ECONOMIC ANALYTICAL UNIT
BRIEFING PAPER

AUSTRALIA-THAILAND TRADE RELATIONS: THE PLASTICS AND CHEMICALS INDUSTRY

One of the industries to express concern about the impacts of a possible free trade agreement with Thailand is the plastics and chemicals industry. This paper assesses the relative strengths of Australia's and Thailand's plastics and chemicals industries by analysing the level and trend of sectoral trade flows and drawing on available written material on the industry in the two countries. The paper highlights Australia's existing reliance on chemical and plastic imports, the already low tariff levels and possible export opportunities for the industry, particularly in pharmaceuticals.

BRIEF HISTORY OF AUSTRALIA'S PLASTICS AND CHEMICALS INDUSTRY

Until the mid 1980s, Australia's chemicals and plastics industry[1] operated behind a high tariff wall, which distorted investment decisions and hampered its efficient operation. Tariffs on some lines were as high as 45 per cent (Industries Assistance Commission, 1986). Following an Industries Assistance Commission report in 1986, the government progressively reduced tariffs to between zero and 5 per cent by 1996. As tariffs declined, import penetration rose; in response the Australian industry restructured and consolidated to maintain competitiveness (Plastics and Chemicals Industry Association, 2000). Despite this, the industry has not kept pace with other sectors of the economy; its asset base is aging and, due to the significant economies of scale in this industry and Australia's small domestic market, the industry is losing competitiveness (Department of Industry, Tourism and Resources, 2002a). The plastics and chemicals industry is primarily a producer of inputs to other industries, with 71 per cent of supply feeding into such industries as agriculture, mineral processing, manufacturing, construction and packaging, many of which are major export producers (Department of Industry, Tourism and Resources, 2003a).

TRENDS IN TWO-WAY TRADE IN PLASTICS AND CHEMICALS

Australia-Thai trade in plastics and chemicals is booming in both directions. Australia's exports to Thailand increased from \$118 million in 1998 to \$227 million in 2002, representing an average annual growth rate of 18 per cent over the four year period. Australia's imports from Thailand expanded at an average annual rate of 12 per cent between 1998 and 2002, from \$105 million to \$166 million. The rough equivalence of trade in each direction reflects the fact that neither country has a strong advantage over the other in the plastics and chemicals industry as a whole. However, Australia and Thailand each possess strengths in particular products within the industry, demonstrating a complementary rather than competitive relationship.

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[1] For the purposes of this analysis, unless otherwise specified, the chemicals and plastics industry includes all products in Harmonised System Chapters 28 to 39, which includes organic chemicals (also known as petrochemicals), inorganic chemicals, alumina, pharmaceuticals, photographic goods, soaps and detergents, dyes and pigments, other chemical goods and plastics and articles of plastics.

Australia Strong in Pharmaceuticals

Australia exported $90 million of pharmaceuticals, mainly medicines for retail sale, to Thailand in 2002, up from $31 million in 1998; pharmaceuticals now represent 40 per cent of Australia's plastics and chemicals exports to Thailand (Table 1).[2] In 2002, Australia also exported a significant amount, $47 million, of tans, dyes and pigments, mainly titanium oxide based pigments, up from $17 million in 1998. Australia's exports of photographic film, paper and developing solutions to Thailand declined significantly over the period, mirroring reduced exports of these products to all destinations, but perhaps also reflecting the persistently high Thai tariffs on these goods, in comparison to other economies in the region.

Australia's increased focus on pharmaceuticals reflects Australia's comparative strength in knowledge based industries as opposed to some of the more capital intensive, but lower skill and high economy of scale segments of the chemicals industry.

[2] While the Plastics and Chemicals Industry Association, PACIA, does not represent pharmaceutical producers, given the relative transferability of human and other resources to pharmaceuticals from other chemical industries, this paper includes pharmaceuticals in its analysis (Plastics and Chemicals Industry Association, 2002).

Table 1

Pharmaceuticals Dominate Australian Exports to Thailand

Australia's Major Exports to Thailand 1998-2002

	Harmonised System Category	Exports, 1998, $ million	Exports, 2002, $ million	Average annual growth rate, 1998-2002 (per cent)	Tariff rates, 1999, per cent
Total chemicals and plastics	**28 to 39**	**118.3**	**226.9**	**18**	**9.8#**
Pharmaceuticals	**30**	**31.0**	**89.6**	**30**	**6.8#**
Medicaments for retail sale	3004	27.4	87.9	33	0 to 20
Tans, dyes and pigments	**32**	**17.4**	**47.0**	**28**	**10.7#**
Titanium oxide pigments	320611	13.7	41.3	32	10
Photographic and cinematographic goods	**37**	**22.0**	**6.7**	**-26**	**20.0#**
Colour photographic film in rolls	3702	13.1	0.5	-56	20
Colour photographic paper	3703	6.0	2.4	-20	20
Chemical preparations for photographic uses	3707	2.9	3.7	6	20
Plastics	**39**	**15.4**	**15.9**	**1**	**22.6#**
Other chemical products	**28, 29, 31, 33 to 36, 38**	**31.5**	**67.7**	**21**	**5.9#**
Aluminium hydroxide	281830	1.0	5.9	56	1
Compounds containing an unfused pyrazole ring in the structure	293319	3.0	0.9	-26	1
Diammonium phosphate (a fertiliser)	310530	0.0	9.7	..	5
Non-ionic organic surface-active agents	340213	1.0	1.8	16	0 to 10
Insecticides for retail sale	380810	0.1	11.6	228	0 to 20
Toothpaste	330610	1.8	..	-100	20

 # – weighted average

Source: DFAT data.

Thailand Strong in Plastics

Based on a strong and reasonably mature petrochemical industry that dates from the 1980s, Thailand is a significant producer of plastic resins. Plastics of various forms account for almost 70 per cent of Australia's chemical and plastics industry imports from Thailand, increasing from $72 million in 1998 to $114 million in 2002; an average annual increase of 12 per cent (Table 2). Plastics in primary forms, such as polyethylene and polycarbonates, are the largest and fastest growing component of Thailand's plastic exports to Australia, having increased from $27 million in 1998 to $51 million in 2002. Articles of plastics, such as plastic bags, are also significant Thai exports to Australia, although these are not growing as strongly. Thailand's chemical exports to Australia are spread across a diverse range of products including starches and organic chemicals.

Table 2

Plastics Dominate Thai Exports to Australia

Australia's Major Imports from Thailand 1998-2002

	Harmonised System Category	Imports, 1998, $ million	Imports, 2002, $ million	Average annual growth rate, 1998-2002 per cent	Tariff rates, 2001, per cent
Total chemicals and plastics	**28 to 39**	**105.3**	**165.6**	**12**	**4.1#**
Total plastics	**39**	**72.4**	**113.8**	**12**	**5.1#**
Plastics in primary forms	**3901 to 3914**	**27.4**	**50.5**	**17**	**5.0#**
Polyethylene in primary forms	3901	5.6	13.8	25	5
Polycarbonates in primary forms	390740	1.4	7.3	50	5
Polyethylene terephthalate, in primary forms	390760	9.5	3.1	-24	5
Polyvinyl chloride, PVC, in primary forms	390410	3.9	2.1	-14	5
Intermediate plastics	**3915 to 3921**	**17.2**	**18.8**	**2**	**4.9#**
Articles of plastics	**3922 to 3926**	**27.9**	**44.5**	**12**	**5.3#**
Polyethylene sacks and bags	392321	14.2	26.1	16	5
Non specific articles of plastic	392690	2.8	4.5	12	5^
Organic chemicals	**29**	**3.8**	**5.3**	**9**	**0.7#**
Other chemical products	**28, 30 to 38**	**29.1**	**46.5**	**12**	**2.4#**
Dextrins and other modified starches	350510	3.9	8.2	20	0
Adhesive dressings	300510	3.9	1.4	-22	0
Hair preparations	3305	6.4	3.1	-17	5
Sodium sulphites	283210	3.9	0.2	-52	0

 # – weighted average ^ – 10 per cent if "of a kind used as components in passenger motor vehicles"

Source: DFAT data.

AUSTRALIA AND THAILAND'S POSITIONS IN WORLD MARKETS

Australia and Thailand are both net chemical and plastics importers, but each has particular strengths within the industry. Thailand is a growing net exporter of plastics, while Australia is an expanding exporter of alumina. The import profiles of both countries are reasonably similar, indicating that both countries require similar kinds of chemical and plastic imports. Export profiles are very dissimilar, reflecting the countries' different specialisations within the industry; these Australian and Thai exports rarely compete with one another.

Australia a Substantial Net Importer of Chemicals and Plastics

In 2002, Australia had a large plastics and chemicals trade deficit of $7.3 billion, up from $4.8 billion in 1998 (Table 3). This reflects deficits in all major segments of the chemicals and plastics industry except alumina. However, alumina is essentially a mining export, and excluding alumina exports from the trade balance would leave Australia with a very large sectoral trade deficit of $11 billion.

Table 3

Australia a Net Importer from World Markets

Australian Plastics and Chemicals Sectoral Trade Balances, 1998 to 2002

	Exports, 1998, $ billion	Imports, 1998, $ billion	Sectoral Trade Balance, 1998	Exports, 2002, $ billion	Imports, 2002, $ billion	Sectoral Trade Balance, 2001
Total chemicals and plastics	**6.9**	**11.7**	**-4.8**	**9.4**	**16.7**	**-7.3**
Organic chemicals	0.3	2.0	-1.7	0.2	2.8	-2.6
Pharmaceuticals	1.0	2.4	-1.4	1.9	4.8	-2.9
Alumina	3.0	0.0	3.0	3.7	0.0	3.7
Other chemicals	2.0	4.8	-2.8	2.9	5.4	-2.5
Plastics	0.6	2.5	-1.9	0.7	3.6	-2.9

Source: DFAT data.

Evidence suggests the industry as a whole is not strongly internationally competitive. Excluding alumina and pharmaceuticals, Australia's exports in this industry have remained relatively flat over the past five years, at less than 14 per cent of the value of domestic production (Department of Industry, Tourism and Resources, 2003b). This compares with exports of about 20 per cent of total domestic automotive production, 30 per cent of textiles, clothing and footwear, just under 20 per cent of pharmaceuticals and over 50 per cent of electronics production.

Australian chemical and plastic exports tend to be focussed on niche markets with an emphasis on high quality and value added products. Despite the continuing trade deficit in pharmaceuticals, these exports seem to be a success story. Increasing exports and linkages with international markets through imports bode well for the pharmaceutical industry's potential.

Thailand a Significant Net Chemical Importer

In 2000, Thailand also had a significant annual plastics and chemicals trade deficit of around $1.8 billion, but this has declined from nearly $2.3 billion in 1998 (Table 4). Within the industry, the trade deficit in chemicals of over $3.8 billion contrasted with a surplus in plastics of $2.1 billion. Thailand's strength in plastics expanded from a sectoral surplus of $1.1 billion in 1998.

Australia and Thailand Import Similar Products

Comparing the structure of Australian and Thai plastics and chemicals imports and exports reveals Australia and Thailand are only infrequently competitors for export markets and exhibit reasonably similar import structures. In 2000, only 14 per cent of the Australian and Thai plastics and chemical exports were in similar product groups, compared to over 53 per cent of Australian and Thai imports, as represented by export (and import) similarity indices.[3] This perhaps reflects both economies' relative

[3] Similarity and complementarity indices are compiled by:

- calculating the share of each product within the total chemical and plastic exports and imports for Australia and Thailand;
- comparing the shares, line by line, between Australian exports and Thai exports (to measure

weakness in and consequent import reliance on more capital intensive chemical products.

Table 4

Thailand Also a Net Importer of Chemicals

Thailand Sectoral Trade Balances, 1998 and 2000

	Exports, 1998, \$ billion	**Imports, 1998, \$ billion**	**Sectoral Trade Balance, 1998**	**Exports, 2000, \$ billion**	**Imports, 2000, \$ billion**	**Sectoral Trade Balance, 2000**
Total chemicals and plastics	**4.5**	**6.8**	**-2.3**	**7.9**	**9.6**	**-1.8**
Organic chemicals	0.6	1.9	-1.3	1.5	2.4	-1.0
Pharmaceuticals	0.1	0.3	-0.2	0.2	0.6	-0.4
Alumina	0	0.0	-0.0	0	0.0	-0.0
Other chemicals	1.1	2.9	-1.8	1.5	4.0	-2.4
Plastics	2.7	1.7	1.1	4.7	2.6	2.1

Source: DFAT data.

A modest complementarity exists between the Thai and Australian chemicals and plastics industries. On a scale of zero to 100 per cent, the complementarity index of Thai imports and Australian exports in this sector is 24 per cent, while the complementarity index of Thai exports and Australian imports is a slightly higher 29 per cent.[4]

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the level of competition for export markets), Australian imports and Thai imports (to measure the degree of similarity of import requirements), Australian exports and Thai imports (to measure trade complementarity in one direction) and Australian imports and Thai exports (to measure complementarity in the other direction);

- in each comparison, selecting the minimum between the two shares and summing them across all products in the industry.

The higher the value, the more similar the trade structures, with a value of 100 per cent representing exactly the same product mix, in the case of similarity indices or perfectly complementary import and export structures in the case of a complementarity indices, and a zero value representing a completely different, or uncomplimentary, product mix.

[4] See definition in the previous footnote.

TARIFF LEVELS ON AUSTRALIA-THAI TRADE

Both Australia and Thailand have peaks in their tariff schedules to protect sensitive industries; Australia's automotive industry tariffs on car parts affect plastic car parts while Thailand has higher than average tariffs on all plastics and photographic goods. However, taking a weighted average across all products, Thailand's tariff level in the plastics and chemicals industry is more than double that of Australia.

Australia Faces Significant Tariffs

Based on 1999 tariff levels, Thailand's average tariff in the plastics and chemicals industry, weighted by the level of Australian exports of these products, is high at 9.8 per cent (Table 1). Peaks exist in plastics and photographic goods, where the weighted average tariff is 20 per cent or more. Predictably, Australia's exports to Thailand are greater in sectors with lower tariffs, including pharmaceuticals. It is fortunate in some respects that Australia's strengths lie in producing goods that receive lower tariffs in Thailand. Thailand's tariff peaks in plastics do not appear to be affecting their industry's international competitiveness, as the industry is a key exporter.

Thailand Already Faces Low Tariffs

Australia's weighted average tariff applied to chemical and plastic imports from Thailand is currently only 4.1 per cent (Table 2). Developing country rates apply in many cases, including on plastic automotive parts, which are taxed at the reduced rate of 10 per cent, compared to the standard rate of 15 per cent. Australia's highest general tariff rate of 5 per cent applies to most Thai exports, including the majority of plastics. Many Thai chemical exports enter Australia tariff free. Many Thai plastics and chemical exports to Australia in are intermediate goods feeding into Australian industries, including those producing exports, so the low tariff regime ensures their input costs remain low.

The current tariff level applied to Thai imports is low compared to many other factors which affect international trade, such as exchange rate movements. For example, since 1982 the average annual variation of the Australian dollar-Thai baht exchange rate was 5.7 per cent (Bank of Thailand, 2003). Even the average quarterly variation of 3.7

per cent is only marginally lower than the tariff rate.

IMPORTANCE OF THAI IMPORTS TO AUSTRALIAN ECONOMY

Thailand is a significant supplier of plastics and other chemicals to the Australian economy. Many of the products Thailand supplies are inputs to Australian industry. For example, Thailand supplies 31 per cent of Australia's dextrin (starch) imports, 22 per cent of our primary form polypropylene imports and 16 per cent of our polyethylene plastic bag imports (Table 5).

Tariffs on these products are already low or zero and Australia imports of items like Thai polypropylene. Given Australian industries' significant reliance on Thai exports of these products, reducing the tariff rates could assist Australian industry via lower input prices.

Table 5

Thailand Major Source of Starches and Plastics for Australia

Top Thai Exports Ranked by Share of Australian Imports*

	Harmonised System Category	Thai Exports, 1998, $ million	Thai Exports, 2002, $ million	Share of Australian imports	Average annual growth rate, per cent	Tariff rates, 2001, per cent
Dextrins and other modified starches	350510	3.9	8.2	31	20	0
Polypropylene, in primary forms	390210	0.4	4.8	22	81	5
Polyethylene sacks and bags	392321	14.2	26.1	16	16	5
Polycarbonates, in primary forms	390740	1.4	7.3	12	50	5
Plates, sheets, film, foil and strip of polymethyl methacrylate	392051	5.9	3.3	8	-13	5

** where total Australian imports exceeded $15 million in 2000*

Source: DFAT data.

IMPORTANCE OF EXPORTS TO THAILAND FOR AUSTRALIAN INDUSTRY

Thailand is a reasonably significant destination for a range of Australian chemical exports, including fertilisers and raw materials for detergents. Currently 14 per cent of Australian exports of diammonium phosphate, a fertiliser, and the 11 per cent of Australian exports of non-ionic organic surfactants, the raw ingredient for detergents, are destined for Thailand (Table 6). As for Thai plastic and chemical exports to Australia, many Australian exports to Thailand are industrial inputs.

Australia's reliance on Thailand as an export destination is lower than our reliance on Thailand as an import source. In part this imbalance could be due to Thailand's higher weighted average tariff on Australian goods, compared to Australia's weighted average tariff on Thai imports. Tariffs on the products Australia already exports to Thailand in significant proportions are generally lower than Thailand's overall weighted average tariff of 9.8 per cent.

Table 6

Thailand Major Destination for Several Australian Chemicals

Top Australian Exports to Thailand Ranked by Share of Total Australian Exports*

	Harmonised System Category	Exports, 1998, $ million	Exports, 2002, $ million	Share of Australian exports	Average annual growth rate, 1998-2002 per cent	Tariff rates, 1999, per cent
Diammonium phosphate (a fertiliser)	310530	0.0	9.7	14	..	5
Non-ionic organic surface-active agents	340213	1.0	1.8	11	16	0 to 10
Titanium oxide pigments	320611	13.7	41.3	9	32	10
Premixed provitamins and vitamins	293690	1.3	2.9	8	22	1
Medicaments for retail sale	3004	27.4	87.9	5	33	0 to 20

** where total Australian exports exceeded $15 million in 2001*

Source: DFAT data.

INVESTMENT ACTIVITY

Investment in the Australian Plastics and Chemicals Industry

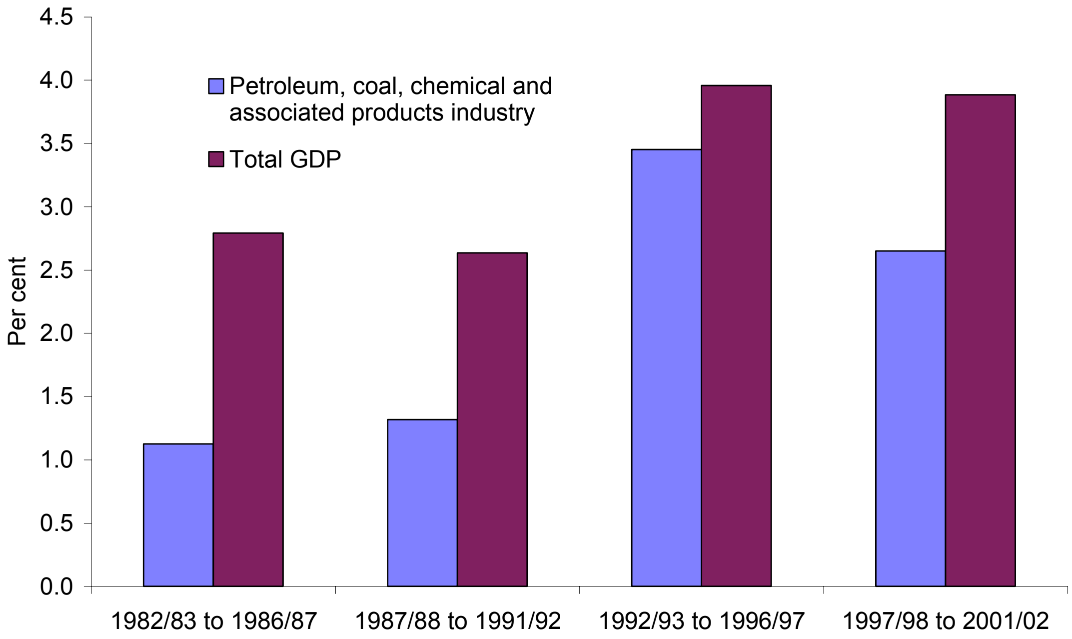
The Plastics and Chemicals Industry Association, PACIA, presumably the most authoritative source of information on this issue, states little significant investment has occurred in the Australian industry over the last decade (Plastics and Chemicals Industry Association, 2002). A proposed investment project which may change that assessment is the Methanex methanol plant on Western Australia's Burrup Peninsula, which is estimated to cost $2 billion and claims it will be the world's largest (Methanex Australia Pty Ltd, 2003). In an average year, investment spending in the sector is around $800 million (Plastics and Chemicals Industry Association, 2002). Research and development expenditure in chemicals and plastics averages around $180 million per year (Department of Industry, Tourism and Resources, 2002b).

The growth rate of value added in the petroleum, coal, chemical and associated products industry, which comes mainly from chemicals and plastics production, continues to be lower than the economy as a whole; consequently its relative importance to the economy is shrinking (Figure 1). Nevertheless, tariff liberalisation and restructuring have boosted growth rates from their 1980s lows.

Figure 1

Petroleum, Coal and Chemicals Growing Slower than Rest of Economy

Five-Yearly Average Growth Rates of Petroleum, Coal and Chemicals Industry and Total Economy, 1982/83 to 2001/02



Source: ABS National Accounts from dX Database.

Employment in plastics and chemicals has increased marginally, from just over 75 000 people in 1993/94 to a little more than 77 000 in 1999/2000 (Department of Industry, Tourism and Resources, 2002b). Industry productivity has increased by an average of 3.5 per cent per annum, reflecting improving efficiency from gradual rationalisation.

Investment in the Thai Plastics and Chemicals Industry

In 2001, the Thailand Board of Investment estimates investment in the Thai chemical and plastics sector exceeded $US1 billion (Plastics and Chemicals Industry Association, 2002). The Thai plastics industry alone employed over 130 000 workers in the same year (Thailand Board of Investment, 2002). Like many developing countries in the region, Thailand has a range of incentives designed to encourage investment, particularly in heavy industries like plastics and chemicals and in less developed provinces; these probably have been significant in attracting investment in the industry (Thailand Board of Investment, 2001).

POTENTIAL FOR TRADE REFORM

Australian Trade Reform

Australian trade reform in relation to Thai plastic and chemical imports may have modest impacts on Australian industry because:

- Australia's tariff rates already are so low that other factors such as exchange rate movements may have a similar impact on imports from Thailand
- Australia already is a significant importer of many of the chemical and plastic goods that Thailand exports to Australia
- Australia relies significantly on imports from Thailand for some of its chemical and plastic imports; hence reducing tariffs would benefit Australian industries using those goods as inputs, including major exporting industries
- Thailand and Australia are both net importers of chemicals and plastics, both importing a similar range of chemical and plastic goods and the trade relationship is more complementary than competitive, so Australian trade reform is unlikely to have a large impact on the Australian chemical and plastic industry.

As a result of these factors, the Australian industry quite strongly supports reducing chemical and plastics tariffs. PACIA supports the notion Australia reduce its tariffs on Thai imports but in the context of the proposed Thai Australia FTA, insists Thailand must reciprocate by reducing its tariffs on Australian imports by a similar amount (Plastics and Chemicals Industry Association, 2002). In its 2001 report to government, the Chemicals and Plastics Industry Action Agenda Steering Group recommended the Tariff Concession Scheme be amended to ensure Australian manufacturers can source imported goods at zero tariffs, effectively recommending liberalising all chemicals and plastics imports used as industrial inputs (Chemicals and Plastics Industry Steering Group, 2001). Finally, PACIA and its international counterparts in the International Council of Chemical Associations are pushing for worldwide free trade and investment in chemicals by 2010; hence the industry appears prepared for the associated increase in international competition. This is the basis for their recommendation that Australia phase out all tariffs on chemicals and plastics currently subject to tariffs of 5 per cent or more by 2010.

Reducing Thai Tariffs

Thailand FTA negotiating position appears to likely to offer Australian exporters the same market access conditions that currently apply to ASEAN Free Trade Area, AFTA members, though with a ten year phase in. Most of Thailand's liberalisation under the auspices of AFTA was completed by 2000 and has significantly benefited a number of industries within AFTA, including the plastics and pharmaceuticals industries (Economist Intelligence Unit Viewswire, 2002).[5]

PACIA supports the proposition that Thailand should reduce its tariffs to those applying under the AFTA, and expects that the Australian plastics industry in particular would benefit from alignment of tariffs on Australian plastics with tariffs applying to AFTA members (Plastics and Chemicals Industry Association, 2002). They see this as a first step in liberalisation within the sector, to be undertaken before any Australian liberalisation.

[5] The extent of current effective AFTA tariffs, including current and planned final Thai AFTA tariffs on plastics and chemicals is the subject of a current Economic Analytical Unit study.

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