Europe’s polyolefin textiles industry is upbeat in Budapest

Senior executives from the industry gathered in the Hungarian capital for the annual Executive Seminar of the European Association for Textile Polyolefins (23–25 May 2004), where the pervading mood was optimistic, according to Editor Nick Butler.

Following in the tradition of a series of attractive venues – Basle (2001), Paris (2002) and Barcelona (2003) – the elegant city of Budapest provided a stunning backdrop to the latest Executive Seminar organized by the European Association for Textile Polyolefins (EATP). From 23–25 May 2004, the Hungarian capital was host to more than 100 senior executives from the polyolefin industry, representing 70 companies and attracted from 18 countries to listen to presentations covering strategic, market and business developments, the latest technologies, and environmental issues.

Budapest’s pleasant atmosphere was enhanced further by the pervading optimism of the people following their country’s accession to the European Union (EU) just a few days earlier. And delegates at the Executive Seminar, taking its theme of Expanding the Limits of Polyolefin Textiles, were certainly not out of place in such an upbeat environment. EATP Chair Allan Thompson captured the mood when he said “This was the best EATP Executive Seminar ever. Polyolefin fibres and textiles – made from polypropylene (PP) or polyethylene (PE) – are rapidly growing worldwide, and one of the few textile sectors where European producers are market leaders. Our industry’s products give high performance, versatility and value for money in both consumer and industrial markets.”

Growing markets

With the first half-day reserved for Members’ Sessions, the Executive Seminar itself was an intensive one-and-a-half day affair. None the less, there was still time to cover a variety of market sectors, from raw materials to end-uses, as well as geographical perspectives:

- polymers;
- fibres and yarns;
- PE in fibres and yarns;
- nonwovens;
- automotive;
- floorcoverings;
- China;
- technical textiles in the new EU member states.

Polyolefin polymers

Opening the first session, Atofina PP Europe’s General Manager Marc van der Elst addressed the challenges facing European producers of PP, and set out the case for it being a growing market. Comparing 2003 with 2002, van der Elst told delegates that there was growth in PP markets in Western Europe, North America and Asia (South Korea), both within the regions themselves and in terms of their exports; domestically, South Korea’s fall of 1.4% being the only counter-example. In total the PP market grew by more than 665 kt (3.6%) in this period, he said.

Van der Elst also considered the impact on the PP market of the expansion of the EU—from 15 to 25 members states effective from 1 May 2004; his figures for the original EU members, however, also included two non-members: Norway and Switzerland. Atofina’s estimate of the total PP market in 2003 for the previous EU members, and Norway and Switzerland, was 7.700 Mt (19.6 kg for each person in the region); the ten new members would boost the market by 0.758 Mt (9.8%) to a total of 8.458 Mt (18.1 kg for each person).

However, potential for further significant expansion was implied by the relatively low use per person in the 10 new
member states (10.3 kg each), as well as figures showing that these economies have great potential for growth.

Fuelling this growth, van der Elst added, were the improvements in the properties of PP and the associated enlargement of the material’s potential applications. For instance, in 1980, when Western European consumption of PP was just 1.3 Mt, the principal injection applications were housewares, appliances and automotive, and extrusion applications were packaging film, other film, and fibre. By 2000, consumption in the region reached 7 Mt and additional applications included nonwovens, staple textiles, bulked continuous filament (BCF), continuous filament, medical, horticulture, pipes, blow-moulding, sheet, crates and boxes, caps and closures, toys and furniture.

Finally, van der Elst turned his attention to the impact of fibres and nonwovens. Using figures from the European Disposables and Nonwovens Association (EDANA), he showed that in 2002 the nonwovens market was a total of 1.280 Mt, of which PP was 593 kt (46%) and polyester (PES) 257 kt (20%). Moreover, average annual growth in the period 1997–2002 was 11%—PP 10% and PES 12%.

Both spunbond and staple PP had enjoyed growth, but spunbond more consistently and to a greater extent, almost doubling from just over 200 kt a year to just below 400 kt a year in the period 1997–2002, compared with staple (about 150 kt in 1997 to around 200 kt in 2002). Within hygiene markets, the two technologies compete, he noted, as well as drawing attention to emerging markets for staple PP in wipes.

Another significant technology affecting the markets was the emergence of metallocene catalysts for PP. This route to the polymer’s production provides a number of advantages:

- it is kinder to the environment (less fumes and volatile organic compounds);
- provides better processing (fewer fibre breaks, faster spinning and no need to adjust machines when changing lots);
- improves maintenance of machinery (less deposit on the dies, longer filter lifetimes, less waste and less downtime);
- enhances the properties of the fibre (allows thinner fibres to be spun and high-tenacity items to be made);
- allows novel characteristics to be introduced to the nonwovens (strength increased by 10–40%, lower weight for the same basic properties, improved softness, better aesthetics, narrower pore size distributions and better barrier properties).

The evolution for world trade in polypropylene from 2000 (top) to 2004 (middle) to 2006 (bottom). Net exports are shown above the line, next imports below it. The planned capacity increases in the Middle East will be absorbed by the growth in demand in Asia (China). See also, John Cunningham’s presentation, following page.)
Poland—bridging Western and Eastern Europe

Vice-president Marketing and Sales Director of Basell Orlen Pololefins (BOP) Wido Waelput explained why Basell had undertaken this joint venture in Poland, and in doing so revealed the company’s thoughts on the growth prospects in Central and Eastern Europe, particularly for fibres and textiles.

Established in February 2003, BOP is a joint venture between Basell Polyolefins and PKN Orlen SA. Its headquarters are in Plock, Poland, its annual production capacity is 280 kt, and its turnover in 2003 was €185 million. Up to the end of 2005, the company will invest €500 million to build new plants, exploiting Basell’s proprietary technologies (Spheripol and Hostalen), for:

- PP—annual capacity 400 kt (Spheripol);
- high-density polyethylene (HDPE)—annual capacity 320 kt (Hostalen);
- a logistics centre with silos, packaging and distribution facilities.

At the same time, the company will close existing plants for PP and low-density polyethylene (LDPE); a second LDPE plant with an annual capacity of 100 kt will be retained.

Basell’s strategy is to use BOP to gain the pre-eminent position within the Polish market, second in terms of consumption of polyolefins within the Central and Eastern European region only to the countries making up the former USSR: in 2001, Poland consumption was about 650 kt a year; in the former USSR it was about 1300 kt. However, figures for 2003, show a growth in polyolefin consumption in Poland to 755 kt a year:

- 300 kt of PP—40%;
- 255 kt of linear low-density polyethylene (LLDPE) and LDPE—34%;
- 200 kt of high-density polyethylene (HDPE)—26%.

Waelput cited many competitive advantages behind the decision to invest in Poland, including:

- its central location acts as a bridge between Western and Eastern Europe;
- with 40 million inhabitants, it is the eighth largest market in Europe;
- the country has a skilled labour force;
- Poland has lower labour costs than Hungary and the Czech Republic;
- the country has a climate conducive to investment with, for instance, special economic zones with incentives for investors;
- it still has a relatively low polyolefin consumption for each person.

Rounding off this first session, Vice-president—European Olefins for DeWitt & Co Inc John Cunningham considered the threats and opportunities of worldwide growth and change within the polyolefins markets. Much of his presentation was concerned with China and will be dealt with in more detail in the September 2004 issue of Technical Textiles International, as part of our preview of Techtextil China.

However, Cunningham drew a number of conclusions:

- the major growth in demand for PP is centred on Asia/Pacific, specifically China;
- this growth in demand has the potential to absorb the huge planned increases in capacity in the Middle East;
- although PP production in the Middle East has some feedstock cost advantage compared with other world regions, this is significantly lower than for PE production;
- cost barriers to exports from the Middle East to Western Europe are higher than those to Asia/Pacific;
- Europe is unlikely to be flooded with PP from the Middle East;
- a major proportion of China’s polymer demand is consumed in products that subsequently are exported;
- products fabricated in Asia, particularly those that require intensive labour, are made for the US and European markets;
- Asia already dominates the polyester market;
- PE injection and film businesses are moving towards Asia;
- currently, the PP converting sector is at greater risk from Asia’s growth than the polymer business.

Lessons from America

Drake Extrusion’s Vice-president of Sales and Marketing Geoff Schofield opened the session dealing with fibres and yarns by describing the key trends in the North American market and asking what lessons could Europe learn from this experience?

Major trends he identified for polyolefins were:

- the consolidation of suppliers and customers;
- backward integration in the supply chain;
- stagnant markets.
Moreover, one of Drake Extrusion’s principal markets is the automotive industry. Here specific trends include a shrinking market, fibre companies having to assume more of the risk, the number of colours being used is increasing, and more backward integration by customers, particularly with respect to polyester.

In contrast, geotextiles is a growing market, he told delegates, but one with an excess capacity for fibres. Here, too, major customers are backwardly integrated.

Moreover, fibre companies are having to assume more of the risk in the North American automotive sector, Drake Extrusion’s Geoff Schofield told delegates.

Wipes represent another growing market, he added.

Meanwhile, the situation in more traditional markets – needlepunch floorcoverings, furniture, home furnishings and tufted carpet – was gloomy with at best no growth or at worst reduced volumes and increasing competition from imports, albeit in many cases from Europe.

Turkish fibres

Providing the perspective from Turkey, Gülşan Sentetik’s Head of Sales & Export Department Mustafa Topçuoğlu considered what was driving the country’s expansion in PP yarn capacity, as well as predicting future growth prospects. Although Gülşan Group has been a pioneer in circular woven (tubular) sacks, PP bags for cement, BCF carpet yarn and spunbond PP – including spunbond/meltblown/meltblown/spunbond (SMMS) – most of his presentation though focused on the effects of the carpet sector.

Polyethylene or polypropylene in fibres and textiles?

The second day began with two papers addressing the market trends for PE in fibres and textiles. Marketing Manager BOPP Film and PO Fibres for Borealis Polymers Yvo Daniëls discussed whether the share of PE in the polyolefin textile market would increase and where future growth for PE would be concentrated. In particular, he described Western European markets for HDPE and its competition with PP.

In 2002, the Western European market for polyolefin was 20 Mt: 38% PP and 62% PE. Of the total 20 Mt, LLDPE and LDPE accounted for 38% and HDPE 24%, he added.

Therefore, HDPE accounted for 4.800 Mt of the sector in 2002, of which:

- 3% is for fibres;
- 57% for moulding;
- 17% film;
- 16% pipe;
- 2% wire and cable;
- 5% other.

Daniëls compared this with the applications for PP (total Western European market in 2002 being 7.350 Mt): • 24% for fibre;
• 31% moulding;
• 22% film;
• 14% engineering applications.

Delegates then learned about Daniëls’ thinking on the key trends in the polyolefin market in Western Europe, which echoed some of the comments of John Cunningham, see above:

- increasing imports from the Middle East;
- increasing imports of finished products from Asia;
- HDPE growing at about 3.5%;
- limited capacity expansion planned in the region.

PE fibre has a number of traditional or long-standing applications, he told the conference:
rope/twines;
• fishing nets;
• netting;
• protective clothing, where increasingly there is competition from PP nonwovens;
• agricultural.

There are also applications that have been developed more recently:
• artificial grass, such as will be employed at the Olympic Games in Greece and the European football championships in Portugal in 2004;
• hygiene, where the trend is towards softer fabrics presenting opportunities for PE in bicomponent fibres as well as PP solutions;
• high-tenacity fibres for such applications as anti-ballistic apparel and composites;
• clothing, in blends with natural fibres;
• contraceptives.

Moreover, these market conditions and applications were driving a number of trends:
• consolidation—small companies being acquired by larger groups;
• relocation—companies are moving manufacturing operations to countries with low wage costs;
• stagnation—little growth expected in the HDPE fibre market.
Of course, the evolution of technology and materials has also affected these trends. Comparing HDPE with PP, the materials have different advantages: HDPE is soft (has a low modulus), smooth, is stable to ultraviolet (UV) radiation, abrasion resistant, and resistant to gamma radiation (good for medical applications); PP spins well, is resilient, has a low density, and resists high temperatures. A key change has been the improvement in the tenacities of HDPE fibres: at the beginning of the 1990s, HDPE monofilament had a much lower tenacity than that of PP; in 2004, while both materials have made gains, HDPE boasts the typically higher tenacity (even excluding the high modulus versions that have tenacities way beyond the norm.

Finally, Danieles compared prices, noting that the price of HDPE fell below that of PP at about the start of 2002 and had remained there since. He expects this to continue to be the case for some years yet.

Cotesi’s Marketing Manager Rui Marques also considered the impact that HDPE was having on traditional markets for PP. In addition to Danieles comments, he noted that HDPE had taken a big part of PP’s share in the market for ropes and fishing nets, with abrasion resistance being a factor (see above). Another area being affected in Western Europe was twining, where Raschell nets were steadily replacing traditional PP products.

Factors that Marques saw as influencing the markets were the needs in agriculture to reduce the dependency on chemicals use, the shortage of labour and the desire to grow crops out of season, and the trend in the sacks and flexible intermediate bulk containers (FIBC) sector to very low prices (causing northern European manufacturers to move south, possibly even to north Africa, say Morocco, at a later stage). In future, he felt European companies would respond by weaving PP for agricultural and geotextile applications, as well as custom-made products, HDPE tapes and monofilaments for technical textiles.

Nevertheless, Marques did discuss the advantages of HDPE in agricultural textile applications, pointing out its resistance to UV and good thermal performance, as well as its resistance to chemicals. In this sector, a number of fires in commercial greenhouses were putting the need for flame retardant fabrics on the agenda; initially, demand is from central Europe but now southern Europe is showing an interest too. Greater use of agricultural textiles would help reduce the dependency on labour, he concluded.

Automotive markets and trends
In a highly comprehensive and detailed presentation, President of Robert Eller Associates, Robert Eller, considered the role of polyolefin textiles in the automobile industry. He concluded that the use of these materials will grow and identified a number of reasons why this will be the case, as well as discussing what needs to be done to maximize the opportunities:

- nonwovens will gain share;
- the use of microdenier nonwovens will increase;
- the use of elastic nonwovens will increase;
- the use of coated fabrics will increase;
- the increasing use of polyolefin foam and the desire to simplify recycling of materials in response to legislative demands will promote the use of polyolefin textile laminates;
- the materials will be used as substitutes for glass fibres;
- there will be a growing use of semi-structural composites;
- there will be a growth in the use of back-moulding in the North American markets;
- technologies used in Europe and the USA will converge;
- further improvements in material properties are needed.

Floorcoverings
Ending the morning session on end-use markets, Director of the Gemeinschaft umweltfreundlicher Teppichboden (GuT) Edmund Vankann and Managing Director of Vebe Floorcoverings Harry Timmerman both discussed the need to promote the benefits of carpets/floorcoverings to the consumer.

Effects of environmental issues
Head of the Technical & Environmental Centre for the Association of Plastics Manufacturers in Europe (APME) Neil Mayne reminded delegates of the time when health and safety issues were restricted to within a plant itself before contrasting the past with the present: a wide range of European legislation that makes safety and recycling concerns to manufacturers even after material has left their facilities.

Continuing the general mood of optimism, Mayne accepted that polyolefins were among the more benign plastics in terms of their impacts on the environment. However, more than half of the 37.4 Mt of thermoplastics consumed by...
processors in Western Europe in 2002 were polyolefins—
this makes not only the products highly visible but also the
waste, he cautioned.

According to Mayne, there are four main environmental
issues for plastics: emissions of monomers and/or solvents
during production—more latterly this is usually monomers;
effects of additives; litter; waste management of products at
the end of their lives.

With respect to emissions, the major concern for polymer
producers is that of volatile organic compounds (VOCs).
Despite being relatively benign in this respect, the high use of
polyolefins means that the materials do have an impact over-
all: polyolefins account for 66% of all VOC emissions from
polymers. Consequently, the industry has become proactive
in this regard, he added, cooperating with regulatory author-
ities and submitting its own proposals for best practices.

Problems relating to additives are their potential for migra-
tion or emission during use (such as leaching from pipes
into potable drinking water) and the danger of hazardous
emissions during recycling (for instance dioxins).

Plastics are often the most visible part of litter, Mayne noted.
Worldwide, the thin PE bag has become the icon of the so-
called waste society; for instance, in South Africa where plas-
tic bags are caught in trees and plants they are known as the
“flower of Africa”. As a result, there are many bans, taxes and
levies promoted to discourage the use of plastic. For itself,
the industry must be aware that plastics litter has a profound
negative effect on the image of all plastics products.

With regard to waste management, the EU has a basic
Waste Framework Directive, first put together in 1975 and
now needing some revision, and a number of related
Directives for the prevention and recovery of waste from
various application-related waste streams such as packaging,
avtomotive, and electrical and electronic waste.

At present, Mayne said, there was no specific Directive on
waste textiles, and he didn’t think there would be in the
foreseeable future as this would require an enormous
amount of effort to draft proposals at a time when the EU
Commission was looking for a more holistic approach to
the challenge of waste. Two important Directives related to

The Directives are based on the principle that prevention
is better than recovery and, in turn, recovery is better
than disposal. Some of the
effects are that there is a
restriction on the amount
of biodegradable included in
landfill (because of its
potential impact of global
warming as gases such as
methane are released) and
some countries, such as
Germany, are banning the
inclusion of any combus-
tible material (including
all plastics) in landfill.

Mayne noted that there are
two alternatives for recovery:
- material recycling (as
  materials or feedstock
  chemicals);
- energy recovery (by
direct incineration or
use as alternative fuels).

Although recycling has a good image, energy recovery does
not, he added.

To emphasize the scale of the problem, more than 60% of
plastics are still put into landfill; would we do this with the
oil they derive from, he asked?

This is clearly driving a desire for alternatives but the dan-
ger with the current course was that there was too much
focus on recycling and not enough on energy recovery.
Ideally, the aim should be for a balance between recycling
and energy recovery form organic materials, with safe
landfill for the residues. Optimum approaches would vary
with material, the associated waste stream and the com-
plexity of the product.

Based on European figures for 2001, Mayne also said that
approaches varied from country to country: some, such as
The Netherlands, Norway, Belgium, Finland, Spain and Italy
opted for a balance; some, such as Germany and Austria
relied too much on recycling; some relied too much on
recovery and not enough on recycling, such as Denmark
and Switzerland; others, including the UK, Ireland, Greece
and all the Accession countries, weren’t doing enough
recycling or recovery.
Future approaches for the EU’s waste policies may include an attempt to redress these balances and could lead to the development of specific targets for materials. In practice, this would not be good for plastics, Mayne pointed out, because plastics will always look bad in terms of recycling. Moreover, because of their relative abundance, polyolefins will be a focus of attention. Another potential threat could come from the inclusion of synthetic textiles in the Directives, though he considered this unlikely, see above.

Technical textiles in an expanded Europe

EATP invited two speakers to give the perspective of companies from the accession states that were involved in the technical textiles business: Lanex of the Czech Republic sent its Brand Manager Alena Merínská; Chief Marketing Officer Andreas Pal represented Hungary’s Tisza Textil.

Lanex makes FIBCs, braided and twisted ropes (marine, industrial, climbing, paper carrier and yacht ropes), personal protective equipment, lifting slings and lashings, and high-tenacity PP fibres. Tisza Textil makes PE and PP bags for agricultural use and roof-sealing fabrics. Both speakers echoed some familiar themes to manufacturers in the Western Europe:

- wages and manufacturing costs are rising;
- increased competition from the Far East;
- the need to continuously invest in technology and product development to stay at the forefront;
- to be active in and understanding of the whole supply chain;
- to work with partners (particularly those overseas to exploit export markets);
- to provide excellent service to customers;
- the need to innovate, diversify and specialize.

In addition, they noted the need for their governments to make changes, such as the simplification of customs’ procedures, and the strategic advantages of being in Central Europe where they can provide a bridge from the east to the west.

Further east

The final market-related presentation came from the Director General of the International Textile Manufacturers Federation (ITMF) Herwig Strolz, who considered the threats and opportunities from the Chinese market. This will be considered in more detail in the September 2004 issue of Technical Textiles International, as part of our preview of Techtextil China (see also above).

Optimism in polyolefins

Overall, speakers and delegates were optimistic about the future for textile polyolefins predicting growth in several markets: around the world for the polymers (in recent years, driven by the improvements to the properties of the materials, for instance the introduction of polymers made with metallocene catalysts and the increase in the tenacities of HDPE fibres); for both PP and PES nonwovens; in demand from Asia (particularly China); in key sectors, such as the automotive and agricultural industries. In addition, the expansion of the EU is creating further opportunities.

Nevertheless, a few notes of caution were sounded. For instance, much of the growth in demand in Asia/China will be for the manufacture of products for subsequent export. Textile manufacturers in the automotive sector are being forced to take more of the risk and planned environmental legislation in Europe could have a large adverse impact if it is not framed correctly. Finally, the debate about China’s future impact continues with the pessimists fearing the worst from its potentially huge manufacturing capabilities, while the optimists point to the vast market that is about to open.

Further information

Rome, Italy, will host the next Executive Seminar on 23–24 May 2005.

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