Basell
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basell
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Managing change

The last few years have been times of significant change in the polyolefins industry. Some of the change has been cyclic or short-term but much of it reflects long-term developments that will continue into the foreseeable future.

As Basell CEO Volker Trautz observes in this month's Focus (page 4), the centre of gravity of polyolefin production and consumption is shifting away from established markets in Europe and North America as demand continues to grow in the emerging economies of Eastern Europe and Asia and supply expands in feedstock-advantaged regions such as the Middle East.

This issue of Dimensions looks at some of the many ways in which Basell is involved in this process of change. As well as being supplier of the process technologies that are powering new polyolefin capacity from Poland to the Middle East, Kazakhstan and mainland China, Basell is taking a growing commercial role in these new markets.

Examples of this process include the new Moscow office that is channelling products from Basell and its joint venture in Poland to the Russian market (page 16), the Memorandum of Understanding for the Kazakhstan project (page 17) and in China as provider of pre-sales and initial marketing services as the products of our process technologies come on stream (page 16).

This issue also focuses on two areas in which the ways Basell does business are evolving to meet the needs of our customers and the changing conditions of the market.

Reflecting the diversification of our customer base and the different requirements of polyolefin users, Basell now has a wide range of e-business channels in place. These provide support for traditional sales models, as well as entirely new ways of buying polyolefins, such as the no-frills channel Alastian for experienced users of standard grades (page 13). Providing greater stability and transparency in polyolefin pricing is the goal of the 'plastics contract' recently launched by the London Metal Exchange. Basell is taking part in this initiative by having listed two of its most widely-used grades (page 18).

And of course the process of developing and producing new grades that perform better and cost less continues. This issue contains news of a novel approach to innovation in the automotive sector adopted by Basell in Europe (page 12), as well as new opportunities for polyolefins in sectors such as wire and cable and packaging.

Simon Barnard
Chief Editor,
Basell Dimensions

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Changing for the better

As the pace of change in the polyolefins industry accelerates, Basell president and chief executive officer Volker Trautz talks about the shape of things to come and how the company is responding to new economic realities.

Volker Trautz, President and CEO

What do you see as the key drivers for today's global polyolefins business?
Our industry is primarily driven by three main factors: feedstock, wealth and population-driven growth. In effect, the wealthy nations no longer exhibit strong growth, the feedstock-owning nations have small populations, and the populous nations have little feedstock.

If we specifically concentrate on oil and gas reserves, the precursor for all our industry's activity, it is evident that the concentration of hydrocarbons is in the hands of very few nations, with 80 percent of globally known reserves being held by between eight and eleven countries.

It is also obvious that resource-owning countries will aim to maximize the added value from those resources. However, these same countries have relatively small populations and cannot therefore generate sufficient internal demand to consume the higher value products sought after by their political and business leaders.

The significant petrochemical capacity built and being built in the Middle East's feedstock-owning nations is driven by the desire to add value to what has until now been largely an extractive industry. The resulting petrochemical and polyolefin supply capability is on a very large scale. For sure, extremely competitive feedstock will be the defining factor in our industry over the next five to ten years.

Will the cost of exporting product to other regions impact sales of Middle East products?
Even adding in inter-region freight costs does not remove the Middle East cost advantage over producers in major consuming markets. This is particularly the case for polyethylene, but also to a lesser extent for polypropylene. And it is certainly deeply affecting Basell in our own positioning for the future.

So how is Basell responding to these new "global" realities?
We look very carefully at our investment plans and manufacturing asset footprint and, of course, we have embraced globalization as a way of life. This means making sure we are present wherever our customers are – and wherever they are heading. It means having a very good cost position in view of increasing commoditization in our industry. And it means being present in the key developing regions – China, India, the Middle East and Eastern Europe – which figure prominently in our growth rate projections through 2010. We want to be a leader across all the important local markets for our products.

What does that mean in terms of extending Basell's global asset base?
We are focusing our investments on opportunities that give us advantages in terms of feedstock, in places like Kazakhstan and North Africa as well as the Middle East. We took two major steps in this area recently.

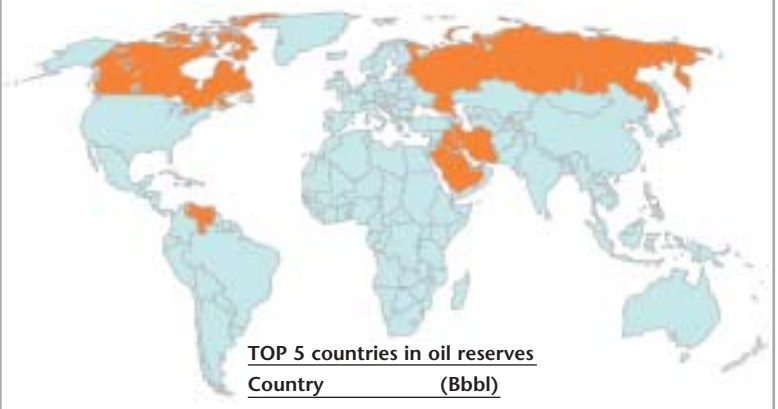
First, there was the announcement in March of a Memorandum of Understanding for a major petrochemical complex in Kazakhstan.

Secondly, in May Basell signed a joint venture agreement with Tasnee & Sahara Olefins Company for the construction of a new integrated ethylene and polyethylene complex at Al-Jubail Industrial City in the Kingdom of Saudi Arabia. The complex will include a gas cracker and two 400 KT per year polyethylene plants – one plant, based on Basell's latest generation *Hostalen* process, will produce high density polyethylene; the other plant, based on Basell's *Lupotech* T technology, will produce low density polyethylene.

It is obvious to us that our historical asset footprint has to evolve and that the long-standing assets we preserve must be competitive. Concurrently we are in the vanguard of new channels to market – including the successful launch of our *Alastian* online brand. Our company is also convinced that an efficient futures market in polyolefins and the development of a spot marker for plastics by the LME will be beneficial to the industry.

Despite new demand growth, the industry continues to suffer from cyclicality. Do you see this persisting?
Over the previous 20 years, the annual per capita demand growth of polyolefins has been about 0.6 kilograms per person. We predict this growth rate will accelerate marginally as the global middle class expands and disposable income grows. With the overlay of polyolefin capacity growth, however, one of the major causal factors of the cycles in our industry is given. Demand grows relatively steadily while polyolefin producers invest when the times are good. When assessing our changing environment, this deeply engrained cyclicality in our industry presents unique challenges and compounds the impact of the macro changes we are facing.

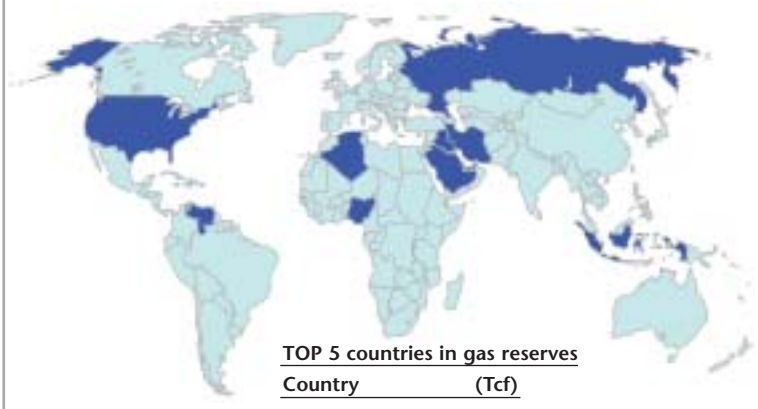
80% of the world's proven crude oil reserves* are held by 8 countries that account for only about 5% of the population.



TOP 5 countries in oil reserves

Country	(Bbbl)
1. Saudi Arabia	262
2. Canada	179 (including about 174 Bbbl of oil sands)
3. Iran	126
4. Iraq	115
5. Kuwait	102

While natural gas is more spread ... 11 countries hold 80% of the global reserves.



TOP 5 countries in gas reserves

Country	(Tcf)
1. Russia	1,680
2. Iran	940
3. Qatar	910
4. Saudi Arabia	235
5. UAE	212

* Source: Energy Information Administration (EIA); Estimation on 1 January 2005

Given the geographical displacement between supply and demand are we likely to be seeing an upsurge in polyolefins trade volumes?
The combination of demand growth in the highest population centers of the world and capacity growth in feedstock-rich areas will lead to an unparalleled physical movement of polyolefins inter-regionally. We predict an inter-regional movement of polyolefins in excess of 10 million tonnes per year by 2010.

The consequences of this go far beyond the opportunity for shipping companies. It will impact the very nature of the products/grades produced and our customers' decisions on what to purchase from whom. It will impact how our customers choose and are able to compete in their markets, and how polyolefins compete with other materials in the wider battle for intermaterial pre-eminence.

What will the consequences of increased global trade be for the industry in regional terms?
Our view on a regional basis is that Europe will need to adjust to remain competitive, the Americas will largely be self contained but subject to globalizing cost pressures, Japan will re-structure toward niche activities, while China and India drive the demand growth and the Middle East drives the capacity growth.

Could the China demand bubble burst?
Well, we need to keep in mind that China's appetite for polyolefin imports may be peaking. Local production of polyethylene and polypropylene in China is on the upswing, and this "home produced" capacity will put a ceiling on imports.

So it may be wise to take a cautious and careful look at the medium to longer term view of China. Yes, there will be polyolefins demand growth in China, but the growth may not be as fast as many predict. And in the end, China may produce more polymer itself than has been factored into a lot of forecasts. China is not likely to be the bottomless pit that eliminates all supply-demand woes.

Given the dramatic external changes facing the industry, how will future success be secured?
Geographical presence will be increasingly essential, and we cannot ignore the dynamic of being competitive in the marketplace and at the same time present where there is an overwhelming cost advantage. A huge challenge will be ensuring that you have an efficient way to get your products from the cost-advantaged manufacturing location to the marketplace.

Also, we will continue to leverage Basell's technology advantage in polyolefins. An example of this was our decision to start licensing our *Metocene* PP technology, which is used in the production of polyolefins based on single-site catalyst systems. This is a highly versatile technology that extends the product range of conventional PP.

We may be relatively relaxed at the moment, but ahead of us is a further restructuring in our industry. There will be consolidations and closures. The best companies will survive and drive the restructuring process through a combination of deep pockets, customer focus, excellent cost management, execution, creativity and agility.

In recent years, Basell itself has been through major transformations. Do you think this has strengthened the company?
If you look at the historical roots of Basell, you will see that it is a company that is the result of a series of mergers involving many different and successful companies. In each of these mergers, partners brought unique strengths to the alliance to create a more effective innovator, producer and marketer of polyolefins. The various partners also brought with them many different cultures – and that diversity remains a primary strength of our company. As an example, there are six different nationalities represented on our 12-person management team.

We all live in a time of great change – be it social, climatic, economic or in our business environment. And Basell and our industry are not immune to the effects of the many changes in the world around us. I am convinced we have a corporate and individual responsibility to understand and adapt our behaviors in accordance with these changes.

The importance of breathing

Increasing the permeability of packaging films can extend the shelf life of fresh foods – without micro-perforation.

"The challenge for many of our customers is to extend the shelf-life of salads and fresh vegetables up to five days," explained Johan Defoer, technical service manager for Basell Europe.

The problem is one of 'breathability'. Fresh food packaging needs to let oxygen in and CO_2 out. Films made from standard polypropylene homo and copolymers do not offer sufficient permeability to these gases and micro-perforation is often used to improve their breathability.

Film based on *Adflex* and *Softell* resins

"Our aim was to help customers build breathability into their film structure," continued Johan. "By incorporating Basell's *Adflex* and *Softell* advanced polyolefins into the film structure, either by blending or co-extrusion, the films show significantly higher permeability than standard polypropylene films."

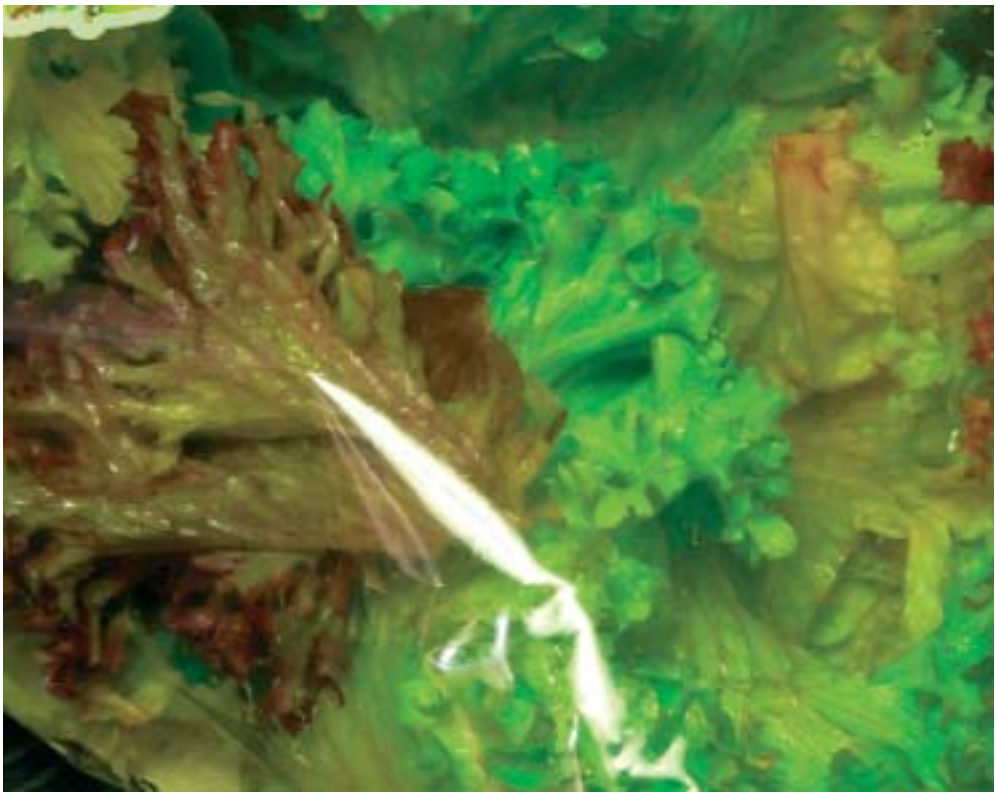
"For example, modifying a BOPP film with defined *Softell* grades more than doubles the residence time for oxygen in the package, while cutting build-up of CO_2 by half. That can represent a significant increase in the time the food stays fresh."

Tailored breathability

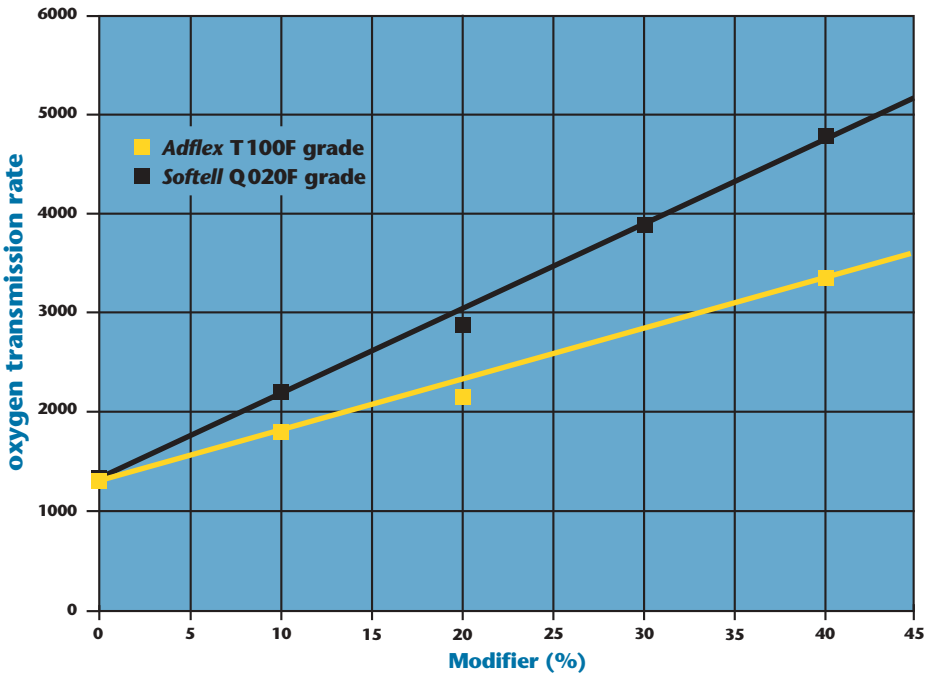
Different vegetables have differing metabolic rates and require different degrees of permeability to stay fresh. By varying the proportions of the film resins, the oxygen transmission rates (OTR) of the film can be tailored to the application requirements.

"We can produce BOPP films with different OTR values depending on the type of vegetables. These optimised OTR values represent a real step forward in fresh food management."

Adflex and *Softell* resins may be used to enhance permeability in BOPP, cast and blown film applications.



Oxygen transmission rate



Hostalen pipe grades stay drier

Improved resistance to water absorption means extended storage times for the *Hostalen* ACP resins used to manufacture pressure pipes.

Water absorption is rarely a problem with polyethylene resins since – like all polyolefins – these materials are naturally water-repellent.

Nevertheless, the use of carbon black can increase the tendency of polyethylene to absorb water. Carbon black is added to the resins used to manufacture pressure piping to provide UV resistance.

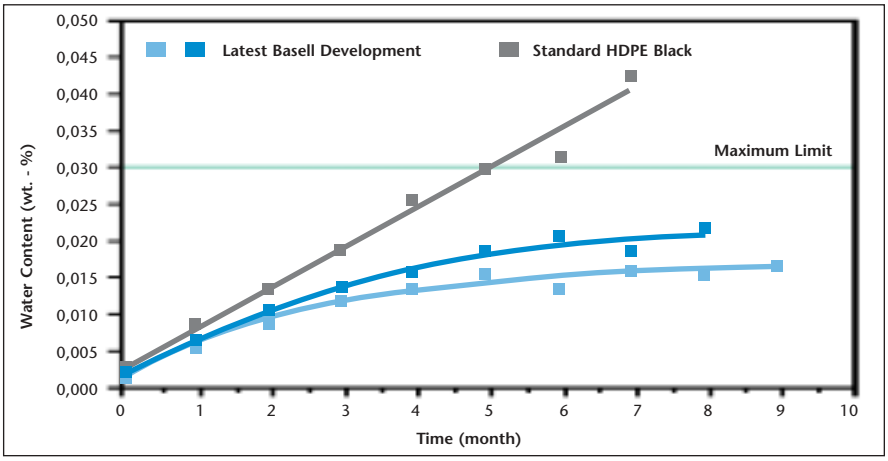
Care is needed with long-term storage of these materials to prevent their moisture content from rising above the 0.03% limit specified by international norms. Failure to do this risks the formation of bubbles in the melt during manufacture and holes or pockmarks in the finished pipes. With large-bore pipes this can occur even at moisture levels within the regulatory limit.

This tendency places limitations on the storage times and conditions for this kind of resins.

Recently, however, pressure piping manufacturers using resins from Basell's Wesseling plant in Germany have reported that by optimising the carbon black system a marked improvement in water absorption occurs.

The measured moisture content of *Hostalen* ACP grades for the manufacture of pressure pipes remained below 0.03% even after many months of storage.

Werner Rothhoeft, technical support, commented: "This is good news for pipe manufacturers. Not only does it extend the safe storage time for these resins in pellet form, it also reduces water absorption in the finished products, which can create problems when welding joints, for example."



Piping the world's water

Strong growth is expected in demand for pressure piping materials over the next few years, driven by the need to provide clean drinking water for the world's population.

This need was highlighted at the recent World Water Forum held in Mexico in March, that brought together 11,000 experts and government officials from 130 countries.

Currently over 1 billion people do not have access to clean drinking water. The UN's World Water Assessment Program aims to reduce this figure by half over the next ten years. It is estimated that extra investment in infrastructure of at least 10 billion dollars a year will be needed.

Conference highlights the success of *Purell* products in medical sector

A recent medical device conference provided a showcase for Basell's dedicated resins for use in the medical sector.

The increasing adoption in recent years of polyolefins for the manufacture of medical devices and pharmaceutical packaging has brought a number of benefits – including cost savings and improved performance with respect to traditional material and other polymer types.

At the same time it has presented manufacturers with a number of problems. Medical and pharmaceutical applications usually go through a fairly lengthy period of development followed by validation from regulatory bodies – a process that can take many years.

Long-term commitment

"When converters choose a raw material for an application, they need to look quite far ahead into the future," said Oliver Sperber, Basell's EU medical project leader. "They have to be sure, not only that the materials supplied satisfy regulatory requirements in terms of purity and compatibility, but they also need to know that the particular formulation will still be available from their supplier after validation and throughout the foreseeable lifetime of the product. This kind of very long-term commitment is uncommon in the polyolefin sector and in the past this has limited the adoption of polyolefins for use in medical applications."

Just over two years ago, Basell decided to address this issue by introducing a new family of resins and provided specific long-term support in combination with full technical service. Used for medical applications from syringes and inhalers to IV equipment and labware, the new resins met a very favourable response from medical device manufacturers, as well as from the pharmaceutical packaging sector.

The success of the *Purell* product family was highlighted at the recent conference, Successful Development of Medical Devices held at Herzogsaal, Regensburg in Germany. In his presentation, Polyolefins for the Development of Medical Devices and Pharmaceutical Packaging, Oliver Sperber emphasised Basell's commitment to meeting the special requirements of manufacturers and converters in the medical sector.

Outsourcing growth

"It was an excellent opportunity, not only to present our specialist portfolio but also to find out how the needs of the medical industry and their suppliers are evolving. For example, there is a growing trend among pharmaceutical companies towards outsourcing of their processes. Basell can help to maintain high standards of quality and reliability in this process by working closely with the medical manufacturer's converting contractor and supplier."

"In the future, this outsourcing is likely to see converting processes more and more moved to Eastern Europe, Middle East regions and Asia. Basell's global reach will allow it to continue to provide *Purell* medical grades, support and innovation to its customers' operations, wherever they may be transferred."

A more compatible solution

"Another topic that emerged during the conference was the need to find polyolefin replacements for other polymers, particularly those that have given rise to concerns about migration or where polyolefin pricing com-

bined with low density give a cost and weight advantage over other polymers."

"Basell's R&D effort continues to work on developing resins for these, as well as other applications for the medical field. Of course, we need to strike the right balance between maintaining continuity and introducing innovation – but I'm confident that the *Purell* portfolio has successfully met the needs of the medical and pharmaceutical industry and will do so even more in the future."

The *Purell* product family – serving the medical & pharmaceutical sectors

Purell grades are drawn from a range of polyolefin families, from PP and PE resins to the latest *Metocene* grades combining high clarity and excellent mechanical properties. The grade range for medical applications also includes supersoft materials such as *Adflex* and *Softell*.

Regulatory compliance

Purell grades normally meet the requirements of regulatory bodies in Europe and North America, including compliance with EP, USP and MDD standards.

Sterilisability

Most *Purell* grades are sterilisable using the normal range of techniques: autoclave, hot steam, Et2O, gamma, e-beam.

Support

Purell grades receive support from Basell in terms of continuity of supply and formulation for a designated period.

For more details

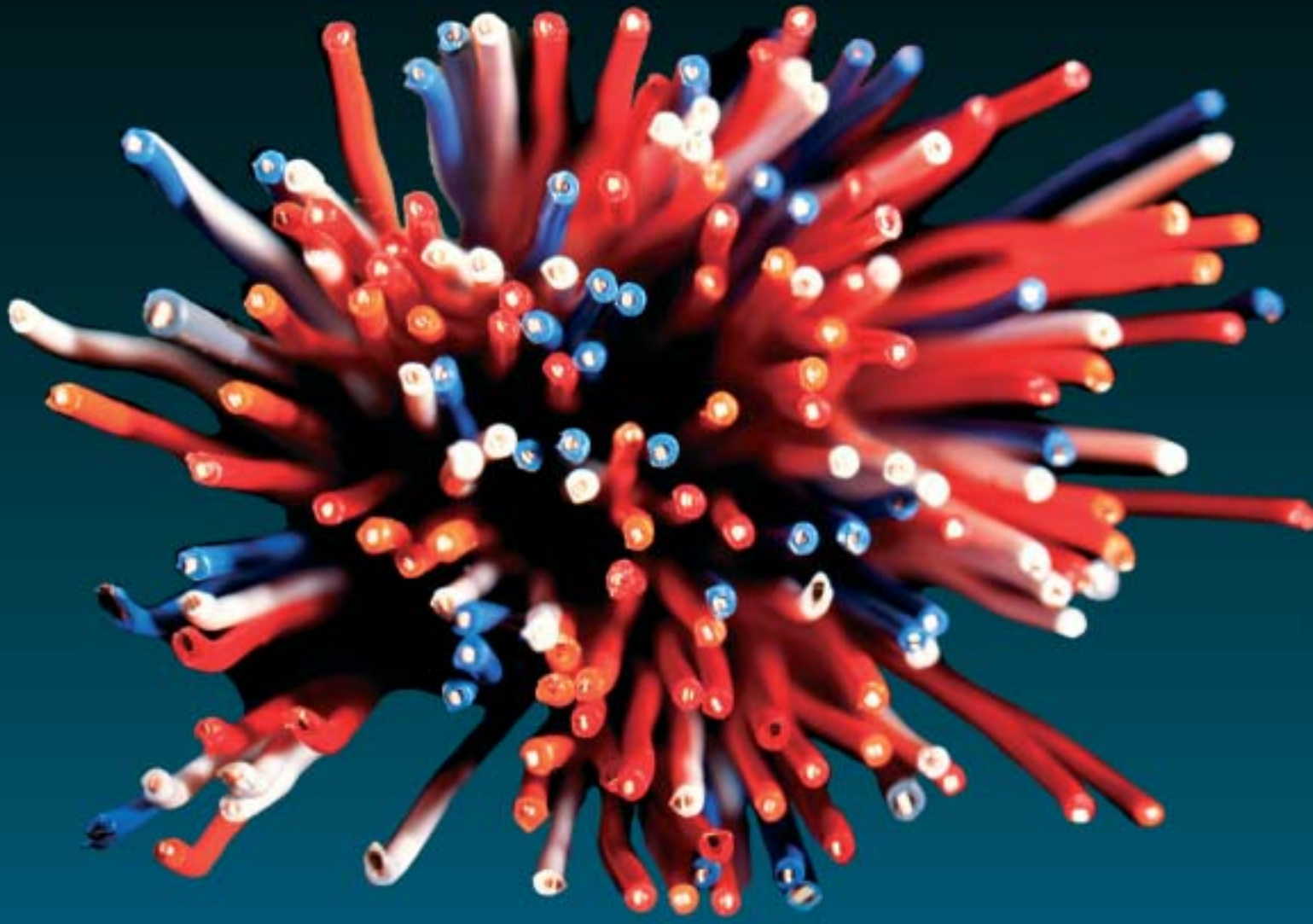
Download the brochure:

Purell Medical and Pharmaceutical Grades

from www.basell.com

New opportunities in wire & cable from supersoft resins

Combining high flexibility and thermo-mechanical properties, resins from Basell's *Catalloy* process have considerable potential in wire & cable applications.



"The wire & cable industry has been looking for an alternative to current insulating and jacketing materials for some time," said Rainer Schweda, Basell's *Catalloy* resins marketing manager.

"These new high-flexibility resins from our *Softell* and *Hifax* product families could well provide that alternative, as well as an answer to the concerns about the environmental and health and safety issues associated with conventional solutions."

"The key to their high flexibility is the high proportion of ethylene-propylene rubber that is incorporated during the reactor phase," Rainer continued. "These are reactor alloys, not blends, and they combine their flexibility – in particular elongation at break – with extremely good temperature resistance."

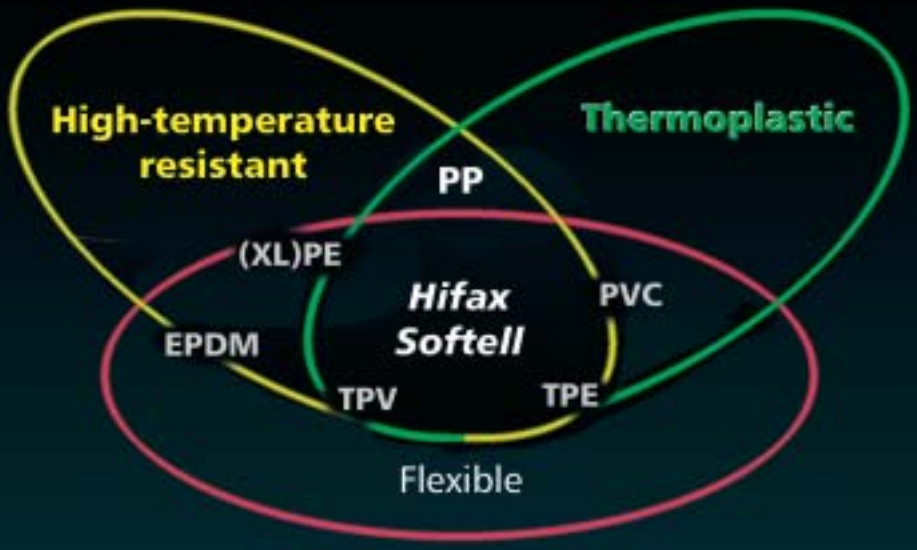
One of the most promising grades in this respect is the new *Hifax* CA1147A, which has a melting point of 163°C and a flexural modulus of less than 100 MPa.

Softell materials use an even higher proportion of E-P rubber to achieve a modulus as low as 20 MPa with a melting-point of 142°C.

Both product families have extremely good elongation at break, exceeding 500% in most cases. Their tensile strength is comparable to that of other cable materials.

An attractive alternative

"Being polyolefins, these grades have extremely good environmental profiles both during manufacture, as well as in use and disposal," said Umberto Credali, *Catalloy* market development manager for Asia Pacific. "That makes them attractive candidates for the replacement of other insulating materials with less favourable environmental credentials."



Valuable building blocks
Hifax and *Softell* grades may be used alone, in combination with each other, or as building blocks in compounded wire & cable applications.

A typical example would be low smoke and fume, zero halogen (LSF0H) low-voltage cables requiring elevated temperature performance.

Another example would be automotive cables needing to withstand continuous service temperatures of 125°C (class T3 cables), as well as meeting the requirements for low-temperature flexibility in that application.

Both product families can also play an important role in XL-PE applications as a softener, as they are very compatible with other polyolefins and are easy to handle during the extrusion process.

In low-shrinkage sheathing applications, the *Catalloy* resin component, which possesses a high proportion of amorphous rubber in combination with high filler loading, could provide excellent flexibility and very low shrinkage.

High filler capacity
These grades maintain their mechanical properties even in heavily filled formulations. User evaluations indicate that the addition of high levels of metal hydroxides, coupling agents and/or processing aids does not significantly reduce the excellent elongation at break typical of these product families.

"These grades have attracted considerable interest in the wire & cable segment," concluded Neil Gill, *Catalloy* resins customer project manager. "They received an extremely enthusiastic reception at the Cables 2006 conference in Germany in March. Currently the products are being evaluated by customers in Europe and for some applications they are already used in the production process."

Examples of LSFOH formulations

		Case A	Case B	Case C
Hifax CA 10A	phr	100	50	–
Softell CA 02A	phr	–	50	100
Process aid	phr	2	2	2
Coupling agent	phr	15	15	15
MDH	phr	240	240	240
AO	phr	2	2	2
Tensile Strength	MPa	14	11	8
Elong. at Break	%	> 200	> 300	> 400
Shore D	–	45	40	36

Key W&C properties

- ❒ high melting point
- ❒ very low flexural modulus
- ❒ relatively high tensile strength
- ❒ excellent elongation at break
- ❒ compatibility with different resins
- ❒ high filler loading capability

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Automotive – Basell optimises and innovates with Mavel resources

Basell is drawing on Mavel's vehicle analysis and benchmarking resources to identify best practices and new opportunities for its automotive customers.

One of the Basell teams during their visit to the Mavel centre. From left to right: Mathieu Lecomte, Michael Pohl, Franck Woellecke and Juergen Rohmann.

Design analysis of vehicles by entirely tearing them down

"Our analysis – which covered over 50 current vehicle models – will allow us to optimise existing solutions and propose entirely new directions for the use of polyolefins in automotive applications."

Alain Gourjault, Basell's automotive marketing manager, was speaking about a series of workshops for Basell programme managers held at the Mavel vehicle analysis centre in Lyon, France.

The Mavel centre

At the Mavel centre, commercial models are dismantled and their components analysed and measured to provide a valuable database of benchmarks for the automotive industry.

"We were aware for some time that Mavel could provide us with the resources to explore best practices in the use of plastics in auto manufacture, as well as identifying areas where polyolefins could replace steel and other materials."

In April of this year, Basell's programme managers visited the Mavel centre, divided into teams and conducted a detailed analysis of different manufacturers' approaches to component design and manufacture.

"It was a fantastic hands-on experience for our staff to compare and evaluate components across a wide range of models and manufacturers and see the best approaches that the industry has developed."

Replacement potential

"For example, weight-saving – to reduce fuel consumption – is an important concern for manufacturers at the moment. Replacing structural and semi-structural metal components with plastic is one way of reducing weight, as well as costs. We were able to identify several areas with good potential for this kind of replacement."

"Engineering applications like pedals and battery supports are good candidate applications for glass-fibre reinforced polypropylene. Polypropylene can also perform well in certain bodywork areas, such as hatchbacks and fenders, as the materials we supplied for the Citroën C2 have shown."

Truly innovative development

"For our customers in the automotive industry Basell has always been able to support new developments," Alain observed. "But this new initiative puts us in an even better position to cooperate with our customers based on the very best practice in the industry – as well as to indicate directions for truly innovative development and design."

Basell*Connect* – delivering 24/7 online services for Basell customers

Since its introduction over five years ago, Basell's main e-commerce facility has evolved into an indispensable tool to facilitate customer transactions.

"E-commerce accounts for nearly half our sales and may well overtake our conventional business in the near future," said Stefania Massenza, Basell's customer e-integration manager for Europe.

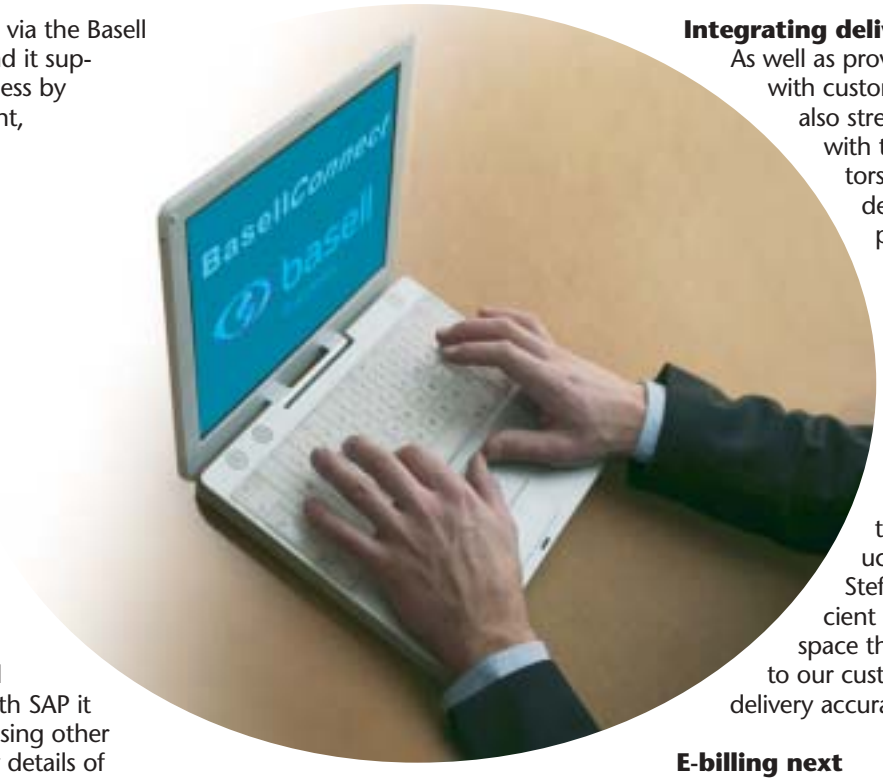
An e-tool

"Basell*Connect* is accessed via the Basell portal www.basell.com and it supports our traditional business by facilitating order placement, account status, quality documents and shipping information. Because it interfaces directly with our SAP system, we can provide each customer with a unique view of their relationship with Basell."

"Basell has a range of e-commerce activities aimed at different types of customers and markets. Basell*Connect* supports the largest volume of sales in our e-commerce activities and because of its interface with SAP it also supports customers using other e-commerce tools to view details of their account, order status, shipping details etc. These other tools include ERP to ERP, where our customers systems are linked to ours for frequent, complex transactions and we also offer VMI (Vendor-Managed Inventory) arrangements for a limited number of large bulk users."

One reason for the success of Basel*Connect* is that a simple internet connection is all that is required to provide 24/7 access to Basell.

The major reason however for the success of Basell*Connect* is because we put customers in control to place orders at any time of the day and night, allow them to check the status of existing orders to be tracked or changed. They can also use Basell*Connect* to view and manage their account and print out invoices, shipping and quality documents.



"The user interface with Basell*Connect* has evolved steadily over the years, in particular in response to direct feedback from customers and is now easy and efficient to use. For example, customers can place multiple orders for a single product, just by selecting delivery dates in a 'clickable calendar'."

Another successful use of e-commerce also accessed via www.basell.com is Basell*Marketplace* which is an on-line auction site for invited customers typically offering individual shipments.

The most recent success in e-commerce from Basell is an 'industry first, on-line business' called *Alastian*." The *Alastian* portal www.alastian.com offers a well-defined range of common grades at competitive prices to customers who are very knowledgeable about the resins they use.

Integrating delivery logistics

As well as providing an interface with customers, Basell*Connect* also streamlines relationships with the haulage contractors responsible for delivering the ordered products.

"Our hauliers can log on to the portal, see deliveries that have been assigned to them, confirm that they can carry them out and book a time slot to pick up the products at the plant," said Stefania. "It's a fast, efficient transparent workspace that will bring benefits to our customers by improving delivery accuracy."

E-billing next

The next step for Basell e-capabilities will be the addition of an e-billing facility. "The EU now allows the issuing of electronic invoices," said Stefania. "The requirements vary from country to country and we are looking carefully at how we can make this capability provide an efficient service to our customers."

"Basell*Connect* has proved extremely popular with our customers," she concluded. "They find it easy and convenient to use, 24/7, and its development is in direct response to our customers needs for efficiency and effectiveness. It's just one of the ways Basell is utilising the latest technologies to better support its customers."

ChinaPlas showcases Basell technology and marketing skills

The major Asian trade event highlighted Basell's role as a technological and commercial partner in this fast growing market.

Now in its twentieth year, this April's ChinaPlas trade show brought together nearly 60,000 industry professionals from over 29 countries.

For the second year running, Basell joined forces at the event with CSPC – a joint venture between Shell Petrochemicals and local partner CNOOC.

New polyolefin resources
CSPC, one of China's largest joint ventures with an overseas organisation, is the operator of a world-scale petrochemicals complex in Guangdong Province. The complex includes three polyolefin facilities using the latest Basell process technologies with a total capacity of 690 kt/a of polypropylene and polyethylene resins. The three plants came into operation at the beginning of the year.

A marketing partner
As well as supplying the process technologies for the plants, Basell is also handling

Meeting demand in emerging markets

Growing economies mean growing demand for polyolefins.

Basell's presence at trade events in Asia and Eastern Europe – in some cases for the first time – reflects the fast-expanding use of polyolefins in these markets in application areas ranging from packaging and consumer goods to textiles and automotive.

event	location	date	visitors
Plastics & Rubber	Jakarta, Indonesia	Dec 2005	20,000
Interplastica	Moscow, Russia	Dec 2005	25,000
Plast Eurasia	Istanbul, Turkey	Dec 2005	24,000
PlastIndia	New Delhi, India	Feb 2006	80,000+
Plast06	Milan, Italy	Feb 2006	66,000
Plastex	Kiev, Ukraine	Feb 2006	17,000

New polyolefin capacity in China:
Basell technologies at the CSPC complex

Lupotech G	HDPE and MDPE	200 kt/a
Lupotech T	LDPE and EVA copolymers	250 kt/a
Spheripol	PP – homopolymers, random and heterophasic copolymers	240 kt/a

the sales and marketing of CSPC's products during the pre-marketing phase and for an initial period following start-up.

"We have derived great value for CSPC, Basell and our customers in the successful pre-marketing phase," said Charles Ng, commercial director of CSPC.

"This cooperation will continue to form a strong synergy between CSPC's domestic production, and Basell's regional strengths in sales and marketing as well as its product and technology leadership."

"Together with CSPC we have built a formidable polyolefin resource that will meet rapidly growing demand in the Asian market," said Yves Bonte, Basell's senior vice-president for global supply and marketing.

A high level of interest

"ChinaPlas left us in no doubt of the level of interest here – the Basell stand was packed throughout the event and our staff were extremely busy with customer enquires."

NPE – focus on Performance, Productivity and Growth

Basell concentrated on three key customer targets at North America's largest plastics trade event.

At the Basell stand at this year's NPE (held in Chicago from June, 19th to the 23rd) the emphasis was on customer objectives and the role that Basell can play in achieving them.

A combination of multimedia displays, interactive terminals and focused presentations allowed visitors to explore the potential of Basell materials and support to impact their activities in each of three areas – performance, productivity and growth.

"These are the three dimensions of success for our customers in today's competitive markets," explained Don Drummond, Head of Sales and Customer Management.

"Our aim is to help them identify as clearly as possible the ways in which Basell can contribute to optimising their activities in each area."

The event also gave visitors a chance to evaluate Basell's new no-frills e-business channel Alastian, recently launched in North America, following its success in European markets.

CHINA

China plant obtains ISO quality certification

From left to right: Merry Jin, Doris Wu, Susan Zhou, Cathay Wang, Austin Wang, Kenneth Wang

Basell's first production plant on the Chinese mainland, situated at Suzhou, 80 km west of Shanghai, has received ISO/TS16949 quality certification following its first complete year of operations.

The Suzhou plant is a compounding facility making polypropylene-based compounded products (advanced polyolefins – APOs) mainly for use in the automotive and appliance sector.

The ISO certification provides an important indication of the quality and consistency of the plant's products and procedures for a customer base that includes manufacturers and OEMs from Germany, Japan, France, Korea and the United States.

In Europe, Basell's APO organization (manufacturing assets, commercial offices, sales and PAD) has once more passed the ISO/TS16949 audit campaign for the fourth successive year. The re-certification process confirms that the QM system in use in the plants has been effective in establishing lasting standards of excellence in working practice.

MEXICO

Spherizone process plant breaks ground in Mexico

Ceremonial shovels in hand, state and local dignitaries joined company representatives in breaking ground for the new 350 kt/a polypropylene plant using *Spherizone* technology now under construction at the Indelpro site in Altamira, Mexico. Held March 29, the groundbreaking event makes way for what will be one of the largest polypropylene plants in The Americas.

Already a major producer of polypropylene using Basell's licensed *Spheripol* process, Indelpro is a joint venture company owned by Basell and Alpek, the petrochemical unit of ALFA, itself the largest producer of petrochemicals in Mexico. Upon completion of the new *Spherizone* process plant, the Altamira facility will have a combined capacity of 590 kt/a.

New properties, new markets

The Basell-developed *Spherizone* process employs a multi-zone reactor design that can produce bi-modal products in a single reactor due to its ability to operate dual phases in continuously circulating systems. The result is a polymer with extremely uniform properties throughout the reactor and a product capability for a range of applications with enhanced performance properties such as impact/stiffness balance and clarity.

"The new plant strengthens our position in the most dynamic and demanding segments of the Mexican market," said Felipe Garza Medina, General Director, Indelpro. "Polypropylene is one of the highest growth thermoplastics in Mexico as well as the world. With our new *Spherizone* process plant, we will help our customers to meet the growing demand of such expanding markets as rigid packaging, film and consumer goods."

Indelpro – groundbreaking ceremony (from left to right): Juvenal Hernandez Llanos, Mayor of Altamira City, Angel Casan Marcos, Director of Human Resources & External Affairs, Grupo Alfa, Eugenio Hernandez Flores, Governor of Tamaulipas State, Felipe Garza Medina, General Director Indelpro, Normand Boudreault, Site Manager Basell

A major construction

The Altamira project based on the *Spherizone* technology is already underway. Steel is scheduled to be raised in August and start-up is planned for the first quarter of 2008. ICA Fluor is the leading contractor, backed by teams of Basell and Indelpro employees assigned full-time to the project. "My role is one of coordinating synergies and making sure that whatever we do doesn't impact personal and site safety or the existing production line – nor the project." said Normand Boudreault, site manager.

INTERNATIONAL

Basell begins licensing *Metocene* PP technology

Basell has started licensing its *Metocene* PP technology, which is used in the production of polypropylene based on single-site catalyst systems. *Metocene* PP technology can be applied for Basell as well as third party process technologies.

Metocene technology allows to extend the property range of conventional PP materials. Reported benefits include lower levels of extractables and xylene solubles, improved transparency and peroxide-free reactor grades. Higher processing speeds at reduced melt viscosities can also be achieved.

INDIA

Expansion plans for *Spheripol* and *Spherilene* process plants in India

Haldia Petrochemicals Limited has signed an agreement with Basell for expansion of its PE and PP plants located at Haldia in West Bengal, India. The expansion project, which will increase the capacity of each plant by approximately 50%, is expected to be completed in mid-2007.

SWEDEN

Swedish LDPE plant will use *Lupotech* T technology

Borealis AB has selected Basell's *Lupotech* T technology for a new 350 kt/a LDPE plant intended to be built at Stenungsund in Sweden. The new plant is expected to start production in 2009.

Borealis already operates two *Lupotech* T process plants in Austria, as well as five *Spheripol* process plants licensed by Basell and its predecessors with a combined annual capacity of over 1.2 million tonnes.

KAZAKHSTAN

Basell signs agreement for petrochemical complex in Kazakhstan

Kazakhstan's first integrated world-scale petrochemical complex is the subject of a Memorandum of Understanding signed by Basell, KazMunayGaz and SAT.

The planned petrochemical complex includes a world-scale ethane cracker and polyethylene facilities, as well as a propane dehydrogenation unit and polypropylene facilities.

The polypropylene and polyethylene units will use Basell's latest-generation process technologies together with advantaged feedstocks, making manufacturing costs among the lowest in the industry.

In addition to providing technology and sales and marketing services, Basell intends to participate directly as a shareholder in the project.

Start-up is planned for 2010.

NORTH AMERICA

Basell acquires catalyst business in North America

Basell has significantly expanded its global catalyst production capacity through the purchase of Akzo Nobel's polymerization catalysts & components business in the USA.

The acquired facilities, located in Edison, New Jersey, have sufficient capacity to supply catalysts for the annual production of over 10 million tonnes of polyolefins, making them an important part of Basell's catalyst supply chain. They will improve service and supply flexibility to Basell's large customer base in North America.

The Edison site includes assets for the production of Basell's Avant catalysts as well as other polyolefin catalyst systems.

RUSSIA

Basell opens for business in Russia

From left to right: Olga Malyuk, Nikolay Varaksin, Svetlana Sosina

A new office in Moscow will serve Basell's growing customer base in the Russian market. "We've seen a sevenfold increase in our sales to the Russian market over the last year and we expect to double that again in the next twelve months."

Georges Barbey, Basell's senior Vice president, Central and Eastern Europe, explained that the main reason to open an office in Moscow was to be able to better coordinate and support sales, for the growing number of customers in Russia.

Basell has been supplying polyolefins to the Russian market for several years. Main application areas include BOPP film, batteries, and injection and blow moulding products.

"The time was right to begin direct distribution of Basell products in Russia, and the new Moscow office will allow us to get closer to new and existing customers." Many of the polyolefins supplied to Russian customers will be sourced from the new plants of Basell's joint-venture company BOP at Plock in Poland. BOP has greatly expanded its facilities at Plock with the opening of a 320 kt/a HDPE plant using Basell's *Hostalen* technology and a 400 kt/a PP plant using the *Spheripol* process.

Advanced materials for the auto sector

The new office will also provide a basis for meeting future demand from Russia's fast growing automotive sector. "Russian manufacturers are rapidly increasing the plastics content in their new models," commented Georges. "Plastic fuel tanks, for example, are a recent development. At the same time more and more global car makers are starting manufacturing operations in Russia. This will create a demand for the kind of advanced polyolefin materials that Basell supplies for their models produced in other markets."

"Our new presence in the Russian market means that we will be very well-placed to satisfy requirements for more evolved polyolefin materials that are not currently available locally."

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SAUDI ARABIA

Hostalen and *Lupotech* G technology for new plants in Saudi Arabia

Project Management and Development Company Ltd. (PMD) has selected Basell technologies for two new polyethylene plants in Saudi Arabia.

Hostalen technology will be used in a high density PE plant with an annual capacity of 400 kt and *Lupotech* G technology will be used in a medium density/high density PE plant with an annual capacity of 300 kt.

PMD has already adopted Basell process technology for two new *Spheripol* PP process plants with a total annual capacity of 640 kt and a new 270 kt *Lupotech* T LDPE and EVA copolymer plant.

All five plants will be part of a new petrochemical complex in the industrial city of Al Jubail. Start-up is scheduled for 2009.

INTERNATIONAL

Basell lists grades on LME

The London Metal Exchange has recently introduced a polypropylene futures contract with Basell involvement.

In a move that could reduce physical volatility in polyolefin resins and establish a transactional market price marker, the London Metal Exchange has recently introduced a plastics contract allowing polymer manufacturers and users to trade in futures in PP and PE resins.

Participants are able to offer and bid for quantities of standard grades at an agreed price for delivery on an agreed upon future date.

Basell has agreed to take part in the scheme by initially listing two polypropylene grades (*Moplen* HP 500 N and *Alastian* HP PP 12-1).

"This should introduce greater stability into what has been a highly volatile market in recent times," commented Ian Elway, Basell's Operational LME Team leader. "Companies can use a futures contract to hedge against unfavourable changes in raw materials prices. In time the LME price could develop as a basis for negotiating prices for future delivery."

"As one of the major world producers of polyolefins, Basell feels responsible to pursue options which might have benefits for the entire polyolefins value chain," concluded Ian.

Delivering polyolefins for a better future

Basell is a leading producer of polypropylene and advanced polyolefins products, a leading supplier of polyethylene and catalysts, and a global leader in the development and licensing of polypropylene and polyethylene processes.

The Basell technological heritage dates back to the beginning of the polyolefins industry and continues with systematic innovation both through improvements of its processes and a continuous extension of the properties of its polyolefins portfolio.

Together with its joint ventures, Basell has manufacturing facilities around the world and sells products in more than 120 countries.

Basell creates value for medical manufacturers and consumers with products that help to provide a better future.

Visit the Basell website at **www.basell.com**

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