrade is a disaster and is costing the industry millions of dollars,” says Hilditch.

Unlike ASCC and Hilditch, Victorian distributor Oilchem is in the unique position of having its principal, Shell, still

present in the country. “Shell is the only local producer left standing in the Australian solvents industry after ExxonMobil’s decision to quit the country a year ago. Oilchem is now probably in the best position of distributors in Australia,” says Frank Perl, Oilchem’s general manager.

Despite tough conditions in the marketplace Oilchem maintained growth through the GFC. As a sister company of Bohaul express, Oilchem is able to manage its logistics operation in-house. However domestic logistics are still problematic in Australia. “Probably the biggest headache for our transport logistics is storage,” says Perl. “The legislation for this is pretty unique to Australia; it is basically, ‘do it, and when you get it wrong we will let you know.’”

The sheer size of Australia, and its low population density mean that logistics and supply chain management is likely to be problematic for any player operating in the market. This is especially true for low-density products such as industrial gases, for which distribution costs are a significant proportion of the end price. National logistics are further complicated by varying regulations between Australia’s states: whether safety platforms on ISO tanks to prevent worker falls are mandatory or optional, the permitted road weight, the safe working height restrictions, and even environmental regulations can all vary from state to state. “The permitted weight can vary by as much as two tonnes of payload,

which can be 10% of the payload,” says Frank Vella, director of chemical logistics company Direct Logistics.

In an environment in which margins are already under pressure, being able to effectively navigate this complex regulatory framework is critical. “One of the ways we mitigate the effect of this is to consider where we are moving the product when making the tank selection. A tank can weigh from 3 to 4.5 tonnes and we use the lighter tanks where possible if we are dealing with tighter payload restriction,” says Vella.

It is not only the large petrochemical players that have left Australia. Various speciality chemical manufacturers have relocated their primary manufacturing operations to lower-cost jurisdictions in the Asia Pacific. When multinational Clariant was losing ground in Australia, New Zealand-headquartered Chemcolour saw an opportunity to significantly expand its presence through partnering: “Clariant was trying to rationalise its manufacturing to global ranges of products, and streamline production to core products,” says Bruce Collings, general manager, marketing, for Chemcolour.

As a smaller player with a long-standing presence in the market, Chemcolour was able to operate a more flexible model than the multinational. “For efficiency, we have been able to leverage local presence and distribution networks that Clariant did not have. Clariant benefit from removing their cost structure; if they can maintain

# hilditch

**OUR MAJOR ‘PRODUCT’:  
UNMATCHABLE SERVICE**

**Hilditch Pty Ltd**

Level 14 / 9 Yarra Street South Yarra Victoria 3141 Australia

Telephone +61 (3) 9522 6300 Facsimile +61 (3) 9804 7711

e-mail admin@hilditch.com.au ABN 47 005 669 161



Hilditch Pty Ltd trades in base oils, fuels and other refined oil products, crude oil, bulk and packaged chemicals, and other speciality chemicals. Thanks to our many strong relationships within the chemical and petroleum industries around the world combined with our long commercial experience, we are in a perfect position to supply from or to many locations in the world, including Korea, Japan, China, Singapore, Indonesia, Thailand, Malaysia, Taiwan, United Kingdom, Europe, South Africa, USA and of course Australia.





ASCC continue to emerge as a significant force in the solvent, chemical and raw material marketing space in Australia and New Zealand.

ASCC is the largest volume importer and marketer of bulk and packaged fluids of its type into Australia and New Zealand, utilising its key relationships with logistics partners for shipping, terminalling and transport to offer unparalleled service and supply security to a market that is constrained by its geographic location being so remote from major production facilities regionally.

#### OUR PRODUCT RANGE

fluids;

solvents;

plasticizers;

specialty chemicals;

synthetic resins;

UPR resins

[www.ascc.net.au](http://www.ascc.net.au)



Sam Bastounas, president, Nuplex Australasian

sales in the market, they will have gained, especially with side returns as a shareholder in Chemcolour,” says Collings.

Nuplex, a global manufacturer of polymer resins, was able to counterbalance slow growth in the Australian market with strong growth overseas, however some of Nuplex’s local competitors did not have to capacity for such resilience. The consolidation that pressurised market conditions often entail opens up opportunities for aggressive companies with strong balance sheets to rapidly grow market share through acquisitions. “Whilst we are continually adapting to the changing market conditions, we remain focused on building leading positions in the markets we serve through a combination of organic growth and acquisitions,” Sam Bastounas, president of Nuplex’s Australasian business tells us.

In September 2011, Nuplex made an AU\$23.5 acquisition of the Acquos’ Masterbatch business. Acquos had formerly been the largest Masterbatch manufacturer in Australasia. “As we are operating in a mature market, this will ensure the long-term success of our enterprises,” says Bastounas.

M&A activity is not restricted to manufacturers. In August 2011 market expansion services company DKSH finalization its acquisition of specialty chemical distributor Tiger Chemicals. “The acquisition was an indication that DKSH intends to increase its footprint in Australia and New Zealand, and is testament to our belief in that this is an attractive market to participate in,” says Michael Joyce, DKSH’s head of performance materials for Australia and New Zealand.

DKSH Performance Products business helps find new markets for basic and specialty chemicals, pharmaceuticals, food and personal care products. The company expects strong growth in Australia, in part on the back of the company's extensive network across Asia Pacific markets, according to Joyce. DKSH operates multiple application laboratories for performance materials across Asia Pacific. "These application labs enable our suppliers to turn their materials into products that make tangible sense to their customers; instead of presenting just a raw material, we can actually make a product, a paint for example, and demonstrate outcomes and the benefits to be derived from a particular raw material," says Joyce.

Upheaval and repositioning in the Australian chemical market is likely to leave gaps across the strata of the chemical industry. "There is going to be more scope for smaller organisations who want products to be made, but who cannot go to large organisations because the volumes are too small," says Shane Longmore, director at Sydney-based manufacturing, formulating and trading company Alpha Chemicals.

## RIDING THE SHIRTTAILS OF THE MINING BOOM

Australian multinational Orica is now the largest supplier of mining explosives in the world and about as close as a chemical



Shane Longmore, director, Alpha Chemicals

company can get to being a recognizable domestic brand. Orica's origins date back more than 130 years, when the company, then called Jones, Scott and Co, was set up to supply explosives during the Victorian gold rush. However, the growth trajectory of Orica has not been as linear as this picture would seem to imply.

After being established as Jones, Scott and Co, and before its current incarnation, Orica was formerly ICI: the first chemical manufacturer in Australia and hosting a complete range of chemicals divisions. When the company became Orica in 1997, many of these were divested because it was thought that they would struggle to be cost-effective in future, leaving Orica with a sharper focus on mining services and explosives. "Orica has undergone an amazing transformation from a series of high-cost and



Ross Pilling, managing director, BASF in Australia and New Zealand

inefficient manufacturing operations, supported by tariff protection until the 1970s and 1980s, to an organisation with major global positions in its chosen businesses," Greg Witcombe, the CEO of Orica's Chemicals Division tells us.

Orica's success, through sharpening its focus on mining, provides a blueprint for how chemical companies might prosper in the constrained domestic market: not necessarily by focussing on core competencies but by supplying products required by Australia's most sanguine sector: mining.

Mining has become a key focus area for many of the multinationals continuing to invest in Australia. When Ross Pilling became managing director of BASF in Australia and New Zealand in February 2008, the company set out to streamline its operations. "We aimed to change the focus of the company; away



### Success requires the right formula

DKSH is the world's leading Market Expansion Services Group: growing our partners' businesses by providing a package of comprehensive services along the entire value chain. As an independent solution provider we source, develop, market, and distribute a wide range

of specialty chemicals and food ingredients to business partners in the food and beverage, personal care and cosmetics, pharmaceutical, and specialty chemical industries.

Visit us at

[www.dksh.com/chemicaldistribution](http://www.dksh.com/chemicaldistribution)

**Think Asia. Think DKSH.**

from the traditional manufacturing sectors that were increasingly under pressure and towards new growth opportunities in the mining, energy and agriculture sectors,” says Pilling.

“So far, BASF’s mining business has largely focused on mineral processing and metal production as well as underground construction and consolidation,” says Pilling. “Our newly set up industry group is strategically looking at mining opportunities beyond these areas, exploring business potentials along the entire mining value chain: from exploration to construction, mine operations and rehabilitation.”

BASF has established a global mining R&D centre in Perth as part of a global network focused on minerals processing; the Perth site will be a competence centre particularly for aluminium and nickel. BASF is also working on other minerals and addressing the requirements of mining houses for innovative chemical solutions that can improve the efficiency of their processes,

whether it is for separating metal from ores or dealing with tailings, radiation reactivity levels or even construction.

German specialty chemicals player Lanxess is also looking to the mining industry for future growth. Lanxess supplies products to a wide range of manufacturing industries and was in the past particularly active in supplying specialty chemicals to tyre manufacturers. When South Pacific Tyres exited Australia in 2008, and Bridgestone in 2010, Lanxess adjusted its business model accordingly. “The hollowing out of the manufacturing industry has mostly had a negative impact on our local business,” Dr. Grant Wakefield, managing director of Lanxess in Australia tells us. “There has been an overall decline in our customer base, although some of that is coming back in different ways; largely driven by companies who are making products for the mining and minerals sector.”

Lanxess aims to counterbalance the manufacturing exodus in the automotive and other markets by targeting

customers that make components that go into mining machinery, make iron exchange resins for minerals processing, or are involved in extraction and water treatment; aspects of manufacturing that promise medium-term growth in Australia.

The growth trajectory of mining-related manufacturing is more appealing than many markets in Australia, however producing products that the sector actually requires is not the only challenge for chemical companies, according to Wakefield: “when it comes to mining and mineral processing, the dynamics of the sector and the way that one penetrates the market are different: it involves interfacing with original equipment manufacturers (OEMs), research organizations, or the mining companies themselves and therefore requires a significant adjustment in the way we position ourselves in the market.”

With many of the larger mining houses trying to streamline their suppliers, competition is particularly intense

*Water treatment*

*Detergents*

*Food & beverage*

*Agriculture*

*Plastics & foam*

*Chemical manufacture*

*Pharmaceutical & personal care*

*Building & construction*

*Surface coatings*

*Leather & textiles*

*Mining & minerals*



**REDOX**

***Your strategic supply partner.***

***www.redox.com***

SYDNEY > MELBOURNE > BRISBANE > ADELAIDE > PERTH > AUCKLAND > CHRISTCHURCH > HAWKE'S BAY > KUALA LUMPUR



according to Patrick Hilditch: “dealing directly with the mining industry can be difficult and often the chemical requirements of an individual mine are not the highest priority for a mining company; a lot of procurement is outsourced through online agencies that tender for numerous projects. This is probably a very efficient way to work for the miners, but it eliminates the traditional way of dealing directly with the customer.”

By this same note, however, becoming a preferred supplier can be something of a golden ticket for chemical traders with the economies of scale to target the industry. Redox, who sold just under AU\$350 million in product in 2011, is such a company. Redox supplies a wide portfolio of chemicals to customers in Australia, however the company suffered a hit of AU\$16 million to their bottom line when two of its largest customers moved their operations offshore recently. Raimond Coneliano, Redox’ Sydney branch sales manager, explains that this loss was being offset by growth in the mining sector: “mining has a key role to play in the future of our company and we have diversified away from being purely a commodity player.”

Redox recently signed a contract to supply around 40,000 tonnes a year of soda ash to a mining customer, however, according to Coneliano, the company is increasingly focussed on supplying speciality products to the mining industry, such as for activated carbon, gold processing, and grinding media for minerals. In 2011, Redox opened their first overseas office in Malaysia and the company has aggressive plans to expand its regional presence. As well as following customers offshore, this strategy ties in with Redox’s mining focus. “Australia is becoming a solid base for supplying mining chemicals throughout the Asia Pacific.”

Coregas, who were acquired by Wesfarmers in 2007, supply industrial gases both to mining companies and the service companies that support the mines. The company is targeting 10% growth in revenue, in keeping with its growth over the past few years. According to Alan Watkins, general manager

industrial specialists at Wesfarmers Industrial and Safety, the end market is very healthy for Coregas. “The caveat that I would apply is that while digging out of the ground takes a certain amount of maintenance, repair, and operations (MRO), building things takes a lot more,” says Watkins. “We experience good growth but I am not entirely comfortable with how that growth would look if BHP, Rio, Gladstone, Bechtel et al started to throttle back when their projects came to an end.”

## THE KNOWLEDGE ECONOMY

Asia may have the economies of scale, however Australia has traditionally been regarded as a center of innovation and high-quality research and development (R&D), particularly in the pharmaceuticals space.

Australia’s capacity for high-quality research and its ability to bring together industry and academia is an integral aspect of most conversations around the role Australia should play in the Asian century. “I personally think that the future of the industry is in low-volume, high-value, knowledge-intensive products and processes,” says Dr. Calum Drummond: group executive, manufacturing, materials and minerals in Australia at the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

CSIRO is one of the largest and most diverse research agencies in the world. CSIRO spends AU\$1.3 billion on R&D per annum, of which about AU\$700 million comes from grants from the federal government. Unlike a purely academic institution, CSIRO works in partnership with private companies and is highly attuned to industry need. Its multilateral focus enables it to engage with issues at the cutting edge of science beyond the scope of businesses that have to have shareholder return as their primary focus. “Where we see there is an opportunity that constitutes too high a risk for industry to take on at the present time, we may develop that in house and de-risk some of that activity for industry and then get them involved at a later stage,” Dr. Drummond explains.



**ALPHA CHEMICALS**

**Manufacturer & supplier  
of industrial chemicals**



Alpha Chemicals is a 100% Australian owned manufacturing, formulating and trading company with a strong background in inorganic chemicals and considerable experience in organometallic compounds and a broad spectrum of formulations.

Alpha Chemicals can supply, either from its own production or through its trading options, a wide range of predominantly inorganic chemicals too all corners of the world.

### OUR SERVICES

**Custom Formulating  
Contract Manufacture  
Anodising Support**

### OUR PRODUCTS

**Inorganic Chemicals  
Anodising Additives  
Anodising Equipment**

Address: 18 Inman Rd, Cromer,  
NSW 2099, Australia

P.O.Box 657, Dee Why,  
NSW 2099 Australia

Phone: 61-(0)2 9982 4622

Fax: 61-(0)2 9982 4399

sales@alphachem.com.au

**www.alphachem.com.au**

Victoria-based Boron Molecular was founded in 2001 as a spin-off from CSIRO and is an example of Australia's ability to mobilize good ideas. Boron Molecular's technology is based on the Suzuki-Miyaura process, and when the company started out they were one of the only commercial suppliers of boronic acids and their derivatives. Boron Molecular's general manager Dr. Jake Golding acknowledges that Australia is very good at getting start-ups to the commercialization stage, but insists there is more to it than that: "there is an enormous and expensive step between identifying good ideas and actually getting them to the market. I do not know if there is enough support there."

Established in Melbourne in 1989, Mimotopes is another example of an Australian spin-off, in this instance from [Commonwealth Serum Laboratories]. Mimotopes is an industry leader in the peptide and discovery chemistry sector, specializing in the development, marketing, and distribution of sophisticated bio-

chemical products and services for the biotech and pharmaceutical industries.

Although its products are the result of high quality R&D, like Boron Molecular, Mimotopes is facing competition from players in overseas markets who are able to manufacture more cheaply. While Mimotopes is regarded highly in the market for its extensive knowledge of its peptides library, and is still able to produce faster and at greater capacity than its competitors, market conditions are becoming increasingly difficult, according to managing director Sonja Plompen. "This ability to produce in mass quantities is only relevant if we are getting orders for 4,000 peptides. The volume of large orders has decreased, and as the price of purified peptides is coming down, more people are choosing to wait for them."

While both Boron Molecular and Mimotopes can be considered examples of how Australian companies can leverage the country's research environment for commercial returns, Dr. Jake Gold-



Andrew Peele, head of science, Synchrotron

ing cautions that this does not mean Australia can neglect its manufacturing sector: "it is very easy to give up on manufacturing because it all seems too hard; that would be the worst thing Australia could do. If we do not have a vibrant and diverse manufacturing sector, we are not going to have niche markets either, but the manufacturing industry as a whole really needs to be part of the country's future."

**DISTRIBUTION SPECIALIST**

Oilchem Pty Ltd was established in 1986 to provide efficient distribution of quality Solvents and Lubricants to Industry. Oilchem Pty Ltd is a distributor of Shell chemicals.

The past two decades have seen consistent and healthy growth of market position for Oilchem which has been created and maintained by observing total commitment to Quality and Customer Service.

**OILCHEM PTY LTD**  
 P.O. Box 86, Epping Victoria 3076  
 55-57 Miller Street, Epping Victoria 3076  
 Ph: 03 9401 3377 / 1300 657 667  
 Fax: 03 9401 4657  
 sales@oilchem.com.au  
 www.oilchem.com.au

**BRIDGING SCIENCE WITH BUSINESS**

**iqnovate™**  
 Life Science Organisation

**OUR VALUE PROPOSITION**

- HEDGE RISK AND REDUCE INFRASTRUCTURE COSTS
- OPTIMISE PIPELINE VALUE AND ROI
- IMPROVE OPERATIONAL EFFICIENCY AND OUTCOMES
- IMPROVE REGULATORY COMPLIANCE
- INCREASE LIFE CYCLE DRUG DEVELOPMENT EFFICIENCIES AND DECREASE TIME TO MARKET

**www.iqnovate.com | +61 2 8239 5400**

YOUR PARTNER FOR LIFE CYCLE CLINICAL DEVELOPMENT PLANNING AND STRATEGY MANAGEMENT



In addition to CSIRO and organizations such as the Co-operative Research Center (CRC) for Polymers, which bridge industry and academia, Australian innovation is supported by the presence of large research facilities such as the nuclear reactor at Lucas Heights, and the Australian Synchrotron in Victoria.

The Australian Synchrotron, a source of highly intense light from infrared to hard x-rays, is the largest stand-alone piece of scientific infrastructure in the southern hemisphere.

It is both conducive to and dependent on a vibrant R&D environment in Australia. “Without fundamental and applied research into areas as diverse as biotechnology, advanced materials, immunology, nanotechnology and manufacturing, the R&D sector would suffer,” says Professor Andrew Peele, the Australian Synchrotron’s head of science. “On the other hand, if there was no R&D industry in Australia some of our most significant research findings would be lost to other countries, as has been the case in the past. Our ability to capture and profit from our own research and innovation is critical to the future prosperity of this country.”

Although usually considered to be at the fundamental end of the innovation chain, the Australian Synchrotron is also able to contribute to benchmarking and quality control. This has multiple applications, if Australia is to become a leader in sustainable chemicals, for example, it is important to be able to distinguish green-product from “green wash.” “Much of what the AS does is at a level of sensitivity or accuracy that cannot be achieved using other scientific methods,” Peele explains. “I think it is only natural that work done here will underpin other results.”

## A FRAMEWORK FOR INNOVATION (REGULATORY REFORM)

“We can all see what needs to be done, it’s just a matter getting the rubber to the road, so to speak. When that happens, I think we will see a reasonable jump in the competitiveness of Australia in terms of R&D,” said Ian Thompson, managing director, Amgen Australia.



Kerry Strydom, senior director and general manager, Quintiles Australia and New Zealand

If Australia is to be considered a hub for innovation, then its regulatory framework must foster scientific discovery. In the pharmaceutical industry, particularly, Australia has traditionally been regarded as a global center of excellence for research. “Australia has traditionally been a preeminent deliverer of good quality, high-end research, and part of that is around clinical research,” says Kerry Strydom, senior director and general manager for Australia and New Zealand of Quintiles, the world’s largest clinical trials organization.

With the high-cost environment, however, some fear that the competitive advantage Australia once enjoyed over destinations in the Asia Pacific could be eroded; a report published by KPMG in May found that the Australia was the second most expensive place in the world to conduct clinical trials; only Japan is more expensive. Despite these cost constraints, Australia’s large clinical trials organizations (CROs) and big pharma companies generally agree that the government is moving in the right direction. “I think the environment is becoming more conducive to high quality research,” Mark Fladrich at AstraZeneca tells us. “Both Minister Combet, and Minister Plibersek [Australia’s Minister for Health and Ageing] have expressed a lot of interest in seeing that clinical research is carried out in Australia because they see the benefit, not only for the patients, but of the flow on effect on the whole medical industry, the academic community, and the economy.”

In July 2011, The Australian government replaced the R&D tax concession with the R&D tax incentive. The incen-

tive provides refundable and non-refundable tax offsets to encourage more companies to engage in R&D and has been welcomed by the pharmaceutical and chemical industry alike. The government has also announced that it will introduce quarterly credits for small and medium businesses from year beginning 2014.

According to Dr. Brendan Shaw, the chief executive of leading industry body Medicines Australia, who worked closely with the government on identifying areas for regulatory improvement, the recent tax credit changes and the regulatory environment around clinical trials are all positive steps towards improving Australia’s research environment. “The progress has been slower than we would have wanted so Medicines Australia are pressuring the government to drive that forward,” Shaw tells us.

Government enacted initiatives such as the Harmonization of Multi Centre Ethical Reviews (HOMA), the harmonization of ethical requirements for clinical trials across the eastern seaboard, and the R&D tax credit have all helped to advance the cause of Australian clinical trials and, according to Kelly Strydom of Quintiles, are now starting to bear fruit. “These are all initiatives in which Quintiles has been actively engaged and we fully support them; if anything we would be looking to accelerate outcomes.”

Even with the correct incentives in place, Australian biotechs have traditionally found accessing funds difficult. “Australia is a conservative nation: we would rather invest in real estate than biotechnology,” says George Syrmalis, CEO of Sydney-based contract medical research organization IQnovate. “One of the fundamental problems is that a great scientist cannot necessarily articulate a great invention into a product.”

IQnovate was set up by Syrmalis in 2011 to provide contract medical and scientific services to pharmaceutical and biotechnology partner companies: to guide, and execute if necessary, the Registration, Reimbursement and Commercialization [RRC] process. IQNovate’s sister company IQX Investment Labs often funds IQNovate projects. “What a biotech usually needs the most is commercialization expertise, and IQnovate

provides this along with the money,” says Symmalis.

While traditional CRO’s are adept at handling the research needs of pharmaceutical companies, according to Symmalis, IQNovate was set up to address an unmet need on the “D” side of the R&D equation. This chimes with the assessment of Golding at Boron Molecular: “I think that Australia is very good at getting start-ups to the commercialization stage. However, there is an enormous and expensive step between identifying good ideas and actually getting them to the market: I do not know if there is enough support there.”

Despite improvements such as the R&D tax credit, the chemical industry still bemoans the lack of progress to National Industrial Chemicals Notification and Assessment Scheme (NICNAS) reforms, and questions remain about whether the carbon tax may increase pressure on an already fraught manufacturing sector.

In 2006, the Council of Australian Governments’ (COAG) identified chemicals and plastics to be a regulatory hotspot for conflicts and inconsistent legislation across the country. Out of that came a ministerial task force, and then a comprehensive report handed down by a productivity commission study in 2008, covering thirty recommendations for reform, ranging from NICNAS to health and safety, environment and transport. “We saw this as a real road-map for reform; sadly it has been very patchy and slow, and was

recently independently reviewed by the COAG Reform Council, who identified it as having not achieved the objectives laid out in 2006,” Margaret Donnan of PACIA tells us. “NICNAS is seen as a specific impediment to innovation in Australia: some of our global members will introduce new chemicals abroad that they cannot here because our market all and our cost structures so high.”

## ADVANCED MANUFACTURING: THE YELLOW BRICK ROAD

According to ExxonMobil’s head of Asia Pacific and African marketing, Emma Cochrane, Australia will be the world’s leading liquid natural gas (LNG) exporter by the end of the decade, and Resources, Energy and Tourism Minister Martin Ferguson has stated that he would like Australia to move from being a regional hub to a global leader.

More than AU\$140 billion of LNG projects are currently underway in Australia and at present around 50% of the natural gas produced in the country is being



Jonathan Clancy, CEO, Qenos

exported as LNG. A large proportion of natural gas coming from new projects is already being earmarked for export.

While LNG will certainly be an important revenue generator for Australia going forward, many in the chemical industry bemoan the fact that Australia is selling its natural resources overseas. “Regrettably, the dig-and-ship model is now so simple and predictable for analysts that it has greater appeal than taking a longer-term approach,” says Jonathan Clancy, CEO of Qenos, Australia’s sole manufacturer of polyethylene and polymers.

According to PACIA, the benefits of value adding to Australia’s natural resources outweigh shipping it offshore by a factor of about eight to one. “In comparison to countries like Singapore, Australia has lacked strong long-term strategic vision in the past,” Donnan tells us.

**creating the solution together**



As a leading global manufacturer of polymer resins our products, which protect and enhance everyday products everywhere, are manufactured across our global footprint and sold in over 80 countries. In Australasia, we also distribute raw materials to a cross section of industries including the general industrial, food and pharmaceutical sectors.

**nuplex**

Asia • Europe • Americas • Australasia

[www.nuplex.com](http://www.nuplex.com)



The Dow Chemical Company has created the Dow Chemical Company Advanced Manufacturing Plan for Australia (AMP-Aus), a set of economic priorities and policy recommendations aimed at creating a stronger and more balanced economy. Australian-born Andrew Liveris, The Dow Chemical Company's president, chairman and chief executive officer, was appointed Co-Chair of President Obama's Advanced Manufacturing Partnership in 2011 and has been a leading proponent of manufacturing revival in Australia. One of the key pillars of Liveris' argument, reiterated in Dow's AMP-Aus, is value adding to Australia's natural resources.

Liveris and the Dow Chemical Company are not alone in advocating greater domestic value adding to Australia's wealth of natural resources. "This is an issue bigger than any one of the local players. It is a question of how the country wants to build a sustainable manufacturing sector for the long term, and whether it makes strategic and economic sense to


add value to some of the resources," says Ross Pilling, managing director of BASF in Australia and New Zealand.

While the industry continues to campaign for more incentives to value add to Australia's natural resources, some chemical companies have committed to substantial investments despite the testing conditions. In late 2010, Qenos, Australia's leading manufacturer and trader of world-class polyethylenes, announced plans to expand and modernise its manufacturing facilities at Altona in Melbourne. In September 2011, Qenos signed a 15-year feedstock supply agreement with ExxonMobil Australia and BHP Billiton on the back of an increase in the availability of ethane from the Bass Strait. "The current round of investment, worth AU\$200 million, is expanding Qenos' capacity by about 20%," says Qenos CEO Jonathan Clancy.

Qenos' investment was supported by Qenos' main shareholder ChemChina and by the State Government of Victoria. The expansion will secure jobs at the Altona

plant and create around 250 more, according to Ted Ballieu, the Premier of Victoria. "Taking Qenos as an example, you can see that the supply chain multiplies the value of ethane by 10 and the number of industry jobs by five," Clancy tells us.

On top of Qenos, companies such as Solvay Interlox, Henkel, Orica, Akzo Nobel, Nuplex, Era Polymers and others continue to invest in manufacturing in Australia. This cost pressures associated with manufacturing in Australia are usually overridden by one of three factors: when proximity to local markets is a key competitive advantage; in the case of Qenos for example, customers on the east coast will be able to receive polymers within 24 hours of requesting them, whereas overseas forward orders have a lead time of up to three months; where demand for a chemical product in the mining sector accelerates growth (discussed in the previous chapter); and where a manufacturing operation is complex or specialist enough to leverage Australia's unique capabilities.



**Qenos**  
A Bluestar Company

**As the Australian manufacturer and leading supplier of world class polyethylene and polymers, Qenos is a vital link in the nation's manufacturing chain.**

Qenos upgrades the nation's rich oil and gas reserves by converting these natural resources into high value polymers which are used to create innovative and practical long life products in diverse markets. These markets include building and construction, food and industrial packaging, agriculture, water, mining and energy.

With strong endorsement from our global shareholders ChemChina and the Blackstone Group, Qenos continues to develop world class products to meet the current and future needs of our customers.

Qenos is proud to be a cornerstone of the \$30billion plastics and chemicals sector in Australia.

[www.qenos.com](http://www.qenos.com) Ph: 1800 805 538

## PHARMACEUTICAL MANUFACTURING: A STANDARD BEARER FOR AUSTRALIA

“There has no doubt been rationalization in Australia; there have been a number of manufacturing plants that have closed here and their production moved to Indonesia, China and Singapore for pharmaceuticals as well as for chemicals. In the last 12 to 18 months, however we have seen examples of labs that have stayed open in Australia and have expanded as a result of what is happening in Asia, for example AstraZeneca and GlaxoSmithKline (GSK),” says Dr. Brendan Shaw, Chief Executive, Medicines Australia. As much the idea of a country that makes something is an important aspect of the national psyche, asking Australian taxpayers to prop up inherently uncompetitive industries does not make sense. This is why the distinction between traditional manufacturing and advanced manufacturing is important.

Australia is already leveraging its capability for advanced manufacturing. This is particularly evident in the pharmaceutical industry, which, in this respect, may be one step ahead of the chemical industry in Australia.

As in chemicals, the pharmaceutical industry has witnessed a number of multinational players moving their manufacturing operations offshore, usually to lower-cost jurisdictions. The decline in pharmaceutical manufacturing in Australia, however, mainly concerns tablet production, which is relatively easy to replicate, transportable, and at the lower-tech end of the spectrum. “It is

fair to say that the pharmaceutical industry has got a capacity surplus at the moment, and some of the manufacturing close-downs are simply consolidation because of that overcapacity,” says Mark Fladrich, managing director of AstraZeneca in Australia and New Zealand.

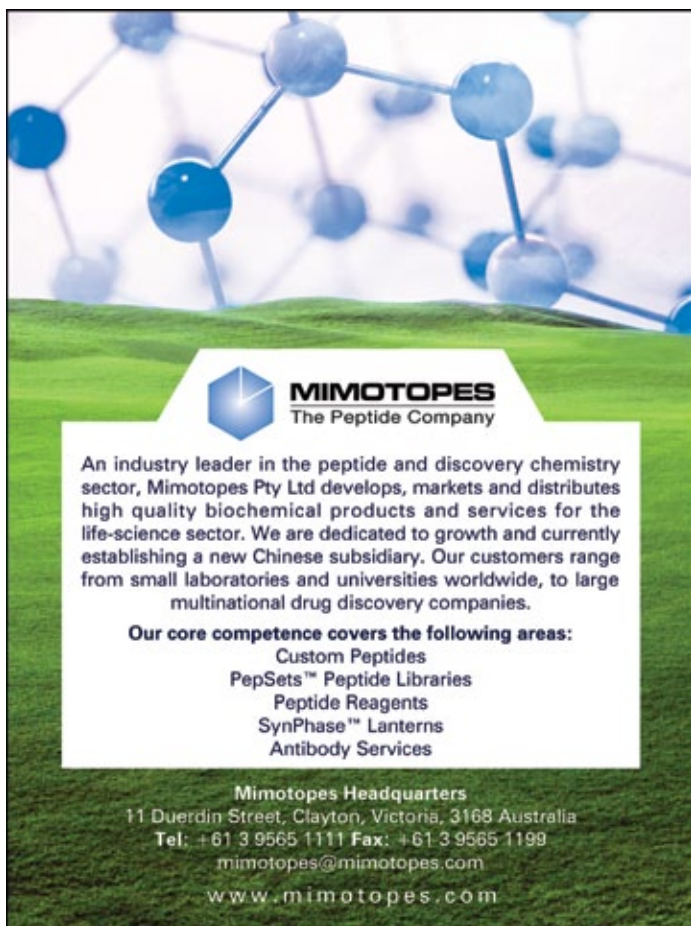
AstraZeneca’s tablet production was off-shored in December 2010, however the company has continued to invest in specialized blow-fill seal (BFS) production. AstraZeneca’s manufacturing plant on the outskirts of Sydney produces sterile products in plastic containers: ampules, projections, or respules for inhalation. “Sterile facilities require a whole level of quality control and process management that you do not need for a tablet plant,” explains Fladrich. “Because this site is the sole supplier of respules for the treatment of asthma to the Chinese market, we have seen a very rapid increase in demand for our product, and we expect a 250% increase in demand by the end of the decade.”

Even when AstraZeneca looked at Chinese demand, the decision was taken to continue manufacturing in Australia. “Even with the strong Australian dollar, we were able to compete with other prospective sites because of the efficiencies we had built up here; it has been a real win for Australian manufacturing,” says Fladrich.

In February 2012, GSK announced that it was investing AU\$60 million to expand its manufacturing facility in Boronia, Victoria. The Boronia plant is GSK’s largest site globally for the production of sterile and non-sterile liquid products and also utilise BFS technology. “We have to realize that at our front door there are countries that have proven to be very cost effective across multiple industries. Therefore we need to be mindful of how we can differentiate ourselves,” says David Herd, GSK Australia’s director of healthcare environment. “Australia has some very specific technology and professional knowledge that allows us to get very close to the clinicians and researchers who are breaking ground daily and we can work with them to bring hugely innovative science to bear.”

AstraZeneca and GSK are giant multinationals with economies of scale on their side; is it possible for smaller players to replicate such investments in the current climate? “There is an opportunity for high-end manufacturing in Australia, but what the government will do to facilitate it is not clear at this point,” says Mark Fladrich. “Gone are the days when we will see large multinationals making big greenfield investments in Australia. However, if there are biotechs needing to scale up their facilities, in my view the government should be lobbying for them to use Australia as a manufacturing base.”

In 2011 Australia made AU\$3.8 billion from medical exports; more than cars and Australian wine industry combined; the economic contribution of the country’s chemical industry is even greater, and the social contribution immeasurable. Australian manufacturing faces an uncertain future, however some of the examples cited above demonstrate that with the correct stimulus, advanced manufacturing could thrive. The decisions taken today will shape the Australia of tomorrow: a multi-speed economy vulnerable to volatile commodity prices, or a balanced sustainable economy, and a country able to define itself by what it creates, rather than simply by what it contains.



**MIMOTOPES**  
The Peptide Company

An industry leader in the peptide and discovery chemistry sector, Mimotopes Pty Ltd develops, markets and distributes high quality biochemical products and services for the life-science sector. We are dedicated to growth and currently establishing a new Chinese subsidiary. Our customers range from small laboratories and universities worldwide, to large multinational drug discovery companies.

**Our core competence covers the following areas:**

- Custom Peptides
- PepSets™ Peptide Libraries
- Peptide Reagents
- SynPhase™ Lanterns
- Antibody Services

Mimotopes Headquarters  
11 Duerdin Street, Clayton, Victoria, 3168 Australia  
Tel: +61 3 9565 1111 Fax: +61 3 9565 1199  
mimotopes@mimotopes.com  
www.mimotopes.com