A report on the economic and social contribution of the Plastics and Chemicals Industries to Victoria and Australia

Executive Summary

A report for the:
Department of Innovation, Industry and Regional Development
Plastics and Chemicals Industries Association (PACIA); and
ACCORD Australasia

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June 2006

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The Report on the economic contribution of the Plastics and Chemicals industries to Victoria and Australia

Executive Summary

The Victorian plastics and chemicals sector is one of the most important strategic drivers of Victorian economic activity with deep linkages into the economy.

The plastics and chemicals sector consists of integrated industries making intermediate products from minerals, such as oil and gas by-products, and on-selling these products to industries which make finished chemical products to be used as components in other manufactured products or as finished goods for household or investment use.

The plastics and chemicals sector form a technology, capital and skills-intensive core of manufacturing industry. A study by the National Institute of Economic and Industry Research (NIEIR) found that in 2004 the plastics and chemicals sector was directly or indirectly responsible for 7.3 per cent of total Victorian economic activity, as measured by gross State product, and directly or indirectly created 134,000 Victorian employment positions. This increases to 9.1 per cent when account is taken of the productivity enhancing/cost saving benefits the plastics and chemicals sector generates for other sectors in the Victorian economy.

In 2004 the Victorian plastics and chemicals sector produced $12 billion of output, representing nearly 40 per cent of production of the Australian chemical sector.

The strategic value of the plastics and chemicals sector, in terms of contribution to Victorian gross State product, is:

- the same as the motor vehicles industry;
- at least one and a half times the contribution of the tourism industry;
- three times the contribution of the mining industry; and
- not far behind the contribution of the food industry.

The plastics and chemicals sector is a key driver of innovation in manufacturing.

Importantly, the study also revealed that the plastics and chemicals sector plays a significant role in being the first to introduce new technologies to the Australian market (such as nanotechnology) that reduce production costs or improve product characteristics that can also be applied in non-chemical industries to improve productivity and growth opportunities.

The chemical sector's research and development effort has notably contributed to improving the prospects of successful commercial innovation for the research and development effort of non-chemical sectors; and provides training for employees in new technologies giving them the vital initial experience that can be used to advantage by other industries when normal employee turnover occurs.

The plastics and chemicals industry has been the key initiator for many well known and some not so well known innovations created in Australia. Each of these studies illustrates the integration of the plastics and chemicals industry with neighbouring industries thus demonstrating its strategic importance to the economy. Furthermore, given that manufacturing is becoming increasingly dependent on niche marketing and innovation, the local plastics and chemicals industry has a central role for the future.

The following examples are illustrative of the important role the sector plays in the broader economy and in furthering the development of new technology and niche products.

- CSIRO developed plastic banknotes in Australia in 1988. They are now used in 22 countries. CSIRO expertise in polymer and synthetic chemistry in conjunction with Note Printing Australia was used to develop a non-fibrous and non-porous plastic film, which the banknotes are printed on.

- Olex and the CRC for Polymers have developed a polymer material that is converted into a ceramic material when exposed to fire. The ceramifiable insulation is a major advance in fire performance cable technology. It enables power cables to function longer in fire situations, thus maintaining services such as lighting, communications and ventilation and assisting in saving lives and property as well as supporting emergency crews.

- Plantic Technologies Limited has developed and manufactures the first commercial application of a bio-degradable plastic technology to produce food packaging and display trays that are compostable and dissolve in water. The company is rapidly expanding its unique Plantic bio-degradable polymer material and gaining broad market acceptance as alternative sustainable packaging.

- New dishwasher detergent technology developed PZ Cussons incorporates a layer of enzymes and a layer of gel into a cavity in a bilayer tablet base, greatly improving solubility and performance compared with conventional dishwasher detergent products. The innovation has been developed locally in Victoria by the PZ Cussons technical team in collaboration with a number of materials supplier and engineering firms.

- Marplex helped develop a totally plastic auto shift assembly for the Ford BA. The shift assembly achieved a 30% weight saving as well as meeting cost targets. The assembly involves eight different thermoplastics and the technology is now being exported overseas.

- Miex DOC resin was developed by a consortium involving Orica, CSIRO and the SA Water Corporation and represents an innovative development in the provision of potable water. The MIEX® DOC resin is utilised in a continuous ion exchange process designed for the removal of dissolved organic carbon (DOC) from contaminated water. The resin is rapidly gaining acceptance in a traditionally conservative industry and last year the first USA installation was approved in California.

However, the Victorian plastics and chemicals sector is facing a number of challenges.

- Over the past 10 years, the Australian and Victorian plastics and chemicals sector has experienced slower than average growth, loss of market share to international imports and, in the case of the Victorian plastics and chemicals sector, a decline in absolute allocation of product to interstate markets.
- Australia and Victoria, along with other high income countries and regions, now face considerable threats to the plastics and chemicals sector. At worst, these threats will result in substantial contraction in the sector in many high income countries over the decade to 2015. The threat to the Australian and Victorian plastics and chemicals sector will be greater than that to the chemical sectors of other high income countries, due to the Australian chemical sector's relatively poorer exporting and R&D performance.
- Many high income countries still regard the plastics and chemicals sector as a strategic vehicle for wealth creation. Australia has acknowledged, to some extent, the importance of the plastics and chemicals sector through the report: *Underpinning Australia's Industrial Growth: the Chemicals and Plastics Action Agenda.* However, to date this has not facilitated a strategic plan for the industry.
- The plastics and chemicals industry in Australia will be constrained in its efforts to improve performance because current profitability and balance sheet structures are at best average, and at worst poor.
- A current trend scenario for the Victorian plastics and chemicals sector for the next decade indicates that the sector is likely to make negligible contributions to Victorian economic growth, and that without strategic interaction by all stakeholders, the prospects are for a significant contraction in the rate of economic growth.
- The Victorian plastics and chemicals sector is isolated from world supply chains providing new challenges in an increasingly globalised economy where collective risk sharing, and coordination and strategies to maintain maximum supply chain competitiveness, are essential.

The four key threats to the chemical sector in achieving broad based growth in the future are:

- a lack of collaborative focus, direction and effectively-targeted industry policy;
- a gradual disintegration of the supply chain;
- the development of this sector in competing nations with lower cost structures and bigger economies of scale; and
- continuing reduction in growth resulting in major plant closures.

The specific challenges and threats facing the industry will require significant cultural change and support in order for the industry to reach its potential. Within the existing policy environment, there is little likelihood that the plastics and chemicals sector can move beyond the current trends, which point to a 15 per cent probability that the annual rate of growth of the sector will be less than -0.8 per cent per annum. To change this scenario, industry and government must address the following challenges:

- Inward focused industry with a high dependency on domestic demand for activity
- Highly vulnerable to increases in import penetration
- Ageing capital equipment.

Should these challenges and threats continue unabated, a slowdown in the sector would continue to occur with far reaching and lasting impacts on other parts of the economy.

Despite the challenges, there is real potential for steady growth of the industry and many benefits for the broader economy.

If the industry can sustain 3% growth it will combine all the benefits of scale and import replacement and rapid restructure plus additional benefits of specific progress to encourage innovation into Australian based development. In looking to the future of the industry, the report sets targets for contribution to GSP/GDP, contribution to total employment, exports, national net investment per annum, exports as a per cent of production and research and development that would maintain the industry at this level for the next 10 years.

The following case studies are illustrative of the growth potential for the industry and indicate that whilst the industry is confronting challenging times, there some exiting developments still taking place in the industry.

Symex Holdings Ltd, is 100% Australian owned and is located in Port Melbourne (Victoria, Australia). It is a world-competitive manufacturer of Oleochemicals including Oleine, Stearine, Glycerine and Distilled Fatty Acids. These products are used in personal care, cosmetic, food, pharmaceutical and many other industrial applications.

Symex is capitalising on Victoria's natural advantages of low cost power, the availability of quality raw materials and favourable 'back filling' freight costs and combining with the firm's expertise, innovativeness, and its reputation for consistently high-quality products and outstanding customer service is taking on the world. The firm exports over 75 per cent of its products to over 35 countries, including the Asia-Pacific region, North America and Europe.

At a time when commodity chemicals are increasingly being supplied out of Asia or the Middle East, Australia's only manufacturers of polyolefins (Qenos, who manufacture polyethylene and Basell, who manufacture polypropylene) have both recently committed to significant investments at their respective Victorian operations, ensuring that polyolefins will continue to be manufactured in Victoria for many years to come. This is good news for the many downstream customers who will be able to source tailor-made polymer blends not available elsewhere.

Qenos is investing about $70 million at Altona to convert to a gas feed stock and Basell Australia is investing a similar amount to expand its plant at Geelong.

These investments will improve production efficiencies and make the plants comparable with world benchmarks for the production of polyolefins.

Polypropylene is used in textiles, automotive, packaging and in making Australia's leading edge plastic currency, while polyethylene is used for pipes and conduit, milk bottles, food packaging and water tanks.

A plan for the future of the plastics and chemicals sector in Australia is vital.

A plan to clearly articulate where the Victorian and Australian plastics and chemicals sector will be in the future is vital and must be formulated to secure the ongoing future of the sector.

Several major chemical companies will be required to make significant reinvestment decisions in the near future in order to compete and integrate into global supply chains. This juncture provides Victoria and Australia with an opportunity to capitalise on the innovative and strategic nature of the local companies to the future benefit of the broader economy.

Six key Strategic Imperatives are identified for the industry to achieve the desired 3% growth. These include:

- Secure the recognition of State and Federal Governments of the significant strategic value and contribution to innovation the chemical sector makes to broader manufacturing and service industries within the economy
- Strengthen local industry supply chains
- Capitalise on opportunities for export and import replacement
- Enhance the conditions for firms to increase investment in research and development
- Improve access to venture capital and long term foreign investment in research and development projects, and
- Embrace measures to create a stable economic and consistent regulatory environment that encourages investment and growth in the plastics and chemicals sector.

Each of these six imperatives has recommended actions for Federal Government, State Government and Industry attached.

1. **Recognition of the plastics and chemicals sector's value and contribution may be achieved through:**

   Federal Government

   - The Federal Industry Minister to respond publicly to this study and the Action Agenda recommendations and highlight importance of the industry in public forums

   State Government

   - The State Industry Minister to promote the findings of the study to Ministerial colleagues and the broader industry community and commit to responding publicly to the study
   - The State Industry Minister to highlight the importance of the industry in public forums

   Industry

   - Encouraging industry leaders from outside the plastics and chemicals sector to speak on the importance of the industry to their operations.
   - Embarking on a public campaign to boost the image and understanding of the industry

2. **Strong and flexible supply chains may be achieved through:**

   Federal Government

   - The prioritisation of supporting infrastructure for the raw materials industry
   - The creation of an environment conducive to, and actively encouraging of collaboration with all levels of the supply chain
   - Assistance to the industry to form clusters and to develop innovative supply chain systems

   State Government

   - Funding programs and events, seminars and training programs to demonstrate the benefits of local supply chains
   - Encouraging further take up of e-commerce to improve supply chain efficiencies

   Industry

   - Increasing participation in collaborative ventures
   - Continual refinement of supply chains to achieve efficient processes

3. A stronger focus on exports may be achieved through:

Federal Government

- The provision of more information and research into specific overseas markets and products with high export potential
- Promotion of the capacity and capability in the Australian manufacturing sector, particularly the plastics and chemicals sector, and encouragement of investment and commitment by industry

State Government

- Effective monitoring, advocacy and support on export trade barriers and arrangements that may provide importers with an unfair advantage over local industry.
- Promotion of the capacity and capability in the Australian manufacturing sector, and the plastics and chemicals and plastics sector, and encouragement of investment and commitment by industry

Industry

- Support and promote innovation link to other industries that are creating exportable products.

4. A stronger commitment to research and development may be achieved through:

Federal Government

- The development of more attractive general research and development incentives
- More comprehensive assistance in the commercialisation of research and development
- An emphasis on technology and the competitive advantages available to Australian manufacturers

State Government

- Encouragement of collaboration of research and development to share risks
- Promoting capabilities and investment by Government in enablers such as the Synchrotron and nanotechnology.

Industry

- Advocating and demonstrating applications of new technologies to create competitive advantage.

5. **Improve access to venture capital and long term foreign investment in research and development projects:**

Federal Government

- Create enablers, such as special tax treatment, for fund managers to invest more readily in long term research projects
- Better cooperation between State and Federal Departments to promote foreign investment in Australian companies and innovations
- Coordinate promotion of manufacturing capabilities of the chemical sector through targeted campaigns to international decision makers

State Government

- Facilitate growth of industry clusters to nurture development of collaborative research

Industry

- Continue to generate new ideas and exploit opportunities for partnerships to develop innovative products

6. **A stable economic and consistent regulatory environment may be achieved through:**

Federal Government

- Implementation of the recommendations of the *Report of the Taskforce on Reducing the Regulatory Burdens on Business – Rethinking Regulation* (the Banks Report) and the intent of the COAG Ministerial communiqué (February 2006) regarding reform of chemicals and plastics regulation
- Commitment to the industry through the provision of infrastructure for the raw materials industry
- Commitment to enabling and facilitating green-fields development or extensions to existing sites and infrastructure
- Continual regulatory reform/review with a view to minimising the impact of industry regulation through such mechanisms as the government's red tape reform agenda

State Government

- Effective consultation with industry on policy development and any changes in planning and environmental regulation that may impact on future investment opportunities in the chemical sector, through such mechanisms as the National Manufacturing Summit.

- Building case studies to market Victoria and Australia as a prime location for investment.