

**FRIDGE**  
**Chemicals Sector Summit Preparation**  
**Overall executive summary**

**April 2005**



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## 1 Introduction and scope

In order to support the Chemicals Sector Summit process, the Fund for Research into Industrial Development, Growth and Equity (FRIDGE) commissioned targeted economic research into four specific aspects of the chemicals sector, namely:

1. Recommendations to improve government support mechanisms
  - [Financial incentives and other support mechanisms for large enterprises](#)
  - [Financial incentives and other support mechanisms for SMMEs](#)
  - [Financial incentives and other support mechanisms to facilitate innovation in the sector](#)
2. Recommendations on the promotion of SMMEs, including [local procurement opportunities](#)
3. [Strategy to expand the existing information system](#)
4. [Analysis of polypropylene trade flows to/from the US and Europe](#)

## 2 Methodology

Blueprint Consulting led the assessment of recommendations on the promotion of SMMEs and local procurement, and also conducted research into financial incentives and other support mechanisms for SMMEs ([Step 3](#)).

Kaiser Associates Economic Development Practice was commissioned to conduct the other three research studies on: recommendations to improve government support for innovation and large enterprises ([Step 2](#)); a strategy to expand the existing information system ([Step 4](#)); and an analysis of polypropylene trade flows ([Step 5](#)).

The methodology for each report focused on the consolidation of secondary resources with only highly targeted interviews, rather than extensive primary research.

### 3 Key findings and recommendations

A short summary of the findings and recommendations of each report is provided below. The full reports for the four individual research studies are available separately.

#### 3.1 Government support to the chemicals sector

##### 3.1.1 Recommendations to improve government support mechanisms

The key findings were that the following gaps existed in incentive offering:

Gaps in financial support schemes:

- ▶ Fragmentation and gaps, with inadequate accommodation of sector-specific needs e.g. accommodating capital intensity of most chemicals companies<sup>1</sup>
- ▶ Lack of incentives that help access market information
- ▶ Insufficient incentives to help marketing in export markets

Gaps in incentive administration:

- ▶ Lack of awareness of government support and criteria for qualification for incentives know n<sup>2</sup>
- ▶ The application process is complicated and often cumbersome
- ▶ Lack of transparency once an application is submitted

Key recommendations to address these gaps included the following:

- ▶ Improve coordination of innovation incentives administration
  - Streamline and coordinate incentives for the sector across the entire innovation chain
- ▶ Make existing government incentives more accessible to the chemicals sector
  - Lobby for improvements in government incentive design and administration
  - Develop a single source of information and application resources on innovation related incentives and support programmes – include information on all programmes, links to relevant incentive entities, information on eligibility and application processes, worked examples and case studies, etc.
  - Provide a “one-stop-shop” service where applicants can present a project and its objectives and be referred to the appropriate incentives entity
  - Enhance the role of intermediaries/consultants
    - As it is estimated that over 95% of TEO’s applications are received through consultants (this is likely to be similar for other incentive applications), improving the role of these consultants could be an effective way to improve process administration and information sharing
      - Develop criteria for preferred suppliers
      - Establish a Code of Practice
  - Publicise available incentives in key industry publications (e.g. Engineering News) and to industry service providers (e.g. professional service providers, CSIR, universities, etc.)
  - Communicate changes to government innovation support and implications for the chemicals sector once the plans are finalised (e.g. Foundation for Technological Innovation; Small Enterprise Development Agency)
  - Communicate role of Manufacturing Advisory Centres/replacement SEDA access points - potentially provide a single point of contact that assists in determining the most suitable incentives for which to apply

<sup>1</sup> Note: It has not been possible to verify this due to lack of data availability

<sup>2</sup> Note: These challenges are stronger for smaller companies and new entrants

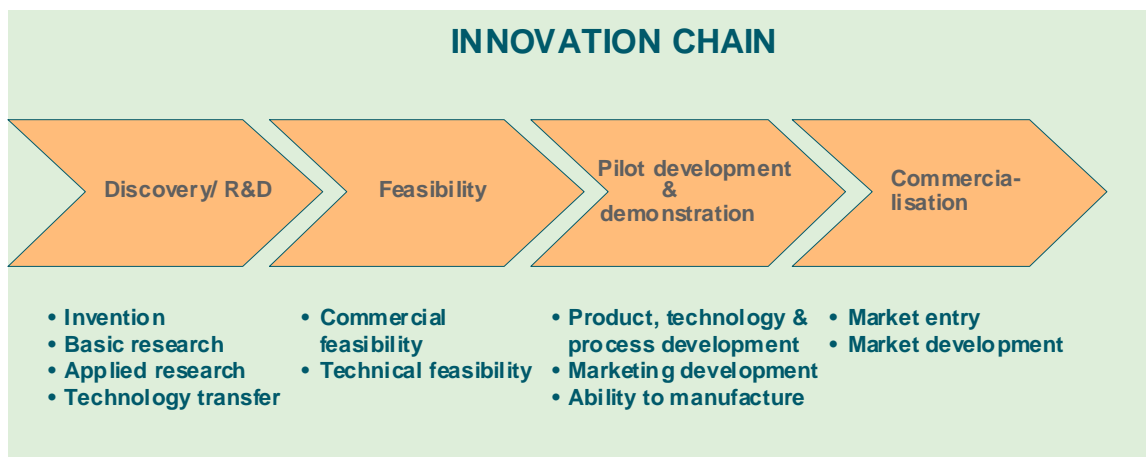
Many of the administration related improvements are not exclusively relevant to the chemicals sector, and might also be applicable to other sectors and overall incentive administration.

### 3.1.2 Key findings and recommendations on government support to facilitate innovation in the chemicals sector

Innovation or research and development (R&D) in the chemicals sector involves both *product innovation* and *process innovation*, and covers both *basic research* and *applied research*. Innovation is critical to industry performance and sustainable growth in the sector. However, there has been a decline in R&D in the private sector in South Africa as many corporations have disinvested in R&D whilst focusing on restructuring to face global economic challenges. Less than 1% of sales revenue in the chemicals industry is directed towards R&D, which is considerably below international standards. At the same time there has been a low level of government investment in R&D – while the [National R&D Strategy](#) has pledged a doubling of government investment in Science and Technology to raise national investment to 1% of GDP, this remains significantly lower than international benchmarks.

To encourage an increase in private sector investment in innovation, the government of South Africa provides a range of financial incentives and wider support mechanisms in the form of tax incentives for R&D activities, research grants (e.g. Innovation Fund or Support Programme for Industrial Innovation), development finance for enterprise development (e.g. Feasibility Study Scheme), and also “soft” support measures (e.g. Material and Manufacturing Support through the CSIR). The aim of this study was to assess the existing incentives and support mechanisms for innovation and determine any key gaps currently faced by stakeholders in the chemicals sector.

In order to make this assessment an innovation process chain was developed based on a review of existing national and international innovation chains as shown below.



**Figure I: Innovation process chain**

Existing government incentives and support mechanisms for innovation were mapped against this model to identify any obvious gaps. The following **gaps in innovation support** were identified:

- ▶ Overall there is a lack of a seamless support programmes that take an innovation project from idea development through to commercialisation (exceptions are programmes such as the Innovation Fund and the CSIR Material Manufacturing Support Programme)
- ▶ In terms of financial assistance for innovation provided by government, the major incentives programmes (i.e. THRIP, SPII, Accelerated Depreciation Allowance) are more focused on the later stages of the innovation chain – in particular the pilot development and commercialisation stages
- ▶ Few incentives exist to support firms in enlarging levels of R&D staff

In addition, interviews with industry stakeholders and key policy documents relating to innovation in South Africa in general and the chemicals sector in particular highlighted the following gaps in support and improvement requirements:

- ▶ Lack of skills and scientists who can engage in R&D and innovation
- ▶ Lack of research infrastructure and funds in public research institutions
- ▶ Insufficient collaboration by public research institutions and the private sector
- ▶ Inadequate incentives and support to take innovations to pilot plant development and then to commercial scale manufacturing

The study identified the following **recommendations** to improve existing government support mechanisms for innovation:

- ▶ Innovation incentive strategy
  - Change eligibility criteria – lobby for improvements in government incentive prioritisation to make key growth areas in the chemicals sector a priority area for innovation funding (as has been done with biotechnology), in order to increase the share of innovation incentives that are accessible to the chemicals sector
  - Additional funds
    - Lobby for additional funds to help the discovery and early feasibility testing of new concepts
    - Lobby for additional funds to help accelerate commercial ramp-up after the pilot stage development and initial market entry
    - Accelerate the implementation of government-backed venture capital under the Innovation Fund
  - Focus on human capital
    - Lobby for additional funds or incentive programmes that encourage employment of more research personnel (e.g. grants)
    - Resolve the current policy tension which prioritises development strategies that aim at upskilling staff for production activities over strategies that aim at increasing employment in research and development
- ▶ Develop Innovation Centres to foster collaboration and skills development across entire innovation chain
- ▶ Lobby for more public sector investment in relevant infrastructure and skills development
  - Secure additional funding of specialised chemical sector (and related knowledge and know-how) university departments to carry out basic research; this can then be commercialised in partnership with the private sector once new concepts are proven

These recommendations are framed by the recognition that the limited market size in South Africa may not sustain major programmes of blue sky/basic research. However, future innovation support programmes should encourage research into new product development (rather than product modification and process improvement research only) in sub-sectors with high growth potential. New product development is particularly important to increasing beneficiation and the higher value added chemicals in sector. Ongoing support for process innovation does however remain important for the manufacture of high volume, low-cost chemicals where innovation can provide sustained cost competitiveness.

In addition, a set of potential **innovation indicators** was recommended that tracks both the *innovation intensity* and *innovation direction* in the industry. This set of innovation indicators can be measured in regular “innovation audits” to assess progress in developing greater innovation capacity going forward. These were grouped into *input, throughput and output measures*<sup>3</sup> to review sector innovation performance and are as follows:

<sup>3</sup> Source: Diez & Berger, 2003 - ibid

- ▶ Input measures could include the following:
  - R&D intensity e.g. mean of R&D expenditure/ sales in %
  - R&D personnel intensity e.g. mean of employees involved in R&D/ total employees
  - Innovation-intensity e.g. mean of innovation related expenditure/ sales in %
  - Sector involvement in R&D e.g. share of all companies that carry out R&D
- ▶ Throughput measures could include the following:
  - % change (year-on-year) in number of chemicals-related patents for which applied<sup>4</sup>
  - % change (year-on-year) in number of chemicals-related patents obtained
- ▶ Output indicators could include the following:
  - % of all registered companies in the chemicals sector that introduced product innovations into the market (over historical period)
  - % of all registered companies in the chemicals sector that adopted process innovation (over historical period)

However, due to the importance of the “enabling environment” in stimulating sector innovation some additional indicators of **innovation direction** should be tracked. It is important to note that the [National R&D Strategy](#) already sets out to measure on an ongoing basis a basket of indicators that track the development of the enabling environment for innovation and R&D. In particular, it is recommended that the following indicators of research and technology tracked in the National R&D strategy should be included. Please note that these could be defined to fit the chemicals sector explicitly:

- ▶ Tertiary science enrolment
  - E.g. proportion of SET tertiary students as % all tertiary students
  - E.g. proportion of chemistry tertiary students as % all tertiary students (incl. Chemistry, Chemical Technology, Chemical Engineering, etc.)
- ▶ Human capital
  - E.g. no. of SET practitioners per 10,000 of workforce
  - E.g. no. of chemistry practitioners per 10,000 of workforce
- ▶ Public R&D expenditures (GERD - BERD)
  - E.g. public R&D expenditures as % of GDP
  - E.g. public R&D expenditures for chemicals as % of GDP or % total public R&D expenditures

### 3.1.3 Key findings and recommendation on government support mechanisms for large enterprises

The government of South Africa provides a range of financial incentives applicable to the manufacturing sectors and support mechanisms that are applicable to the chemicals sector. The objective of this study was to assess the current profile of usage of these incentives and support mechanisms through the assessment of government incentive entity records, and to identify an appropriate set of measures to address any gaps.

Please note that only very limited quantitative input from the government incentive entities was received. However, based on the input received and discussions with stakeholders in the industry, there appear to be the following key gaps in support and recommended strategic improvement opportunities:

- ▶ Encourage development of additional start-up finance schemes as there is a potential market failure amongst private sector lenders to provide adequate funding
- ▶ More support for accessing market information and conducting marketing activities in key export markets
- ▶ Review level and terms and conditions of development finance and tax incentives

<sup>4</sup> Please note that current patent registration systems do not track sector information. It would be valuable to include this category in future.

- ▶ Ensure that granting criteria take into account the capital intensive nature of the chemicals industry, and that further investment will most likely result in increased capital intensity

### 3.1.4 Findings and recommendations on promotion of SMEs

Worldwide research shows that SMEs in the chemical industry are a major provider of employment, contribute significantly to the country's GDP, and are the source of most innovation and new products. It is therefore vital to the broader chemical sector that the SME component be supported.

Chemical SMEs in South Africa face a number of challenges, including high costs of capital, onerous regulatory compliance (especially in H,S&E regulations), a shortage of technical skills, difficult access to international markets, an inflexible labour market and increasing competition. The capital intensive, global nature of the chemicals industry makes it difficult for SMEs to be competitive, unless high-value niche products or services are supplied.

The analysis identifies the key success factors for chemical SMEs, and shows that there are a large number of government programmes to provide support in most of these areas. However, there is very low take-up of support services, for the following reasons:

- ▶ Lack of awareness of available support, either in terms of finance or information
- ▶ Time-consuming application process
- ▶ Frequent changes in conditions of loans
- ▶ High hurdles in terms of collateral or equity required by finance providers
- ▶ For SMEs, the first obstacle is the lack of ability to develop an acceptable business plan, followed by lack of capital

Surprisingly, the few SMEs that manage to successfully apply for support are satisfied with the products. This suggests that the support is adequate, but that access is difficult. It is recommended that institutional support be rationalised and application procedures be made simpler, certain schemes targeted specifically at chemical SMEs be designed, and that a major communication drive be implemented to make SMEs aware of the resources available to them. Assistance (mentoring) in applying for support and incentives would also be helpful.

Chemical SMEs also require access to technical R&D and innovation, an area where South Africa is comparatively weak. More funding needs to be allocated to research, and the results of research need to be communicated and then made available to the industry. Suitable technology transfer mechanisms and finance schemes are necessary, and the venture capital and corporate venturing markets should be encouraged.

The research indicates that, although there is currently a shortage of experienced engineers and technologists, universities are producing new graduates in increasing numbers. Provided these graduates remain in South Africa, the effects of the brain drain should be ameliorated over the next few years. However, efforts need to be made to attract technical people to the SME sector, and not just to supply the corporate sector. An emphasis on entrepreneurship and business may be a solution.

For SMEs, access to relevant information is a major requirement. There is therefore an important role for a web-based industry portal to provide market, trade and product data, information and advice on regulatory issues, and to link industry participants, including finance providers, business owners and technologists<sup>5</sup>.

Finally, infrastructure is needed to assist chemical SMEs to be globally competitive. Cost-effective broadband communications, roads and rail networks are important. Apart from proximity to certain African markets, South Africa has a locational disadvantage versus its competitors. On top of this,

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<sup>5</sup> Please see section 3.2 below or the full [Step 4 report](#) for further recommendations regarding this

low-cost and integrated logistics are a major source of competitive advantage for certain of our competitors, and South Africa needs to implement more trade hubs in appropriate locations. Logistics solutions to optimise costs and reduce time to market are to be encouraged.

### 3.1.5 Findings and recommendations on procurement

Local procurement in South Africa in the chemical industry is primarily an issue of the extent to which local procurement can occur within a globalised multinational (MNC) controlled industry. A very specific set of dynamics is at play regarding procurement in the chemicals sector that suggest that the issue of local procurement and its promotion is primarily an issue of the size of local firms (wherever "local" may be). This is driven by specific economies of scale in the microeconomics of the chemicals industry worldwide, and especially in commodities.

Consequently, promoting local procurement of any kind in this sector means addressing the issues of size, and of focus (niches), as well as addressing the local South African focus on Black Owned Enterprises (BOEs) and Black Economic Empowerment (BEE) through procurement which characterise the local scene.

Promoting local procurement effectively will also mean viewing the chemicals sector on a disaggregated basis, since different variables are at play in different sub sectors which affect local procurement policies and practices. It will be extremely important to understand where local procurement is viable in South Africa in the chemicals industry and where it is not, and then to develop specific support plans for those opportunities. A generic approach is unlikely to succeed.

Local procurement implies the use of SME firms. These have specific weaknesses, described elsewhere, and Business Development Services (BDS) are needed to enable these firms to supply into the South African chemicals market. The delivery of BDS as part of business-to-business relationships - including supplier/ buyer, subcontracting, franchise and licensing relationships - is particularly common for smaller firms. In these cases, BDS are delivered as part of another transaction - for example, design assistance received by Small Enterprises (SEs) who sell their products to larger firms, or training received as part of the purchase of equipment. Business associations and informal business networks are another vehicle for delivering services to SEs. Designing interventions to promote BDS market development within these "business systems" is a challenge for donors. Recent research on BDS in developing countries indicates that BDS are already being provided sustainably to very small enterprises on a for-profit basis.

Specific problem areas in local procurement are:

- ▶ Support of BOEs (and SMEs in general) is limited and often, although policies are in place to promote support of SMEs (often BOEs as well) they do not translate into practice. There are often conflicts in large firms' internal departmental targets, e.g. purchasing vs. BEE development.
- ▶ Large company and government procurement processes are often extremely difficult with which to work and understand. Many small firms do not attempt to do business with big chemical firms because they cannot access or fully understand the firm's procurement process.
- ▶ Compliance with quality requirements for the chemicals industry can be extremely difficult and costly, even for larger firms. Small firms usually cannot comply without assistance.
- ▶ There is insufficient information available to identify the niches where SMEs/ BOEs could effectively supply locally what is currently imported.
- ▶ There is no focussed business development support programme in place for the development of improved local procurement in the South African chemicals sector (such as Project Rave for example), in the wholesale and retail sector via the sector SETA.

The main recommendations are:

- ▶ If no study has already been undertaken, undertake a study that focuses on the opportunities for local procurement in South Africa for SMEs. This should be undertaken in partnership with the private sector and should be handled by sub sector and not generically. Some of these opportunities are likely to arise out of import replacement as well as exports to the SADC and other areas, such as China.
- ▶ Request the private sector via its associations to review the Supply Chain Management Framework (SCMF) and see if there are possible synergies between the SCMF system and their own internal procurement systems. If there are, especially on the issues of supplier databases, request the private sector to implement a central database of pre-accredited local suppliers which can be accessed by all (for a fee), which will finance updates and accreditation processes.
- ▶ Request treasury and SARS to make the reporting of local procurement statistics a required part of all larger firms (suggested turnover of more than ZAR 50 million per annum) annual audits. Reporting could include % of procurement to local procurement, % of procurement to BOEs, female owned enterprises and SMEs.
- ▶ Set up a specific programme (including all stakeholders) for the development of local procurement in the chemicals industry and do not rely on generic approaches. Implement using specialised BDS providers. At the same time, roll out a major awareness campaign to be handled by the BDS providers. Finance this through SETA / donor/ private sector contributions and government allocations. The programme will need to run for at least three years in clearly defined product areas.
- ▶ Develop the BDS sector in the chemical industry in this way. Encourage the set up of private knowledge firms to provide BDS to local suppliers to the chemicals industry and to focus on the key areas of concern for the chemicals sector, i.e. quality management and control, service and price.
- ▶ Additionally, these service providers could work with company Supplier Development Programmes, focussing on the chemicals firms, assisting suppliers to comply with bidding processes required by larger firms.
- ▶ Locate ALL statistics regarding local, black, female and SME procurement in one place. Collect government statistics via the SCMF and private statistics via the company audit system and make sure that these collections are aligned. Stats SA could play the role of final storehouse for these statistics.

### **3.2 Strategy to expand the existing information system**

The diverse stakeholders in the chemicals industry have a wide range of information requirements, from market and trade issues, technical information such as academic papers and Health, Safety & Environmental (H, S&E) guidelines, through to personal interest information such as employment opportunities or chemistry in daily life. The study's objective was to ensure that stakeholders' information requirements are met by increasing the information available to stakeholders both inside and outside the chemicals sector by means of a portal-type website. A web portal is a type of website that provides a tailored 'gateway' to the internet. It provides access to resources (including original content and content from third-party providers) as well as a range of features such as news bulletins or a search engine.

The [Chemweb and the Chemissa websites](#) form the backbone of the current information system for the chemicals sector in South Africa. These will be merged into one website in the future. In addition, ChemSource – a CD-ROM based database – provides information on suppliers in the chemicals industry. There may be an opportunity to integrate the data into the Chemweb/Chemissa website when merged.

Overall, there is good provision of links to information by the Chemweb website and detailed statistics by the Chemissa website; however, these sites currently fall short of providing a comprehensive information system. Further, the structure of the current website requires improvements in order to enable users to navigate the site and find relevant information more

easily and quickly. The main gaps in information provision that have been identified in this study include:

- ▶ Lack of current links to international websites that provide international market information
- ▶ Information on chemicals research and technology in South Africa and internationally
- ▶ Government initiatives and support for the chemicals sector in South Africa
- ▶ Information relating to hazards and environmental issues internationally, for example, initiatives such as Responsible Care

There are two main approaches to filling these information gaps: linking to other sites that provide relevant content, and/or developing new original content for the portal site. The table below provides a summary of recommendations on websites to which the portal site can be linked, and areas where original content development is required.

	<b>Information required</b>	<b>Recommendation</b>
<b>Sector Overview</b>	Information on international sub-sector and end use markets	Link to sector organisation sites including: Plastics Council, World Chlorine Council, European Council of Vinyl Manufacturers
<b>Country overview</b>	Market overviews for potential export markets	Link to country profiles for all countries provided by the CIA
<b>Production</b>	Information on international chemicals production	Link to production information for the EU and international comparisons provided on CEFIC Develop similar information for the South African market
<b>Trends</b>	Global trends in the chemicals sector	Link to trends detailed on the American Chemical Society website
<b>Trade</b>	Trade agreement information	Link to sites on trade agreements, including Generalised System of Preferences, Southern African Customs Union on the Department of Foreign Affairs site, COMESA website, SADC Trade, Industry and Investment Review 2004, AGOA
	Trade issues	Link to CEFIC Position papers page (Links could be made directly to specific articles relating to key trade issues)
	International trade in chemicals products	Link to specific sections of the trade data offered by the dti Link to Austrade's search page for export information by category and target country Link to US Trade information
<b>Employment</b>	Employment in the chemicals sector in South Africa	Link to employment statistics on CEFIC Link to pages providing information on trade unions, including CEPWAWU Link to the Department of Labour
<b>Health and safety indicators</b>	Health and safety indicators for South Africa and other countries	Link to OECD Chemicals safety site for South Africa
<b>Academic</b>	Further links to academic resources relating to chemicals research	Link to sites offering free searches of chemicals journals and article abstracts
<b>Training/Skills</b>	Information on skills available	Link to CHIETA, and in future link to skills database on CHIETA website once this has been developed Link to sites offering networking opportunities
	Further links relating to educational matters	Link to pages offering educational material on chemicals

	<b>Information required</b>	<b>Recommendation</b>
<b>Current Issues</b>	More recent material on issues facing the chemicals sector	Develop more recent South Africa-specific articles with input from industry experts
<b>News</b>	Links to news websites relating to the chemicals sector	Link to sites offering news articles, and journal articles, e.g. <a href="http://www.chemicalmarketreporter.com">www.chemicalmarketreporter.com</a> , trade publications on <a href="http://www.chemindustry.com">www.chemindustry.com</a>
<b>Events</b>	Links to relevant organisations required	Contact relevant organisations, e.g. Department of Science and Technology, to ascertain event schedules and post dates on website Link to expo information on <a href="http://www.chemnet.com">www.chemnet.com</a> for expos worldwide, e.g. ChemSpec Europe 2005, ChemSource 2005
<b>Tenders</b>	Details on tenders in the chemicals sector in South Africa	Link to tenders on Engineering News and Tradeworld Link to government gazette tenders
<b>Chemistry in daily life</b>	Chemistry information for people outside the chemicals sector	Link to information on chemicals uses and products pitched at a level that is widely understandable
<b>Physical processes/ Chemical reactions</b>	Information on physical processes used in the manufacture of chemicals	Link to sites detailing physical processes and chemical reactions at levels that are accessible for both people inside and outside the industry
<b>Relevant legislation</b>	Links to applicable legislation	Link to legislation relating to: <ul style="list-style-type: none"> <li>▶ Agricultural Produce Agents</li> <li>▶ Agricultural Product Standards</li> <li>▶ Marketing of Agricultural Products</li> <li>▶ Basic Conditions of Employment</li> <li>▶ Labour Relations</li> <li>▶ Companies</li> <li>▶ Compensation for Occupational Injuries and Diseases</li> <li>▶ National Health</li> <li>▶ Occupational Diseases in Mines and Works</li> <li>▶ Disaster Management</li> <li>▶ Engineering Profession</li> <li>▶ Natural Scientific Professions</li> <li>▶ Environment Conservation</li> <li>▶ Environmental Laws Rationalisation</li> <li>▶ National Environmental Management</li> <li>▶ Biodiversity</li> <li>▶ Explosives</li> <li>▶ Patents and Intellectual Property Laws</li> <li>▶ Mineral and Petroleum Resources Development</li> <li>▶ Petroleum Pipelines</li> <li>▶ Petroleum Products</li> <li>▶ National Research Foundation</li> <li>▶ Pharmaceuticals</li> <li>▶ Fertilisers, Farm Feeds, Agricultural and Stock Remedies</li> </ul>
<b>Incentive and support entities</b>	More direct links to entities	Link directly to incentives offered and support entities, including Small Business Development, Technology Transfer Guarantee Fund, SPII Fund, National Research Foundation, Department of Science and Technology, Innovation Fund, The Enterprise Office (TEO), Industrial Development Corporation, National Treasury, Technology for Women in Business (TWIB)

	Information required	Recommendation
<b>Research and innovation</b>	Information on R&D expenditure in South Africa and other countries	Link to South African National Survey of Research and Experimental Development 2001/02
	Additional sources of information	Link to the Innovation Hub
<b>Hazards</b>	Further links providing information relating to chemical hazards	Provide company Material Safety sheets on website Link to UNEP chemicals programme page, UNITAR Chemicals & Waste, Basel Convention, INFOCAP, IPCS, Intergovernmental Forum on Chemical Safety, Green Institute
<b>International Initiatives</b>	Information on the Responsible Care Initiative	Link to Responsible Care information at CEFIC, American Chemistry Council (ACC), FECC, The Chemical Industry site, ICCA, CAIA, and Canada Chemicals Producers Association page
	Information on the High Production Volumes Initiative	Link to information on the High Production Volume (HPV) Chemicals Initiative
	Information on the Long Range Research Initiative	Link to information on the Long Range Research Initiative at ICCA, CEFIC, ACC, JCIA
<b>Sustainable Development</b>	Further information on sustainable development	Link to Chemicals and the Environment on the EU site, United Nations framework on climate change, etc.
<b>Consumer confidence and safety</b>	Further information on consumer health and safety	Link to US Food and Drug Administration, EU site on consumer safety with relation to chemicals
<b>Industry organisations</b>	Links to international industry organisations	Link to: <ul style="list-style-type: none"> <li>▶ International Council of Chemical Associations</li> <li>▶ American Chemical Society</li> <li>▶ Society of the Plastics Industry (United States)</li> <li>▶ Canada's Chemicals Producers</li> <li>▶ Japan Chemical Industry Association</li> <li>▶ National Industrial Chemicals Notification and Assessment Scheme (NICNAS)</li> <li>▶ Plastics and Chemicals Industry Association Australia</li> <li>▶ New Zealand Institute of Chemistry</li> </ul>

### 3.3 Polypropylene trade flows to/from the USA and Europe and high potential opportunities

#### 3.3.1 Overview

The purpose of the research was to identify specific growth opportunities for South African resin and plastics producers in the US and EU polypropylene (PP) markets. Alongside polyethylene and polyvinyl chloride, PP is now one of the leading resins worldwide, and further growth is expected.

The analysis reviewed **trade flows for 8 PP commodity groups** identified at HS 6-digit level based on data from ITC TradeMap<sup>6</sup>:

- ▶ HS 3902 10 (Polypropylene, in primary forms)
- ▶ HS 3902 30 (Propylene copolymers, in primary forms)
- ▶ HS 5503 40 (Staple fibres of polypropylene, not carded or combed)

<sup>6</sup> Detail on the methodology followed is provided in section 2 of the [full document](#).

- ▶ HS 5607 41 (Binder or baler twine of polyethylene or polypropylene)
- ▶ HS 5607 49 (Twine, cordage, rope and cable of polyethylene or polypropylene -excluding binder or baler twine)
- ▶ HS 3920 20 (Other plates, sheets and film etc, non-cellular etc, of polymers of propylene)
- ▶ HS 6305 33 (Sacks and bags, for the packing of goods, of polyethylene or polypropylene) strip or the like (excluding flexible intermediate bulk containers)
- ▶ HS 3917 22 (Tubes, pipes and hoses, rigid; of polymers of propylene)

In addition, a **trade flow analysis for 5 nonwoven commodity groups** was conducted. While nonwovens are not exclusively polypropylene based, they are an important PP application. These products have therefore been included in the analysis, but kept separate from the analysis of trade flows for pure PP commodity groups in order to avoid distortion of the rankings. The following are the five HS 6-digit level product codes for nonwoven products that were analysed:

- ▶ HS 560311 Nonwovens, man-made filaments weighing <25g/m<sup>2</sup>
- ▶ HS 560312 Nonwovens, man-made filaments weighing 25-70g/m<sup>2</sup>
- ▶ HS 560313 Nonwovens, man-made filaments weighing 70-150g/m<sup>2</sup>
- ▶ HS 560314 Nonwovens, man-made filaments weighing >150g/m<sup>2</sup>
- ▶ HS 392190 Film and sheet etc, nes of plastics

#### **Technical note on trade flow analysis:**

- ▶ Trade flow analysis allows an examination of export markets according to value, size, and growth, and therefore gives an indication of potential product market opportunities. It is also useful for identifying a country's position in world exports and imports and therefore leading competitors and supply capacity.
- ▶ Please note that a trade flow analysis is usually the first step of deeper market opportunity analysis. It is typically followed by a detailed assessment of market drivers and market opportunities on the demand side and an assessment of competitiveness on the supply side. In particular, a comparative cost analysis along the entire value chain (i.e. from sourcing and production through to marketing, transportation and selling in the export market) should be conducted. This is critical to identifying overall cost competitiveness vis-à-vis competing suppliers and the drivers of competitiveness such as capacity and scale. Cost competitiveness is a driver of the likely success of export market penetration for commoditised products, while design, differentiation and quality may become more important for higher value added products.
- ▶ Furthermore, the HS approach of categorising products does not clearly differentiate PP at the end use stage of the value chain, and therefore opportunities and growth areas for end consumer product beneficiation cannot be clearly identified through trade flow analysis. Further research into the market is therefore necessary to reveal opportunities for these end use products, such as market analysis. Although outside the scope of the Terms of Reference, market research was therefore conducted to gain more insight into potential market opportunities by supplementing the statistical findings.

### **3.3.2 Findings on PP trade flows**

#### **Key findings on PP import demand in the US and EU**

The total import value for the selected PP products in the target EU and US markets was approximately US\$9bn in 2003. The US accounts for 11.5% of this import value, with a total import value of US\$1bn in 2003.

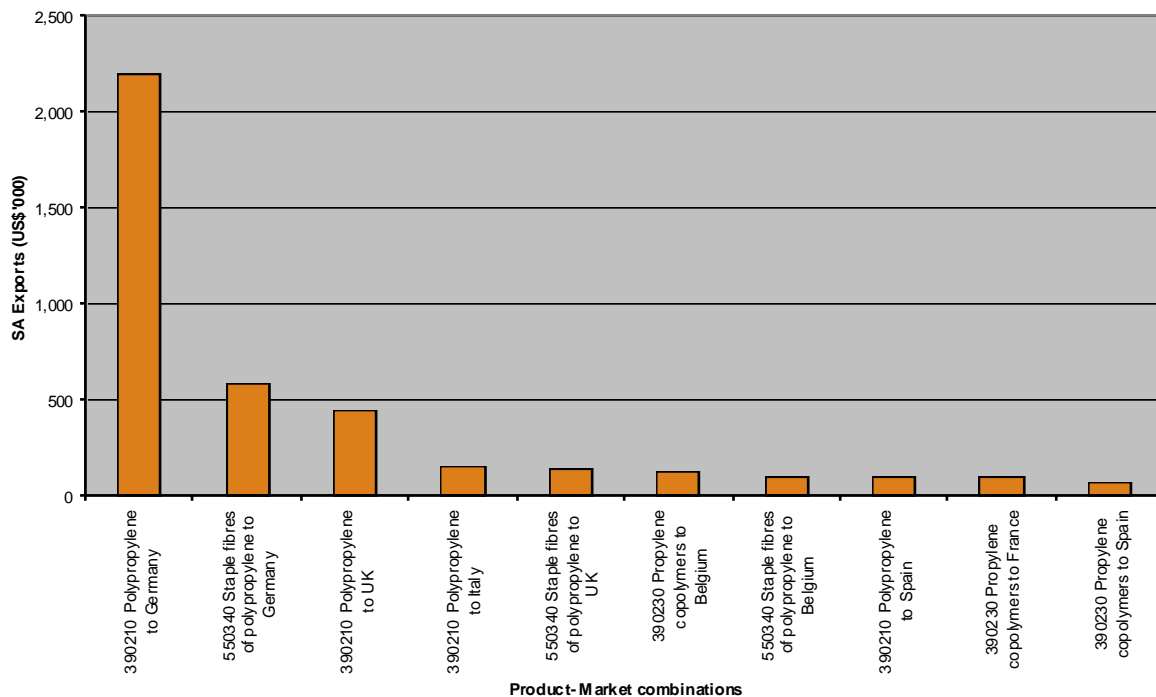
Demand is greatest for primary products, with 65% of the top 10 product-market combinations by value accounted for by either polypropylene or propylene copolymers. Film and sheet products account for the remaining 35% of the top 10 product-market combinations. European markets dominate these top 10 product-to-market combinations.

How ever, this trade is largely intra-regional trading (intra-EU and intra-NAFTA for the EU and US respectively). Adjusted for intra-regional trade, the total import market value shrinks to US\$1.16bn or approximately 13% of the total import market value in 2003, and the US becomes a more important market with 4 of the top 10 product-market combinations. Demand for secondary products also becomes more important when intra-regional trade is excluded from the analysis: 65% by value of the top 10 product-market combinations is accounted for by trade in secondary products (in particular films and sheet products), while 35% by value is accounted for by primary products.

**Key findings on PP supply from South Africa**

In 2003, South Africa exported a total of US\$105.7m across the 8 PP commodity groups tracked in this analysis. The vast majority of exports went to African countries, in particular Nigeria and Zimbabwe, which accounted for 13% and 10% of total exports respectively. Hong Kong is the only significant non-African export market for South African polypropylene products, and the largest trading partner with 20% of total exports.

There currently appears to be only limited beneficiation of PP products for export<sup>7</sup>. In 2003 approximately 93% of total PP exports in value terms were in primary form. With respect to current trade relationships in the target regions of the US and EU, Germany is the main trading partner for PP products. The following table shows the top 10 existing PP supply relationships in the target markets based on SA export value in 2003:



**Figure II: Top 10 existing PP supply relationships by SA export value in 2003**

Please note that no South African supply of PP products to the US market in 2003 is reflected in ITC trade statistics.

Overall, South Africa’s penetration of target export markets is very low – i.e. South Africa’s % share of market value for the product-market opportunities analysed is typically <0.01%. However, for HS 550340 (Staple fibres of polypropylene, not carded or combed) South Africa has a share of market value of between 0.75% - 2.1% in Germany, UK, Belgium and Austria.

<sup>7</sup> See [full report](#) for an overview of the PP value chain.

### 3.3.3 Recommendations on high potential PP product-to-market opportunities based on trade flow analysis

In order to identify high potential product-to-market opportunities, a multiple ranking analysis was conducted<sup>8</sup> based on the following demand-side factors:

- ▶ Import market size - imported value 2003 in US\$ thousand
- ▶ Import market size adjusted for intra-regional trade - imported value 2003 in US\$ thousand, excluding intra- EU/intra-NAFTA trade
- ▶ Import market growth - import trend in value between 1999 and 2003, % p.a.

Following input from the constituencies, the possibility of using relative labour intensities of the various PP product categories as an additional ranking measure was investigated. The labour intensity of PP production is affected by various factors including:

- ▶ Process used in production, e.g. extrusion as opposed to injection moulding
- ▶ Product type
- ▶ Size of plant
- ▶ Capital intensity of plant

Based on brief discussions with socio-economic impact specialists<sup>9</sup> and industry players<sup>10</sup>, it is evident that the production of primary PP products is, in general, less labour-intensive than the production of secondary PP products, although both primary and secondary polypropylene products are relatively capital intensive compared to many other sectors. Employment growth is therefore likely to be generated by creating new downstream activity and selecting sufficiently large-scale opportunities that can absorb labour. Therefore, labour intensity has not been added as an additional ranking criterion; and it was rather recommended that it is considered during the design phase of new plants that might be developed to realise these market opportunities, in order to address the joint objectives of competitiveness, growth, employment and equity.

The outcome of the ranking analysis highlighted the following high potential product-to-market opportunities for further investigation:

Product	Market	Imported value 2003 in US\$ thousand	Ex EU / NAFTA Imported value 2003 in US\$ thousand	Import trend in value between 1999-2003, % p.a.	SA Exported value 2003 in US\$ thousand	SA % share of market value	% of South Africa's exports of the product
390210 Polypropylene	Spain	221,756	18,153	27	100	0.05%	0%
390210 Polypropylene	Denmark	177,396	10,306	16		0.00%	
390210 Polypropylene	Belgium	549,516	40,763	17	69	0.01%	0%
390210 Polypropylene	UK	258,261	39,504	16	453	0.18%	1%
392020 Film and sheet etc, non-cellular etc, of polymers of propylene	US	511,148	288,760	6	0	0.00%	0%

<sup>8</sup> Please refer to section 2.4 of the [full document](#) for a detailed description of this methodology.

<sup>9</sup> Global Insight

<sup>10</sup> In particular, Sasol Polymers and Sasol poly propylene division

Product	Market	Imported value 2003 in US\$ thousand	Ex EU / NAFTA Imported value 2003 in US\$ thousand	Import trend in value between 1999-2003, %, p.a.	SA Exported value 2003 in US\$ thousand	SA % share of market value	% of South Africa's exports of the product
392020 Film and sheet etc, non-cellular etc, of polymers of propylene	Belgium	284,900	45,586	10	0	0.00%	0%
392020 Film and sheet etc, non-cellular etc, of polymers of propylene	Germany	309,807	37,028	10	0	0.00%	0%
390210 Polypropylene	Italy	643,218	35,233	4	152	0.02%	0%
390210 Polypropylene	Germany	491,495	27,245	6	2,201	0.45%	3%
390230 Propylene copolymers	France	313,154	25,501	9	97	0.03%	0%
392020 Film and sheet etc, non-cellular etc, of polymers of propylene	France	280,460	25,220	9	63	0.02%	2%
392020 Film and sheet etc, non-cellular etc, of polymers of propylene	UK	430,790	22,186	16	0	0.00%	0%

Please note that the product-to-market opportunities in the darker cells represent the highest potential opportunities based on the three selected demand-side ranking criteria. These combinations scored highly on all three criteria.

The product-to-market combinations in the lighter cells represent high potential opportunities – they scored highly on two of the three ranking criteria (i.e. within the top 15 in terms of total import market size, within the top 15 in terms of total import market size adjusted for intra-EU/intra-NAFTA trade, and/or top 30 in import market growth terms).

Primary PP products were included in this analysis, as although the emphasis of the study was on beneficiation opportunities, US and EU markets for primary PP are relatively large and may present opportunities for South Africa.

### Opportunities for primary product exports

Overall exports for primary PP products to European markets present the strongest potential market opportunities. Based on trade flow analysis, the most attractive primary product-market combinations are for HS 390210 Polypropylene in Spain, Denmark, Belgium, the UK and France. South Africa currently supplies US\$78,221,000 of this product, mostly to African countries and Hong Kong. Exports to Europe are limited with only 3% being exported to Germany and 1% to the UK, and less than 0.5% to Italy, Spain, Belgium, France, Portugal and Austria.

Major competing countries for supplying to these markets are Belgium, Netherlands, Germany and France, while non-EU competitors include Norway and Saudi Arabia.

Italy and Germany are attractive markets for HS 390230 Propylene copolymers. South Africa exported US\$19,749,000 of this product in 2003, but exports to EU countries were limited with 1% going to Belgium and less than 0.5% to France and Spain.

The major competing country for supplying propylene copolymers to Italy and Germany is Belgium which supplies just under a third of imports by each country. Non-EU competitors include Japan, the US and Norway.

### **Opportunities for secondary product exports**

Based on trade flow analysis, HS 392020 film and sheet is the most attractive secondary product with potential market opportunities in the US, Belgium, Germany, France and the UK. South African market penetration was low with 2% of its US\$4m total exports of this product going to France, accounting for less than 0.5% of imports into France.

Major competing countries for supplying to these high potential markets are Canada, South Korea, Germany and Japan for the US, and Germany, France and Italy for the European markets. Non-European competitors include the US and Turkey.

### **3.3.4 Findings on nonwovens trade flows**

#### **Key findings on nonwovens demand by the EU and US**

The total import value for the selected nonwoven products in the target EU and US markets was approximately US\$5.2bn in 2003. The EU accounts for the majority of this demand, buying 82% of the total import value or US\$4.3bn in 2003.

The greatest demand is for HS 392190 Film and sheet in the US and in EU countries, and HS 560312 Nonwovens weighing between 25 and 70 g/m<sup>2</sup> in the UK and Germany.

When adjusting for intra-regional trading, US imports are not greatly affected, with non-NAFTA imports accounting for 70% to 80% of imports. The EU market is however greatly reduced, with extra-EU trade amounting to between only 11% and 20% of total imports.

#### **Key findings on nonwovens supply from South Africa**

In 2003, South Africa exported a total of US\$29.8m across the nonwovens commodity groups tracked in this analysis. The majority of exports went to EU countries, with 24% of exports going to Belgium. Only 5% of total nonwovens exports from South Africa went to the US in 2003.

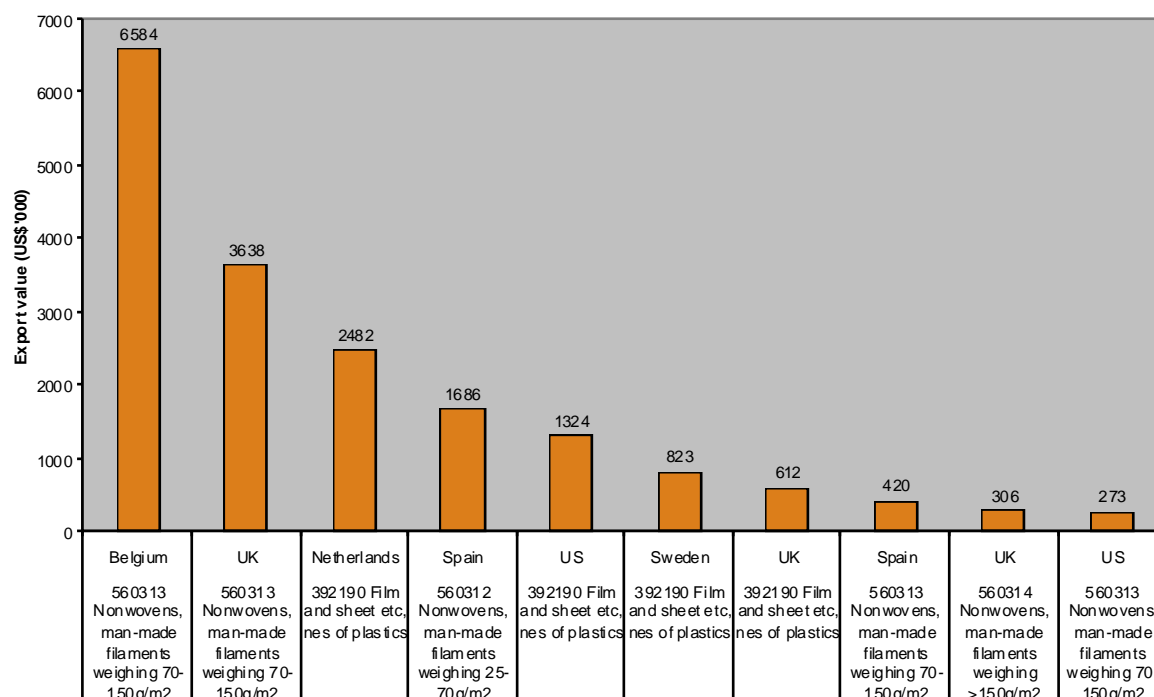


Figure III: Top 10 existing PP supply relationships by SA export value in 2003

Overall, South Africa's penetration of the target export markets is very low – i.e. South Africa's % share of market value for the product-market opportunities analysed is typically <3%. However, for HS 560313 Nonwovens, man-made filaments weighing 70-150g/m2, South Africa has a share of market value of 20% in Belgium and 8% in the UK.

### 3.3.5 Recommendations on high potential nonwovens product-to-market opportunities based on trade flow analysis

In order to identify high potential product-to-market opportunities a multiple ranking analysis<sup>11</sup> was conducted based on the following demand-side factors:

- ▶ Import market size - imported value 2003 in US\$ thousand
- ▶ Import market size adjusted for intra-regional trade - imported value 2003 in US\$ thousand, excluding intra-EU/intra-NAFTA trade
- ▶ Import market growth - import trend in value between 1999 and 2003, %, per annum.

The outcome of this ranking analysis highlighted the following high potential product-to-market opportunities for further investigation:

Product	Market	Imported value 2003 in US\$ thousand	Ex EU / NAFTA Imported value 2003 in US\$ thousand	Import trend in value between 1999-2003, %, p.a.	SA Exported value 2003 in US\$ thousand	SA % share of market value	% of South Africa's exports of the product
560311 Nonwovens, man-made filaments weighing <25g/m2	US	119,902	104,755	17	0	0%	0

<sup>11</sup> Please refer to section 2.4 of the [full report](#) for a detailed description of this methodology.

Product	Market	Imported value 2003 in US\$ thousand	Ex EU / NAFTA Imported value 2003 in US\$ thousand	Import trend in value between 1999-2003, %, p.a.	SA Exported value 2003 in US\$ thousand	SA % share of market value	% of South Africa's exports of the product
560312 Nonwovens, man-made filaments weighing 25-70g/m2	US	120,126	100,291	17	0	0%	0
560312 Nonwovens, man-made filaments weighing 25-70g/m2	UK	177,389	47,755	12	0	0%	0
560313 Nonwovens, man-made filaments weighing 70-150g/m2	US	74,456	61,504	25	273	0%	2
392190 Film and sheet etc, nes of plastics	US	578,250	403,441	5	1324	0%	11
392190 Film and sheet etc, nes of plastics	Germany	405,597	138,430	0	40	0%	0
392190 Film and sheet etc, nes of plastics	France	432,542	68,210	4	264	0%	2
392190 Film and sheet etc, nes of plastics	UK	363,163	74,639	3	612	0%	5
392190 Film and sheet etc, nes of plastics	Italy	203,180	33,979	0	0	0%	0
392190 Film and sheet etc, nes of plastics	Belgium	193,910	23,364	5	68	0%	1
392190 Film and sheet etc, nes of plastics	Austria	117,151	28,953	7	0	0%	0
560312 Nonwovens, man-made filaments weighing 25-70g/m2	Germany	134,661	26,457	10	0	0%	0
392190 Film and sheet etc, nes of plastics	Spain	208,831	16,341	11	0	0%	0
560312 Nonwovens, man-made filaments weighing 25-70g/m2	Spain	69,419	2,883	37	1686	2%	51
560311 Nonwovens, man-made filaments weighing <25g/m2	Germany	95,333	7,968	12	91	0%	51

Product	Market	Imported value 2003 in US\$ thousand	Ex EU / NAFTA Imported value 2003 in US\$ thousand	Import trend in value between 1999-2003, %, p.a.	SA Exported value 2003 in US\$ thousand	SA % share of market value	% of South Africa's exports of the product
560312 Nonwovens, man-made filaments weighing 25-70g/m2	Italy	57,705	14,664	9	0	0%	0

Please note that the product-to-market opportunities in the darker cells represent the highest potential opportunities based on the three selected demand-side ranking criteria. These combinations scored highly on all three criteria.

The product-to-market combinations in the paler cells represent high potential opportunities – they scored highly on two of the three ranking criteria (i.e. within the top 15 in terms of total import market size, within the top 15 in terms of total import market size adjusted for intra-EU/intra-NAFTA trade, and/or top 30 in import market growth terms).

### Opportunity for HS 560311 – 14 Nonwovens

The US and UK represent the greatest opportunity for these products, with the market for nonwovens, man-made filaments HS 560311 weighing <25g/m<sup>2</sup>, HS 560312 weighing 25-70g/m<sup>2</sup>, HS 560313 weighing 70-150g/m<sup>2</sup> in the US and the market for HS 560313 nonwovens, man-made filaments weighing 70-150g/m<sup>2</sup> in the UK the most attractive. Leading competing countries for the US nonwovens market include Israel and Italy for HS 560311, Italy and Canada for HS 560312, and Germany and Mexico for HS 560313, while leading suppliers of HS 560313 to the UK were Germany and the Netherlands.

The markets for HS 560312 were also attractive in the EU, with Germany, Spain and Italy showing strong growth in demand, but a substantially reduced demand when adjusted for intra-regional trade, with main supplier including Italy, Luxembourg, Germany, France, and Belgium.

South Africa tends to supply a fair amount of its nonwoven exports to the EU: of the US\$179,000 of HS 560311, 91% was supplied to Germany. Also, of the US\$3.32m of HS 560312 supplied by South Africa, 51% went to Spain and 19% to Belgium, and just over 87% of South Africa's exports of HS 560313 were supplied to EU countries.

### Opportunity for HS 392190 Film and sheet

The US is the most attractive market for this product, and as it is not substantially affected when adjusted for intra-regional trade shows strong potential. Additionally, EU countries including Germany, France and the UK offer opportunities, but demand is significantly reduced when discounting for intra-regional trade.

Leading supplying countries to these markets are Switzerland, Italy, Germany and France. South Africa supplied US\$12,301, with 20% going to the Netherlands, 11% to the US, with smaller amounts going to other EU countries including Sweden, the UK, France, and Ireland.

### 3.3.6 High potential product opportunities based on market trends and end-use market opportunities

Market research additional to trade flow analysis was conducted to investigate the opportunities in the downstream segment of the market and areas that could not be addressed by trade flow analysis. Due to its increasing performance characteristics PP can be used in a vast array of applications. Further, its lower cost is driving increasing substitution of other plastics. In particular,

PP is replacing high-density polyethylene (PE), engineering plastics, and polystyrene in many applications. Market research has shown that there are potential areas for growth in PP demand in packaging, building and construction, and automotive applications. Although this review is not exhaustive, it gives an additional indication of where attractive market opportunities may be.

## Packaging

In the US and many of the European markets the packaging industry is the largest end-user of PP resins and plastic materials. In particular, PP film is used in a wide range of packaging applications, including food and cigarettes packaging. However, there are also opportunities for PP foams in this market.

Potential opportunities include:

- ▶ **Flexible packaging** where the best opportunities are in food packaging
- ▶ **Caps and closures** where PP is increasingly used for threaded plastic pressurised caps
- ▶ **Plastic containers** where PP is one of the fastest growing resins for plastic containers substituting high-density polyethylene (although high-density polyethylene and polyethylene terephthalate (PET) still dominate this market)
- ▶ **Protective packaging** where there are growth opportunities for polyolefin foams
- ▶ **Sterile medical packaging** where plastics dominate and demand is increasing due an increase in surgical procedures and diagnostic testing

## Personal hygiene and medical

Market research has shown that 36% of nonwovens are made from PP, and that PP and PET have increasingly substituted in the nonwoven industry<sup>12</sup>. Disposable personal hygiene and medical fabrics are key applications for nonwovens accounting for around 33% of demand in Europe and 24% in the US. Potential opportunities for PP products in this sector include:

- ▶ **Disposable nonwovens** where there is strong growth in nonwoven personal protection goods, especially adult diapers and shields
- ▶ **Spunbonded nonwoven fabrics** where applications include hygiene cover stock and medical fabrics, disposable protective apparel, and fabric softener dryer sheets (as well as a range of industrial and automotive applications)
- ▶ **Carded nonwovens** where PP carded webs are substituting polyester carded nonwovens in hygiene coverstock and wipes
- ▶ **Surgical drapes**

## Automotive

Market research conducted indicates that this sector has strong growth potential for PP products including foam and fibres. Growth in PP demand has been identified for the following applications:

- ▶ **Step/running boards** have been identified as a growth area for long glass PP
- ▶ Nonwovens are gaining momentum in the automotive marketplace either as a direct substitute for wovens and knits currently used in **face fabrics** or as **layers in the construction of most interior modules** e.g. spunbonded nonwoven fabrics are used for motor vehicle **headliners**, **trunk liners** and **carpet backing**
- ▶ **Headliner energy absorbers** are identified as a growth area for EPP bead foams due to in-mould skin/foam lamination technology
- ▶ **Sun visors** are another growth area for EPP application due to multidensity-part integration
- ▶ PP is being used increasingly in the production of **automotive exteriors** such as bumper facia,<sup>13</sup> fender liners, trim and front wings

<sup>12</sup> [http://www.agr.gc.ca/misb/spcrops/sc-cs\\_e.php?page=textiles](http://www.agr.gc.ca/misb/spcrops/sc-cs_e.php?page=textiles)

<sup>13</sup> <http://www.riotinto.com/media/downloads/speeches/1M%20Forum%20presentation%20Nov%2004.pdf>

- ▶ European End of Life Vehicle (ELV) legislation is driving mono-materials constructions and this will encourage the use of polyolefin nonwovens (PO-NWs) in constructions with PO-foams and PP substrates<sup>14</sup>

However, the **barriers to entry into this market are very high**. The market is highly competitive and contracts are awarded to suppliers who can meet delivery at a competitive price and quality. In order to be competitive significant economies of scale are typically required.

Countries who compete in this market are Brazil, Slovakia, Slovenia and Korea. And while South Africa might have the capacity to take advantage of demand in terms of technology and market contacts, a key **inhibiting factor** to local industry is **import parity pricing** where local downstream producers cannot compete with cheap imports. Also, while the domestic vehicle manufacturing output is increasing as major automotive producers such as Toyota and Mercedes Benz in South Africa raise their production goals, the **production runs tend to be too short** to warrant a major Tier 1 or Tier 2 supplier to set up in South Africa and source plastics locally.

### 3.3.7 Drivers of competitiveness and sector development requirements

A detailed assessment of market drivers and market opportunities on the demand side and South Africa's competitiveness on the supply side was outside the scope of this study. However, based on the trade flow patterns and a high level review of market trends in the global PP industry, the study identified a number of critical success factors and drivers of competitiveness that must be met in order to realise any of the potential export opportunities and develop the PP conversion industry in South Africa:

- ▶ Competitive total landed cost is strongly influenced by **transportation costs** given the distance from South Africa to the target export markets and the bulky nature of some forms of PP:
  - Only PP products that are easy to pack into crates or containers and/or that can be stuffed or compressed (e.g. nonwoven textiles) will be likely to succeed, as opposed to plastic products which are bulky and often low value (e.g. large moulded goods such as appliance covers).
  - It is recommended that government and the private sector need to work together to ensure a seamless and cost-effective transportation and distribution of South African PP products to the target markets. This will be critical to ensuring competitiveness of the emerging PP conversion industry as it seeks to gain a footing in the export markets.
  - Given the lack of current exports to the US, the PP industry should investigate linking into other chemicals sector programmes (e.g. around bulk transportation) or trade promotion programmes to facilitate market entry.
  - Given the successful exports of certain PP products to key EU markets (e.g. Germany, Belgium, Spain), the industry should investigate opportunities to use these market relationships to enter other markets and / or introduce other PP products.
- ▶ **Competitive operating costs** rather than raw material costs
  - The major raw material inputs in polypropylene production are internationally traded commodities. Their prices are therefore largely regulated by international trading markets.
  - While the recent rise in raw materials costs is drastically squeezing margins for resin suppliers and converters, these price increases affect the entire industry and can to a certain extent be passed on to customers.
  - In order to stay cost competitive plastics businesses need to ensure they have competitive operating costs – including labour costs and productivity, utilities, and trade costs – and run efficient operations. This is critical to be competitive with competing polypropylene suppliers from, e.g., India and China.

<sup>14</sup> <http://www.robertellerassoc.com/articles/techtex04.pdf>

- ▶ **Competitive production technology**
  - Innovation plays a key role in maintaining a competitive status in these markets. High tech conversion technology therefore plays an important role in sustained growth in the industry.
  - Government support may be required to assist the emerging industry to develop an appropriate technology platform. Potential support measures include:
    - Support research efforts into new product development, process optimisation and technology transfer.
    - Facilitate access to capital for technology upgrades.
    - Facilitate foreign investment by a leading PP converter who can bring technology, production know-how and market relationships.
- ▶ **Building effective channels to market** and customer relationships
  - The target export markets have a large domestic and regional production base with established contacts to potential buyers, reasonable prices and good service. Without a personal presence, an established agent or distribution network, or participation at relevant trade fairs, it will be very difficult for emerging South African exporters to succeed against such tough competition.
  - Government support is required to assist emerging exporters to develop costly and time-consuming trade relationships and market their products overseas. Potential measures include:
    - Facilitate cooperation in the sector for joint marketing initiatives and trade missions.
    - Financial and marketing assistance for sector-wide trade missions.
    - Export marketing grants to cover marketing and international travel expenses required to develop business-to-business relationships.

In addition, to the above factors there are a number of **competitive threats** that can seriously affect the emerging PP conversion industry:

- ▶ **Energy and monomer costs** are widely expected to **continue to increase**. The PP industry needs to build scenarios for this upward pressure of prices when developing plans for downstream beneficiation. PP suppliers should take into account the likely impact of potential further increases in energy and monomer costs on their competitiveness and their export readiness.
- ▶ PP suppliers should take into account the **threats presented by Asian PP producers**.

## **4 Way forward and next steps**

### **4.1 Government support**

It is recommended that the request for further statistics on incentive utilisation should be raised through the Trade and Industry Chamber of Nedlac.

Following consideration of the report's recommendations in the Chemicals Sector Summit process, relevant government departments would need to give effect to any agreements reached when reviewing their incentive administration and design.

### **4.2 Procurement**

There are a number of steps that can be taken in the short term to stimulate local procurement in the chemical industry, including the following:

- ▶ Undertake a study that focuses on the opportunities for local procurement in South Africa for SMEs, including sub sectors of the chemicals industry.
- ▶ Request the private sector via its associations to review the SCMF and see if there are possible synergies between the SCMF system and their own internal procurement systems, and obtain commitment to attempt to align these
- ▶ Request treasury and SARS to make the reporting of local procurement statistics a required part of all larger firms' annual audits
- ▶ Set up a specific programme (including all stakeholders) for the development of local procurement in the chemicals industry.
  - Implement using specialised BDS providers
  - Implement a major awareness campaign to be handled by the BDS providers
  - Finance this through SETA / donor/ private sector contributions and government allocation
- ▶ Locate all statistics regarding local, black, female and SME procurement in one place. Collect government statistics via the SCMF and private statistics via the company audit system.

### **4.3 Information systems strategy**

The recommendations of this project form the basis for the development of an ongoing improvement programme for the chemicals portal site. Initially, the website structure should be improved, the list of links suggested in this document should be finalised and incorporated into the website, and where new material has been recommended, this should be developed. On an ongoing basis, the website should be regularly assessed and updated, and new material should be incorporated as it becomes available.

As the Chemicals Sector Summit considers expanding the information system it should follow best practices in website management. The content of each linked website should be assessed according to its authority, currency, accuracy, relevance, objectivity, comprehensiveness and coverage. Website format should be assessed according to design and layout, presentation and copyright and cost issues. The content and format of the portal site should be kept up-to-date and the site should be promoted to current and potential users to increase awareness and drive traffic to the site. User surveys and traffic measurement should therefore be used to assess the effectiveness of the website.

#### 4.4 Polypropylene opportunities

This high-level trade flow analysis provides the initial basis for identifying potential areas of industry development and trade promotion action. In particular, this analysis has highlighted product-to-market combinations for further investigation.

A detailed assessment of market drivers and market opportunities on the demand side and South Africa's competitiveness on the supply side for priority products is recommended prior to detailed strategy development and implementation. These priority products could include products both inside and outside the chemicals sector, where development of downstream industries would require collaboration with other sectors in terms of their strategy development processes.

- ▶ Issues for a detailed demand side analysis include:
  - Analysing the demand characteristics and industry structure in key target markets
  - Determining key potential buyers and their supply needs
  - Identifying any obstacles to imports in target markets
- ▶ Issues for a detailed assessment of supply conditions include:
  - Analysing the supply capabilities and industry structure
  - Identifying any obstacles to exports of priority products
  - Assessing supply capacity increases and investments required
  - Determining specific support requirements at the enterprise and industry level (e.g. logistics, new product development, etc.)
- ▶ Competitive scenarios should also be developed
  - Despite the lack of current SA exports to the US, additional market trends that may result in opportunities that are not evident from the historical trade flow data should be explored. For example, over recent years, imports from Asia appear to have grown strongly across other resin categories such as PET, PS and PVC, where Asian resin producers often have a 15-20% price advantage over domestic suppliers. What triggers in the market place would need to be present to create a more favourable future scenario for PP imports into the US?
- ▶ In addition, the export value chain (i.e. from sourcing and production through to marketing, transportation and selling in the export market) should be mapped and a comparative cost analysis along the entire value chain conducted. This is critical to identifying overall cost competitiveness vis-à-vis competing suppliers and drivers of competitiveness, as well as assessing likely success of export market penetration.