SPECIAL FOCUS

MIXED OUTLOOK FOR SYNTHETIC POLYMERS IN TECHNICAL TEXTILE MARKETS

by David Rigby Associates (DRA)

DRA considers the importance of the Technical Textiles market for synthetic fibres and highlights some of the major issues for nylon and polyester expected for the coming years.

— Technical Textiles Markets still Growing Strongly —

Technical textiles and nonwovens play a much more important role worldwide than is commonly understood. *In GFFR Issue No 4, December 2001* we presented some medium-term forecasts for the world technical textiles market to 2005. Across nine major application areas, total fiber usage in technical textile end-use products was estimated at 14.7 million tons. According to DRA's latest estimates, presented in their June 2002 report *Technical Textiles and Industrial Nonwovens: World Market Forecasts to 2010,* world production and consumption of technical textiles in 2000 amounted to just over 16.7 million tons of fiber and polymer with a finished textile product value of US$92.9 billion. In weight terms, this represents some 27 percent of the estimated 62.2 million tons of fibers consumed across all end-uses in that year.

Techtextil Application Areas

Application Area	Products and End-Uses Covered by the Application Areas
Agrotech	Textiles for agriculture, horticulture, forestry and fishing
Buildtech	Building and construction textiles
Clothtech	Technical textile components of shoes and clothing
Geotech	Geotextiles
Hometech	Technical components of furniture, household textiles and floorcoverings (including carpet backing)
Indutech	Textiles used in filter media and other industrial applications
Medtech	Hygiene and medical textiles
Mobiltech	Textiles used in automotive, marine, railway and aerospace applications
Packtech	Packaging textiles
Protech	Textiles for personal and property protection
Sporttech	Technical textiles used for sport and leisure equipment
Oekotech	*Products used for environmental applications (included in other areas)*

Source: Messe Frankfurt, DRA

Part of this apparent increase in volume is due to the inclusion of two further application areas – technical components for both clothing and interior textiles – in the definition of technical textiles. This brings the definition in line with that developed by Messe Frankfurt, the organizers of the Techtextil Shows, and now widely used across the technical textiles industry *(see table above).*

In addition, in the new report various application areas have been redefined to include products previously omitted, such as cigarette filter tow (Indutech) and fiber reinforced concrete (Buildtech), while some products have now been redefined as non-technical (e.g. umbrellas and toys – both previously included in Sporttech). Estimates for two application areas – Agrotech and Geotech – have been revised downwards, but in most end-uses, technical textiles consumption is now believed to be even larger than previously thought.

Moreover, as shown in the table on the right, growth rates remain strong at a time when most other segments of the global textiles market are looking flat. Despite the difficult economic situation since the start of the century, technical textiles consumption is forecast to grow at an average annual rate of 3.3 percent in volume terms between 2000 and 2005, before accelerating over the following five years to 3.8 percent per annum against the background of an assumed global economic recovery. However, the outlook varies quite significantly between application areas.

Global Fiber Consumption in Technical Textiles
by Main Application Area, 2000, and Forecast Growth Rates, 2000-2010, in descending Growth Rate Order

Application Area	Fiber Consumption 2000 (-000- Tons)	Forecast CAGR 2000-2005 (%)	Forecast CAGR 2005-2010 (%)
Geotech	255	4.6%	5.3%
Buildtech	1,648	4.3%	5.0%
Medtech	1,543	4.6%	4.3%
Indutech	2,205	3.5%	4.4%
Protech	238	3.3%	4.0%
Agrotech	1,381	3.2%	3.9%
Packtech	2,552	3.2%	3.8%
Sporttech	989	3.1%	3.7%
Mobiltech	2,479	2.7%	3.4%
Clothtech	1,238	2.7%	3.2%
Hometech	2,186	2.7%	2.7%
TOTAL	**16,714**	**3.3%**	**3.8%**

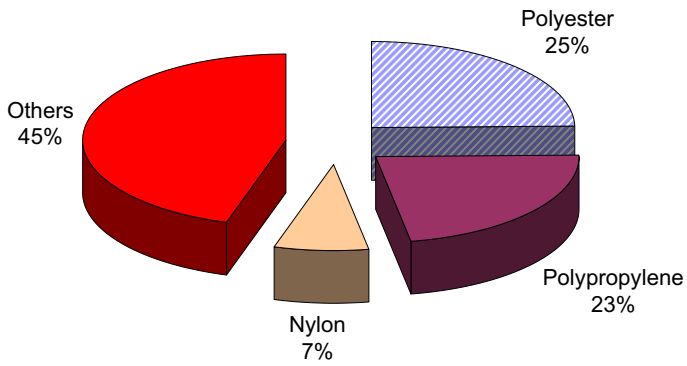
Source: "Technical Textiles and Industrial Nonwovens: World Market Forecasts to 2010", DRA, June 2002.

Forecast growth rates for **Geotech** are the highest of all, despite being scaled down from previous years. **Buildtech** is the second fastest growing sector, partly as a result of a rapid growth in the use of composites, but also as textile products replace more traditional building materials in the form of both hidden components and end-products in their own right. Growth rates for **Medtech** are also above average, but are forecast to decrease as markets mature, especially in the West. In contrast, only slow growth is forecast for clothing components (**Clothtech**) since there is limited further opportunity for increased textile usage per garment and demand for garments themselves is forecast to continue to grow at a slower rate than real incomes. **Mobiltech** markets are also forecast to grow relatively slowly, reflecting increased maturity in the sector. **Hometech** growth rates are the lowest of all, reflecting generally low forecasts for final demand for household goods, the limited opportunities for further textile penetration, and a steady switch from woven to lower priced and lighter nonwoven components.

— Man-Made Fibers already Major Players in Technical Textile Markets —

The importance of the technical textiles market to the man-made fiber industry is demonstrated by the chart on the right. Polyester and polypropylene in their various forms – polymer chip (for melt-laid nonwovens), staple fiber and yarns (multifilament, monofilament and tape/slit film) – on their own account for almost half of all polymer/fiber consumed in volume terms. Nylon contributes a further 7 percent.

2000 Share of Technical Textiles Market
by Major Polymer/Fiber Type



Source: DRA

— Varying Prospects for Leading Synthetic Polymers/Fibers —

The three leading synthetic polymers have quite different growth prospects, as analyzed by DRA in their January 2003 series of reports on each key fiber and fabric type within the technical textiles market. Despite being very different in composition, the

underlying markets for the end-use products in which each of the three fibers is used are forecast to expand at broadly the same rate over the period to 2010 – recording an overall growth of around 40 percent in volume terms over the decade. However, each fiber is forecast to have a different degree of success in maintaining its share of target markets (*see table on the right*).

Analysis of Forecast Growth in Fiber Consumption in Technical Textiles, 2000-2010

Polymer / Fiber	Forecast Volume Growth in Usage of Polymer/Fiber in Technical Textiles, 2000-2010 (%)	*Of which:*	
		Generated by Underlying Growth in Demand for Products where Polymer/Fiber is Used (%)	Caused by Net Increase in Polymer/Fiber's Market Share (%)
Polypropylene	49.8%	42.3%	7.6%
Polyester	43.6%	38.3%	5.3%
Nylon	24.4%	39.0%	-14.6%

Source: DRA

Polypropylene usage is forecast to grow the most rapidly overall – by almost 50 percent over the decade – partly as a result of a further significant net expansion in its market share. This polymer is forecast to continue to gain share from polyethylene in net terms as a result of certain geographic markets' preference for polypropylene products over polyethylene equivalents. Polypropylene is also taking share from other fibers in certain end-use products, for example from glass in vacuum and industrial air filters and from viscose in medical wipes. These gains outweigh losses to viscose in other, industrial, and household wipes.

Polyester, too, is forecast to continue to increase its share of the overall technical textiles market. It is predicted to gain sharply at the expense of viscose in tire cord and from glass in automotive insulation and various filters. There are only a few product segments where polyester's share is under threat – for example to aramids in some automotive drive belts.

By contrast, nylon in its various forms is forecast to suffer a significant fall in its overall share, as its use is further confined to those specific applications which require energy-absorbing capacity and/or extensibility – such as air-bags, ropes, and various Mechanical Rubber Goods. Main areas of loss include those relatively low performance products such as foul weather clothing, soft luggage fabrics, tents and garment labels, in each case losing out to polyester on the grounds of the latter's adequate performance and far lower price. However, nylon is also forecast to lose share in tire cord fabrics as road surfaces improve around the world and higher performing polyester variants such as HMLS (High Modulus Low Shrinkage) yarns are developed.

— Brightest Prospects for Polymer Chip and Unspun Staple Fiber —

Not only are different synthetic polymers exhibiting different growth rates in technical applications, but also the form in which these polymers are used. By far the fastest growing final textile product form of technical textiles is nonwovens, predicted by DRA to increase their share of total technical products from 23 percent in 2000 to 26 percent by 2010, driven by an ongoing rapid expansion in demand for wipes of various types (domestic cleaning, medical, industrial, etc). Loose fiber applications such as fiberfill and reinforcements for plastics and concrete are also forecast to grow at above average rates. Hence, non-yarn applications exhibit the healthiest outlook in general.

By contrast, yarn-based woven, knitted and other fabrics (which in many cases are being replaced by lighter, cheaper nonwoven products) and traditional yarn-type final products such as ropes, twine, and sewing threads are forecast to grow at well below the average *(see table on the next page)*.

As a result, fiber consumption in technical textile markets is forecast to grow most rapidly in the forms of polymer chip (for extruded nonwovens) and unspun staple fiber (for carded nonwovens and loose fiber end-uses).

For **nylon,** the difference in outlook for different polymer/fiber forms is particularly pronounced; polymer chip is forecast to grow by almost 6 percent per annum between 2000 and 2010, compared with just 1.8 percent p.a. for multifilament yarns of all types and tenacities, reflecting the slackening of many of nylon's traditional woven markets. In the case of **polyester**, polymer chip and unspun staple fiber together should achieve an average of almost 4 percent per annum growth, compared with little more than 3 percent for spun staple. The strong position of **polypropylene** in nonwovens – especially melt-laid fabrics – accounts for a forecast CAGR of over 4.5 percent for polymer chip consumption to 2010 compared with little more than 3 percent per annum for both spun staple and textile multifilament yarns. Detailed forecasts by product and region are provided in the DRA Reports.

Forecast Technical Textiles Growth, 2000-2010, by Final Textile Product Type

Final Textile Product Type	CAGR, 2000-2010 (%)
Nonwovens	5.0%
Unspun Fiber	3.7%
Other Fabric Types	2.9%
Yarn-Type Products	2.8%
TOTAL	**3.6%**

Source: DRA

The message is clear – technical textiles represent an interesting area of opportunity for synthetic polymer and fiber producers, especially in developed countries to offset declines in volumes of fiber used in consumer products such as clothing and furnishings. However, further analysis of this complex sector indicates that some polymer variants are significantly better placed than others.