

# Dimensions

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**Going global  
in caps  
and closures**  
| Page 8



## Automotive

Volkswagen  
Tiguan mounts PP  
front end

**Page 11**



## Pipe coating

New-generation  
adhesive used in PE  
pipe coatings

**Page 12**



## Editorial

Adding value is essential 3

---

## Focus

Mission: meet or exceed customer expectations 4

---

## Developments & Applications



*Alastian* channel targets Asia after central Europe 6

Going global in caps and closures 8

New PE-RT pipe grade meets long-term standards 10

Volkswagen Tiguan mounts PP front end 11

New-generation adhesive used in PE pipe coatings 12

*Hostalen ACP* resins: stiffer, tougher and thinner 14

PE resins fuel success in China 15

---

## Events



Dynamic global growth predicted for pipes 16

Wesseling hosts CSE customer visit 16

Distributor briefing is key to adding value 17

LyondellBasell launches Russian scholarship fund 18

---

## News



Technology News 18

High Performance compounds from new plant in Mexico 19

Bottles downgauge with *Hostalen ACP* grade 19

# Adding value is essential

Delivering the right product at the right time is critical



Mark Mendelson, Head of Business Communications

In today's volatile global business climate, delivering the right product at the right time is critical. But that's only part of the solution. Ultimately, a commitment to providing valued products, using the best technologies with efficient and effective services, is required.

In our Focus article, Business Services head Mike Mulrooney reflects on the importance of addressing customer expectations in all we do. With rising energy costs and an economic slowdown, implementing internal cost reductions and offering differentiated, high value products is a necessity. Understanding and responding to local market conditions, while leveraging our global network of resources, is what distinguishes us in the industry.

As you read through this issue, you'll discover how LyondellBasell provides customers with important competitive advantages.

For example, LyondellBasell's innovative *Hostacom* reinforced polypropylene helped Volkswagen achieve improved mechanical properties and replace traditional materials for the front end application of its new Tiguan model, enabling the auto maker to reduce costs and add value.

And in underfloor heating and plumbing applications, a new-generation *Hostalen* raised-temperature polyethylene offered both long term performance at higher temperatures and improved processability. In caps and closures, we are now well-positioned to deliver grades on a global basis to a consistent set of specifications, no matter where in the world our customers are located – which ultimately results in streamlined product development and economies of scale.

With these advancements in hand, our goal is to continue to offer you the tools you need to succeed during these difficult times. As always, thank you for your business – and for allowing LyondellBasell to be your supplier of innovative products and services.

We would like to extend a thank you to the **Dimensions** readers who participated in our recent questionnaire.

Readers told us they appreciated the magazine's interesting, easy-to-read content as well as the attractive format and design. Product and application development articles, as well as management interviews, scored the highest. Your valuable feedback will be taken into account for future editions. More focus will be placed on "Products and Applications" in response to your needs.

A stylized, handwritten signature in black ink, appearing to read 'Mark Mendelson'.

Mark Mendelson



# Mission: meet or exceed customer expectations

Earlier this year, LyondellBasell's Polymers Division created a new Global Business Services organization. Heading the new group is Divisional Senior Vice President, Mike Mulrooney. Dimensions asked him about the roles and goals of his organization in enhancing services to customers.

## What's the role and structure of your Global Business Services organization?

Business Services provides support for all of our Polymers customers from all four business units – PP, PE, POS and APO. Although we're still shaping the organization, worldwide we currently have around 340 people operating from more than a dozen different commercial offices, in addition to our manufacturing locations. The term 'Business Services' has a dual purpose: It's the overall name for our group, but it also denominates our four sub-groups: Business Services, Quality Management, Marketing Services and Business Communications.

Our teams are organized regionally – North America, Europe and International – to mirror the business unit organizations. They work closely with our customers to smoothly execute orders and delivery of products. Their objective is to ensure every customer receives the right product, with the right quality, at the agreed time. They manage local customer service groups and complex transportation systems.

Currently, we are serving over 10,000 customers in more than 100 countries worldwide and shipping about 12 million tonnes of product a year via rail, road and sea. Our job is to coordinate and manage these activities both globally and regionally.

## Do you have a 'mission'?

Our 'mission' or goal is to meet or exceed customer expectations for order fulfillment, quality management and other service functions as agreed with the business units. To achieve this, we strive for: superior

performance, continuous learning, teamwork and close cooperation among the business units, service functions and the customer.

## Would you outline your key areas of activity?

Business Services teams are responsible for everything from order through delivery. Their objective is to ensure every customer receives the product and service we promise. They manage local customer service groups and complex transportation systems. Overall, our annual transportation bill is over \$1 billion.

In North America, transportation is mostly via a fleet of over 10,000 railcars, while in Europe most transport is via truck – we load 1,000 a day. Internationally, we are shipping product, mostly by container, throughout the world. Each presents its own set of challenges.

Quality Management is focused on our products and services and differs from the corporate quality function, which focuses on the plants and systems. In Polymers, we use quality as a way to differentiate ourselves from the competition. In those rare occasions when the customer is not completely satisfied with our product's quality or our service, the Quality Management team works with the customer and the business units to track and resolve complaints. It's worth noting that Quality Management issues are reviewed regularly by Polymers' senior leadership team. In fact, after safety, it's always a high priority on the agenda, even before business results.

The Marketing Services group provides industry analysis to the business units

so they have access to important and useful information to aid their decision-making process.

Business Communications helps the business units publicize the uniqueness of their products and services through a range of media including product literature, press releases and other customer communications, such as this magazine.

### **What are the big challenges you are facing and how are you responding?**

Different regions have different challenges, but everyone – LyondellBasell, our customers and our suppliers – is grappling with the impact of rising energy costs and the global economic slowdown.

Coupled with increased industry capacity, these will put pressure on margins. To be successful, we need to extract value from both ends by reducing costs and offering differentiated, high-value products. The Business Services group can help manage costs and also add value through best-in-class service.

In Europe, we face transportation pressures ranging from haulier strikes to driver shortages. Previously, many drivers came from Eastern Europe, but as their home economies have boomed, many now prefer to stay and work domestically. These are issues we're working through with our customers.

Internationally, which is where we are seeing most growth, particularly in Asia, the challenge is managing the large distances between customer and supply source. We're introducing new systems to track container shipments on a 24/7 basis and locate supplies nearer to the customer so we can be more responsive to their needs and mitigate transportation issues.

With the expansion of capacity in the Middle East – including our own joint ventures in Saudi Arabia – we are experiencing dramatic shifts in global trade flows. Regions like Europe, that were historically large exporters, are now importing more than they export.

In response to increased volumes from our Middle East assets to Asian markets, we are redesigning our organization, setting up a new regional office in Dubai and expanding customer service centers in India, China and other Asian countries. In addition, we have implemented a new team in Hong Kong to manage

deep sea transportation operations. In China, we have multiple offices – including Shanghai, Guangzhou, Beijing and Hong Kong – which allow us to differentiate our service offerings when we have the necessary critical mass of unique customer requirements.

### **Is there a conflict between centralization to achieve economies of scale and the need for decentralization to meet the needs of individual customers?**

Our organization was designed, and continues to evolve, in a practical way to find the right balance between efficiency and quality of service. Today we combine elements of both a centralized and decentralized organization structure. For example, all four of the Polymers Business Units are managed by a single Customer Service organization, but Customer Service teams are individually organized to support unique customer segments. Local offices operate in key markets where it is important to do business in the local language. Some teams are organized around individual product lines that require different types or special levels of service.

In North America we have established a centralized structure to serve both polyethylene and polypropylene customers from a single location, while in Europe we operate Customer Service offices in multiple countries to be able to do business whenever possible in the local language. Our new representative offices that opened in Bratislava, Prague, Bucharest, Warsaw and Budapest are a good example.

We have a very diverse range of customers in terms of geographic scope, product requirements and applications. So the needs of customers in China might be different from those in the US. But even within markets we see differences. In the US, the needs of a commodity customer are different from the needs of an advanced polyolefin (APO) customer. For that reason, in commodities we can do many things on a centralized basis. But in the case of APO applications, we often need people sit-

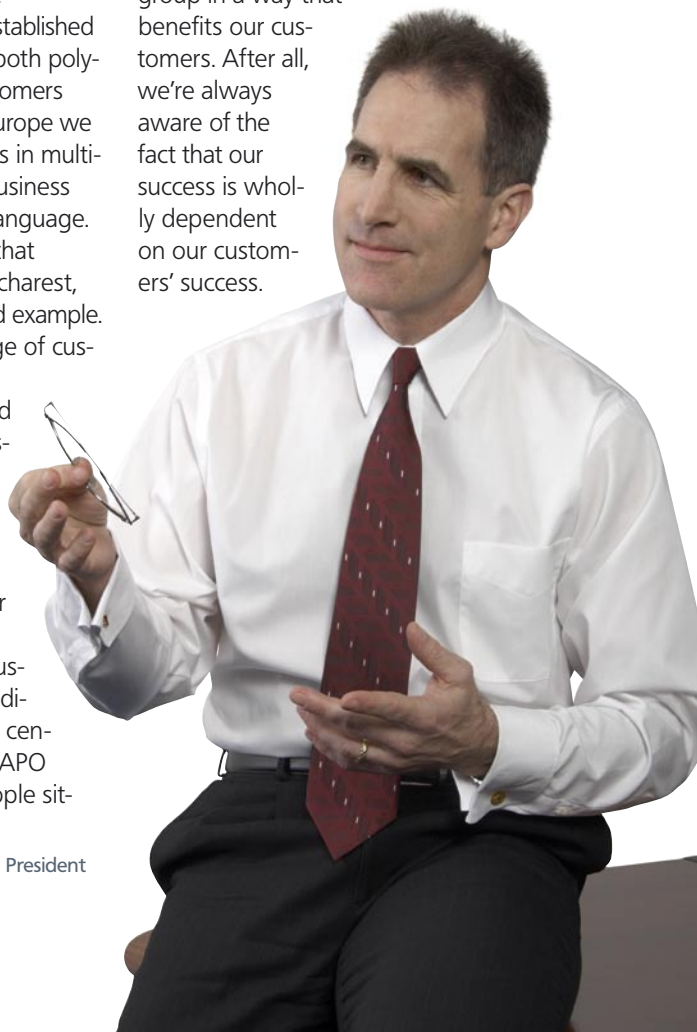
ting very close to the customer, as is the case with the automotive industry.

That's why we maintain an office in Lansing, Michigan. It may not seem to be the most efficient use of resources for us, but some customers may require, and be willing to pay, for higher levels of service. If it's something they value and we both benefit from, then we'll make those services available.

### **How would you describe Global Business Services on a postcard?**

We are a customer-focused organization, designed to serve the customer, to meet and exceed their needs within the guidance and direction of our business units. We've built in flexibility, so we can adapt to changing markets and the developing needs of our customers, while at the same time benefiting from our position as the world's largest polyolefins producer.

LyondellBasell's size, geographic scope and the diversity of our products and customers means we are uniquely positioned with a wealth of experience. We can share learnings and best practices across the whole of the Business Services group in a way that benefits our customers. After all, we're always aware of the fact that our success is wholly dependent on our customers' success.



Mike Mulrooney, Divisional Senior Vice President Business Services

# Alastian channel targets Asia after central Europe

LyondellBasell's no-frills online business channel prepares to launch in Asia while continuing to extend its customer base in the countries of central and south-eastern Europe.

After our success in western Europe we're continuing to roll out the *Alastian* operation into central and south-eastern Europe, from the Czech Republic down to the former Yugoslavia," said Just In't Velt, Head of *Alastian* Business Development and Marketing. "At the same time we're getting geared up for what will be a real quantum leap in *Alastian's* global operations – the launch in Asia at the end of the year."

Nick Stoydin, LyondellBasell's Commercial Director for the CSE Region, commented: "The CSE countries are markets with

## What is *Alastian*?

The *Alastian* online business channel offers users of PE and PP resins a new way of purchasing raw materials. It offers a portfolio of about 60 grades. Service is 'unbundled' from the extras included in conventional polyolefin purchasing models.

At *Alastian's* online portal ([www.alastian.com](http://www.alastian.com)) customers check prices, place orders and track deliveries at any time of the day and night.

Now in its fourth year of operations, *Alastian* has a large customer base among experienced users of polyolefin resins in western Europe and North America and has recently extended its operations to the countries of central and south-eastern Europe.



*Alastian* Roadshow in Prague

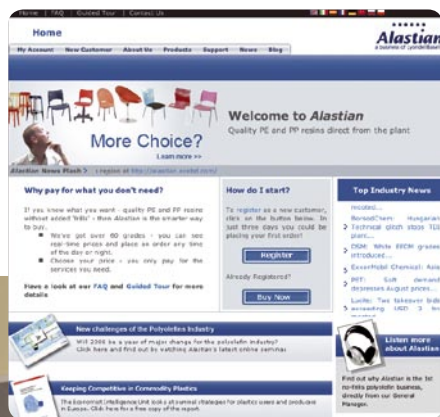
significant potential. Polyolefin use is growing at double-digit rates in most of these countries – but they do require a more customized approach."

## On the road

"Customers in CSE countries are now able to register and place orders in any one of eight languages," said In't Velt. "In fact, we have been astonished by the enormous number of enquiries by interested customers in this region, which often lead to registrations. But we've noticed

that in these markets where e-commerce isn't so established, people like to meet face-to-face when setting up a business relationship."

The *Alastian* organization has responded by organizing a series of 'roadshows' in regional capitals. The



"An exciting result of our efforts so far is the first LyondellBasell *Alastian* sale to a customer in Uzbekistan that took place in September," said In't Velt.

### The challenge in Asia

The next important step for *Alastian* is the preparation for the launch into Asian markets, scheduled for the end of 2008.

"We're planning to open *Alastian* for business in November in China, Hong Kong, Vietnam and India," said Fulco van Geuns, LyondellBasell's E-commerce Manager for Asia. "It's a highly complex operation to ensure that all e-aspects



*Alastian* sales team presents the business model to an invited audience of local customers and shows how the ordering system works.

"Once they see that there are real people and a serious organization behind the Web portal, they are much happier about doing business online," said In't Velt. So far the *Alastian* team has visited Prague, Belgrade and Budapest, as well as Bucharest and Cluj in Romania. During October the roadshow will stop at Bratislava, Zagreb and Kiev.

required to serve such a large region are in place." Filip van de Vliet, *Alastian* General Manager, commented: "This will be a significant step on the way to making *Alastian* a truly global operation."

As always, we will be offering competitive prices by supplying customers from the most strategically located production sites. *Alastian's* online customer registration and unique ordering interface will allow customers to buy resins conveniently from LyondellBasell."

### New PP & PE grades for *Alastian* customers

Six new advanced polypropylene grades are to be added to the *Alastian* portfolio. "The new additions to the grade slate represent a major opportunity for our customers," explained Filip Van de Vliet, General Manager of *Alastian*. "These are advanced PP resins offering specialized performance in areas like Thin Wall Injection Molding (TWIM), thermoforming and Caps and Closures."

### Online from October

"The new grades can be ordered from October onwards," said Van de Vliet. "We've highlighted two of them below because they are of particular interest to producers of specialized TWIM packaging. I'm delighted to be able to add these resins to our offering," he concluded. "It means our customers can enjoy the best of both worlds – high-value materials from the LyondellBasell portfolio combined with *Alastian* savings and convenience."

### Transparency in TWIM

The new grades are high-value PP co-polymers. They offer extended performance along parameters such as flowability, transparency and low-temperature impact resistance – making them widely used in advanced packaging applications.

### Two examples of the new grades that will be available:

#### *Moplen* RP348T AT PP RP48-1

High-clarity TWIM. A random copolymer with an MFR of 48. Excellent transparency and flowability indicate use in TWIM packaging with marked product display performance.

#### *Moplen* EP240P AT PP EP15-3

Low-temperature TWIM. A nucleated heco grade with an MFR of 15. Excellent low-temperature impact resistance and good flowability. Main customer applications are ice cream packs and freezer containers.



# Going global in caps and closures

LyondellBasell's new Caps and Closures organization can now deliver dedicated product, commercial, and technical support in Europe, the Americas, Asia Pacific and AFMEI.



Transparent caps produced using LyondellBasell's random copolymer



"LyondellBasell now has a unique offer for customers in the global caps and closures market," said Jon Shelton from LyondellBasell's Caps and Closures team.

"We're the only supplier in this market to have first-class polyethylene and polypropylene assets in all three regions – Europe, the Americas and Asia Pacific/AFMEI – plus a new service and support organization that is integrated at a worldwide level."

#### **New assets**

The recent integration of the Lyondell and Basell organizations has brought important polyethylene assets into the

portfolio of polymers used in caps and closures applications, especially in North America. It has been followed by a radical reorganization of the sales and service network to meet the growing needs of converters and end users in the sector. "We've appointed Market Managers to head up specialized sales teams in each region," said Shelton (see box). "At the same time we have created technical support teams in all three regions that will concentrate solely on caps and closure customers, and give them technical support that is specifically focused on that application area."



PE closures – ACP HDPE

### An integrated network

“There are two important developments driving the change in the C&C organization,” commented Shelton. “One is the increasing technical demand being made on material used in both one-piece closures and downgauging. The combination of these two factors means we are facing a tough global technical challenge that we believe we are now well-placed to address.

Our North America assets, plus other PE facilities coming on stream in the Middle East will allow us to meet that demand. We already had a strong global

PP asset base, but these latest developments give us the potential to deliver a truly global portfolio.”

“The other is the tendency for new products to be developed collaboratively among teams in different parts of the world. A new closure may be designed in Europe, with the tool developed in North America for a manufacturing operation in Asia.”

“In each location, the staff involved in the project can talk to a member of the same global LyondellBasell Caps and Closures team. That’s something which can streamline product development significantly.”

Availability of identical or comparable products in different regions is another advantage for customer organizations operating at a worldwide level – it means being able to specify the same material at different manufacturing sites. Also, staff moving between regions can find materials they are familiar with at other sites.

“We’re very excited by the new global organization,” said Shelton. “I believe it will allow us to contribute to the productivity and efficiency of our worldwide customers to an unprecedented degree.”

### Caps and Closures: LyondellBasell Market Managers

#### Europe

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\* AFMEI= Africa, Middle East and India



# New PE-RT pipe grade meets long-term standards

LyondellBasell's new-generation HDPE grade used in underfloor heating has fulfilled ISO 24033, Type II requirements.

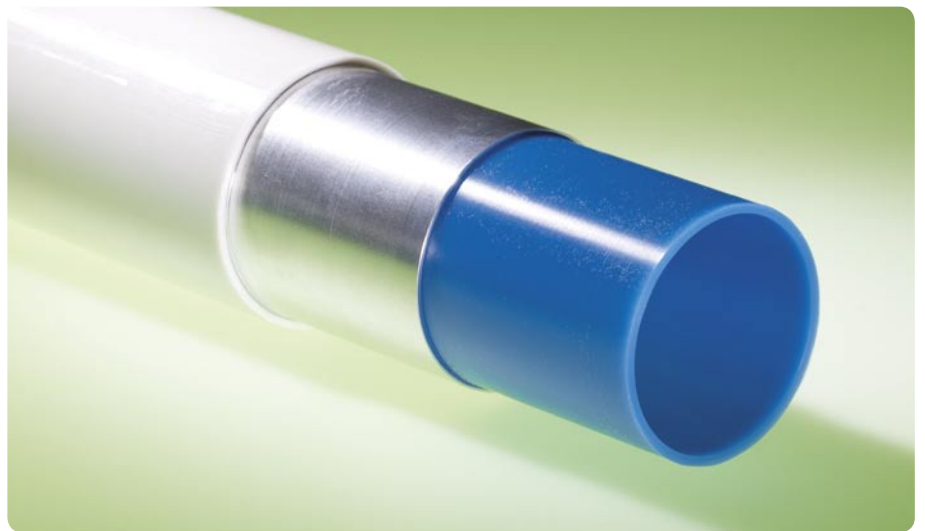
## ACP technology – Extending performance in HDPE

LyondellBasell's ACP (Advanced Cascade Process) technology uses a series of independent reactors to create materials with unique combinations of properties.

Multimodal resins produced using the *Hostalen* ACP process offer a combination of mechanical product properties and processing behavior not achievable with conventional HDPE materials.

ACP technology enables producers to address an extended range of market requirements, ranging from thin-wall packaging to needs for higher crack resistance in pipe applications.

Since they were first introduced around twenty-five years ago, Raised-Temperature Polyethylene Resins (PE-RT) have been selected for multi-layer heating and



*Hostalen* 4731B satisfies ISO 24033, Type II standards

plumbing pipes and underfloor heating systems. The ability to withstand a designed stress level over several decades at elevated temperatures is critical to their performance.

*Hostalen* 4731B is a new-generation PE-RT resin, produced using LyondellBasell's Advanced Cascade Process (see box). The new grade promised high levels of performance for these applications and this was confirmed by the results of tests recently carried out at the Bodycote materials testing institute in Sweden.

Conducted according to ISO 9080 standards, the tests simulated a 50-year service life at temperatures of 70°C. The results confirmed the material's excellent hydrostatic strength under such conditions and, in particular, its resistance to stress cracking. "These results demonstrate that *Hostalen* 4731B resins can deliv-

er excellent long-term performance in underfloor heating systems when used in the manufacture of solid-wall pipes or as the PE component of metal composite pipe," said Dr. Holger Bruening, Application Development & Technical Service Manager of LyondellBasell. "It now satisfies ISO 24033 Type II. This includes the requirements for the application classes 1, 2, 4 and 5 according to ISO 10508."

"Another important feature is its processability – it can be run at high speed on the latest extrusion lines. Last but not least, the pipe made out of *Hostalen* 4731B resins is flexible to allow fast installation on site."

After initial adoption by customers in Europe, *Hostalen* 4731B has been commercialized in Asia Pacific markets and is now available worldwide, with the exception of North America.

# Volkswagen Tiguan mounts PP front end

An innovative short glass fiber reinforced polypropylene delivers outstanding mechanical performance in the new Volkswagen SUV.



*Hostacom G3 R05 PP used by customers in front end applications*

Among the many innovative features of the VW new compact SUV is the use of glass fiber reinforced polypropylene for a major structural component.

"It is one of the first times a short glass fiber reinforced PP has been selected for an automotive front end application – historically this is the domain of conventional metal or other engineering plastics," said Erik Licht, LyondellBasell's Global Marketing Manager for the VW group.

The front end module is a large molding, situated behind the radiator grill, which supports the grill and houses the headlights and other components.



New Volkswagen Tiguan model

## Shock and vibrations

High temperatures, shock and vibrations are features of the underhood environment, making the specification for the module quite demanding. Impact resistance, dimensional stability, stiffness and heat resistance are vital for any raw material used in this area.

"VW was looking for a material that combined a high level of stiffness and impact resistance with outstanding cost/performance balance," said Licht.

"By optimizing the polymer matrix and using an advanced additive package, we were able to create a grade – *Hostacom G3 R05 PP* – which combined greater impact resistance with unprecedented stiffness, achieving a flexural modulus of over 7000 MPa on test bars."

VW subjected the resin to a rigorous material testing regime, including long-term vibration fatigue tests and high-temperature exposure.

## Uniform fiber distribution

Another important characteristic of this new-generation GFR resin is the even distribution of the fibers within the resin matrix, resulting in uniform mechanical properties throughout the finished part.

In terms of processability, these advantages enable *HC G3 R05* to be used in complex injection molded parts with numerous ribs and edges. The size and complexity of the molding also required careful tool design and gating. Complementary mold-flow simulations carried out by LyondellBasell supported the tool design and the positioning of gates to be optimized, which resulted in excellent part quality in the finished component.

According to Licht: "This application marks a significant step forward in the use of advanced polyolefins in major structural components in automotive. The resins will also be used for the front end module of the soon-to-be launched new Golf."

# New-generation adhesive used in PE pipe coatings

A new adhesive resin enhances performance and processability in three-layer HDPE coating applications.



Excellent adhesion provided by *Lucalen* G3710E, used by customers in 3LPE coatings for gas pipelines

A new adhesive resin has joined LyondellBasell's portfolio of products used in the rapidly-expanding pipe coating sector.

### Outstanding processing and protection performance

"The new *Lucalen* G3710E adhesive resin, specially tailored for use with *Lupolen* topcoat resins, is strengthening our established position as a full-systems' supplier of polyolefins used in anti-corrosion protection on steel pipelines for the transport of natural gas over long distances,"

said Piet Roose, LyondellBasell's Global Marketing Manager for Pipe Coatings.

In three-layer pipe coating systems, the HDPE top coat is bonded to the steel pipe via a layer of fusion bonded epoxy (FBE) resin and an intermediate adhesive tie layer. The purpose of the adhesive is to bind the epoxy layer to the top coat. Commercial pipe coating projects have shown that the new adhesive resin, *Lucalen* G3710E, provided excellent adhesion and peel strength on pipelines for gas transport with operating temperatures up to 85°C with approved epoxy resins.

The new adhesive also demonstrates ease of application with stable film extrusion and good melt strength across a wide processing window. The resin can be used in induction coil and flame heating systems. "Our *Lucalen G3710E* compares favorably to best-in-class competitive grafted adhesive PE resins," added Roose.

*Lucalen G3710E* resin is recognized by coaters as a user-friendly material to process, with proven functional adhesive performance to support the service life of coated steel pipelines.



handling and installation needs of pipe manufacturers."

### Implementing innovation

As the global leader in polyolefins technology, production and marketing, LyondellBasell is actively implementing its newly created catalysts, processes and products with expanded property profiles.

"*Lucalen G3710E* resin is an excellent example of how LyondellBasell's innova-

tion is specifically and rapidly responding to customer-driven requirements," said Roose. "In addition, our global business team of dedicated sales and technical managers in all regions ensured rapid market implementation by pipe coaters."

"A high focus on speed to targeted markets is obviously key to success," concluded Roose, "especially with new products."



### Swift market acceptance

"The pipe industry has experienced significant growth rates over the recent past. We are demonstrating our strategic commitment to the industry by offering an improved and complete coating package," commented Hans Videler, LyondellBasell's Global Business Manager for Pipe Coatings.

"The swift market acceptance and rapid business development of *Lucalen G3710E* resin in these highly demanding coating applications proves that our total package approach meets the operational,

Material	Grades	Typical Properties
PE Adhesive	<i>Lucalen G3710E</i>	Excellent adhesion Superior peeling strength Very low water absorption Good extrudability Low MA content
HDPE Top-coat	<i>Lupolen 4552D SW00413</i>	High impact strength Excellent stress-cracking resistance High resistance to ageing & weathering Low water & oxygen permeability Excellent processability
PP Adhesive	<i>Hifax EP2 015/60</i> <i>Hifax EPR 60/BIANCO</i>	Excellent adhesion Good extrudability
PP Top-Coat	<i>Moplen Coat EP/60 BIANCO</i> <i>Moplen Coat EPR/60 BIANCO</i>	Good impact strength Excellent stress-cracking resistance High resistance to ageing & weathering Low water & oxygen permeability Good processability

# Hostalen ACP resins: stiffer, tougher and thinner

Combining stiffness and environmental stress-cracking resistance (ESCR), multimodal HDPE resins enable wall-thickness reductions of up to 6% in large blow molded containers.



Blow molded containers with significant wall-thickness reduction

"We've overcome the trade off between stiffness and stress-cracking resistance in HDPE resins by using multimodal materials from the Advanced Cascade Process (ACP)" said Matthias Stechhan, LyondellBasell's Business Manager for Industrial Packaging. "Customers are finding they are able to reduce wall thickness by up to 6% in large canisters and jerry cans, and still obtain UN approvals."

UN approvals for drums and jerry cans can only be achieved if the containers, when filled with typical industrial liquids, pass tests to measure stacking, dropping, internal pressure and leak-proof performance. Users of uni- and bimodal PE resins for these applications generally must find a compromise between stiffness and ESCR because of the trade off between these two properties in conventional grades. This choice imposes a lower limit on the wall thickness of these products.

#### Tailored materials

LyondellBasell's *Hostalen* ACP process uses multiple reactors to produce materials

in which low and high molecular weight polymers are combined in a single resin to create a tailored material with a previously unattainable combination of properties.

The ACP process produces grades that are used in large blow moldings which combine high stiffness and an ESCR more than twice that of a conventional unimodal resin.

*Hostalen* ACP 5331 A is an HDPE resin used by customers in blow molded drums with capacities from 30 to 120 litres, as well as jerry cans with capacities from 5 to 35 litres.

"We now have several dozen customers in Europe using this grade to produce drums and jerry cans with significant downgrading of wall thickness," said Stechhan.

Another grade – *Hostalen* ACP 5531 B – delivers a similar combination of properties, but is used in smaller volumes for light-weight containers.

#### Higher productivity

As well as translating into significant materials savings, the reduced wall thickness also results in shorter cycle times – extrusion is faster and cooling times reduced – delivering higher productivity for a given line configuration. In one trial, output was increased from 89 to 100 canisters an hour.

"Producers have been quick to appreciate the material savings and productivity gains these new grades make possible," said Stechhan. "We expect them to become the material of choice for large blow moldings where resistance to mechanical damage and chemical attack is critical."

# PE resins fuel success in China

Products from LyondellBasell plants in Asia and Europe have played a key role in the success of YAPP, China's leading manufacturer of plastic fuel tanks.

point where YAPP has chosen to order from us 100% of their resin needs."

Last year YAPP supplied 1.75 million plastic fuel tanks – representing about 50% of the market in China. The majority of these are fitted to models manufactured in China by international OEMs.

YAPP's product range includes a variety of tank types from mono-layer and mono-layer fluorinated to multi-layer composite fuel tanks, all manufactured in accordance with the strictest emission standards.

lute priority from the start," observed Mr. Sun Yan, YAPP's President. "This has been key to our success with OEMs."

Based in Yangzhou, YAPP has six blow molding plants in China and has recently completed its first overseas plant in India. An additional plant in Russia and one in China will come on stream over the next two years.

## Design and testing

As well as manufacturing operations, YAPP carries out extensive design and testing at its R&D center. The center is equipped to carry out a full range of fuel tank test protocols to international standards. The center also carries out CAE studies to simulate the performance of proposed designs using material data supplied by LyondellBasell's CAE center in Europe.

"YAPP is able to offer international auto manufacturers high quality products at extremely competitive prices," said Mr. Sun Yan. "Our relationship with LyondellBasell has been a key contribution to achieving this level of quality."

The resins supplied to YAPP come from LyondellBasell's Wesseling plant in Germany as well as from a supply source in Korea.

When specifying a grade for a given product, OEMs are often able to select the same material used in other operations outside of China.

"We are delighted to have been able to take part in YAPP's impressive growth over the last few years," said Gu. "We look forward to continuing to support them in their next phase of expansion abroad."



YAPP customer celebrating quality award

"YAPP's success story is remarkable even by Chinese standards," said Richard Gu, Customer Manager, Automotive Fluid Systems & Industrial Packaging. "In less than ten years they have become the main supplier of plastic fuel tanks to virtually every international OEM operating in China."

"What is particularly gratifying to us at LyondellBasell is that YAPP has steadily increased its use of our materials to the

## Awards for excellence

In the process YAPP has picked up an impressive collection of awards for excellence from international manufacturers such as Volkswagen, General Motors and Ford, as well as achieving ISO quality certification for their manufacturing and quality control process.

"YAPP made the achievement of international quality standards an abso-



## Dynamic global growth predicted for pipes

**The recent Plastic Pipes XIV conference in Budapest provided a valuable overview of the sector's prospects.**

"The market for plastic pipes is likely to show healthy demand growth in the next few years. Drivers are manifold and one of the main will be the need for greater access to fresh water."

Speaking at Plastic Pipes XIV, a global conference for the pipe sector held in Budapest in September, Gianluca Brescia, the Global Head of LyondellBasell's Pipe, Industrial Sheet & Pipe Coating Business Unit, drew a picture of a dynamic world outlook for the industry. Rising living standards in Eastern Europe and Asia, and the need to replace outdated infrastructure in mature markets such as Western Europe, will ensure substantial demand for quality pipe solutions over the next few years. At the same time, new production capacity coming on stream in the Middle East will only partly be used to source products required by this growing sector.



Gianluca Brescia speaking at Plastic Pipes XIV conference in Budapest

He emphasized that to obtain maximum benefit from this opportunity – both for suppliers and end-users – the commitment to quality materials and solutions, especially in emerging markets, was essential. This is best achieved through close cooperation at every point along the value chain from manufacturers

down to individual local authorities and specifiers.

The conference was attended by over 400 delegates from the global plastic pipe industry and was recognized as extremely successful.

The next conference, in 2010, will be held in Vancouver, Canada.

## Wesseling hosts CSE customer visit



Customers from the Czech Republic, Slovakia and Hungary visiting PE and PP plants in Wesseling

**A one-day event at LyondellBasell's Wesseling plant in Germany presented the company's products and technology to customers from the Czech Republic, Slovakia and Hungary.**

"This was a great opportunity for our customers in these relatively new markets to see the technology and organization behind the resins we supply them." Nick Stoydin, Business Development Manager for the CSE countries, was speaking after

the 'open day' in September for around 20 customers from the Czech Republic, Slovakia and Hungary held at LyondellBasell's Wesseling site in Germany.

The program included a visit to the polyethylene and polypropylene process plants at the Wesseling site, as well as a tour of a local brewery.

"Personal relationships are very important," Stoydin commented. "Events like this are a valuable way of allowing our customers to get to know us and for us to get a better idea of what they need." "It was a very enjoyable day and we have other such events planned for the future."

LyondellBasell has recently extended its organization in Europe with new representative offices opening in Bratislava, Prague, Bucharest, Warsaw and Budapest to conduct marketing and customer development for polyolefins in these emerging economies.

## Distributor briefing is key to adding value



Ultrapolymers representatives attending LyondellBasell training in Wesseling, Germany

### **A briefing for Ultrapolymers staff was the latest event in LyondellBasell's program of training for large distributors.**

"Our aim is to ensure that the sales and technical staff of large distributors such as Ultrapolymers are able to deliver the same level of service and support as LyondellBasell's own staff," said Rüdiger Klein, LyondellBasell's Commercial Director for Germany, Austria and Switzerland Distribution. "Events such as the one-day briefing in Wesseling bring sales and technical people up to speed with the latest developments in our portfolio."

Held in September at LyondellBasell's Wesseling site in Germany, the briefing event was attended by around 40 staff from the entire Ultrapolymers organization – representatives from nearly 20 countries, from Spain and Portugal to

Russia and Bulgaria, were present. As well as receiving technical updates, participants also visited production plants and LyondellBasell's advanced logistics center where many of the products distributed by their network originate.

### **New sources of supply**

This year's focus was on polyethylene resins, in preparation for new large-scale production from the world-class plants in Saudi Arabia operated by SEPC, a joint venture between LyondellBasell and two local partners, Tasnee Petrochemicals and Sahara Petrochemical Company. This production is scheduled to come on stream at the end of 2008.

"There is going to be an exciting range of new PE materials becoming available," commented Jobst Winter, LyondellBasell's Regional Sales Manager for Distribution. "It's important that

Ultrapolymers and our other large distributors are ready to begin introducing these products to their customers."

### **Emerging applications**

As well as common PE applications such as blow molding and film, the Ultrapolymers delegates were also briefed on applications such as caps and closures, flexible tubes and ISBM containers – areas in which innovations in LyondellBasell's PE portfolio are driving interesting developments and adding value for customers.

"Large distributors such as Ultrapolymers are an essential link between LyondellBasell and the final user," added Winter. "This kind of event allows them to make sure that their customers select the right materials."

The next event in the program is a briefing for distributor Albis Plastics to be held in November.

## LyondellBasell launches Russian scholarship fund

**LyondellBasell establishes a scholarship fund for students at Moscow's Mendeleyev University of Chemical Technology.**

As part of its global program of academic sponsorship, LyondellBasell has created a fund to support studies at the Mendeleyev University of Chemical Technology in Moscow. The university, founded over a century ago, has a long tradition of building expertise in the chemical and petrochemical sectors.

"We are proud to participate in a program that supports an institution renowned for its modern chemical technology research and academics," said Martijn Vogelzang, Divisional Director of LyondellBasell's Technology Business.

Vogelzang added that the university will award the scholarships to its highest performing students. "We have established a committee that will select the most tal-



From left to right: Ivan Zaitsev, Adrian Kiryanenko, Elena Cherkinskaya, Tatiana Myasoedova (toll professor, Director of the center of additional education at Mendeleyev University), Martijn Vogelzang, Pavel Mendelev from LyondellBasell

ented and hard-working students to become part of the LyondellBasell scholarship program."

LyondellBasell is also sponsoring two PhD positions at the University of Rome. These positions – one focusing on health

and safety in chemical engineering and the other on industrial chemical processes – are open to foreign students, and Mendeleyev University graduates can apply directly. This fund helps to facilitate links between universities.

## Technology News

**A new LDPE technology joins the portfolio and LyondellBasell process technologies have been selected for new projects in Central Asia, Europe and the Middle East.**

### **Lupotech A technology – pushing the LDPE envelope**

Building on the success of its leading *Lupotech T* LDPE technology – over 7 million tonnes of licensed capacity – LyondellBasell has launched a new technology for the production of specialty low density polyethylene and ethylene vinyl acetate (EVA) products.

*Lupotech A* is a high-pressure autoclave process technology optimized for the manufacture of advanced products with demanding processing requirements, such as adhesives and

sealants with vinyl acetate content of up to 40%, or LDPE chemical structures with unique properties.

"Products from the *Lupotech A* process complement the LDPE and EVA portfolio covered by the *Lupotech T* process," said Kaspar Evertz, LyondellBasell's Senior Vice President of Licensing. "We are excited that we have been able to extend our wide-ranging portfolio of polyolefin technologies for license to the global markets."

### **PE and PP technologies for Kazakhstan complex**

Kazakhstan Petrochemical Industries has selected *Spherilene*, *Lupotech T* and *Spherizone* technologies for two new polyethylene plants and a polypropylene plant with a combined capacity of 1300 KT per year.

The plants will be constructed at the petrochemical complex of Karabatan in Kazakhstan.

### **World's largest Spheripol line for Saudi Arabia**

SABIC affiliate Arabian Industrial Fibres has selected LyondellBasell's *Spheripol* process technology for a new 525 KT per year polypropylene plant in Yanbu, Saudi Arabia. Start up of the plant, which is the largest single *Spheripol* process line ever licensed, is expected in 2012.

### **Lupotech T license to Slovak Republic**

Slovnaft Petrochemicals, a subsidiary of the MOL Group, has selected *Lupotech T* technology for a new 220 KT per year LDPE plant to be built in the Slovak Republic. Start up is expected in 2012.

# High-performance compounds from new plant in Mexico



New PP compounded plant in Altamira, Mexico

**The region's growing automotive and appliance sectors will benefit from advanced polyolefins supplied by LyondellBasell's new PP compounding plant in Altamira, Mexico.**

Demand for polypropylene compounded polyolefins among the car and appliance manufacturers in Mexico has expanded

along with the growth in local and international manufacturing operations in the country. To meet this growth in regional demand, LyondellBasell has recently completed construction of a polypropylene compounding plant at the port city of Altamira on the Gulf of Mexico.

The plant, which has just come on stream, has a nameplate capacity of 30 KT per year and will use feedstocks from the adjacent polypropylene plant operated by Indelpro, a joint venture of LyondellBasell Industries.

"With this new facility," said Steve Dwyer, Vice President of LyondellBasell Automotive Americas, "we are in an ideal position to support the growth that our customers in the region are experiencing. This plant will use the latest technology to produce a wide range of high-performance, high-quality polypropylene compounds and the facility has ample capacity for additional production lines."

# Bottles downgauge with Hostalen ACP grade

**A new HDPE grade from the ACP process has the potential of significant material savings in blow molded bottles.**

Resistance to the chemical agents found in many detergents and personal care products is a key requirement for the bottles designed to contain such liquids.

In the past, designers of blow molded HDPE containers have had to choose between environmental stress-cracking resistance (ESCR) and the high density and rigidity that allows reductions in wall thickness and thus material savings.

Now a new HDPE grade produced using LyondellBasell *Hostalen ACP* process offers the possibility of combining high ESCR with high density to produce tough, resistant containers with significant downgauging potential. "By using the Advanced Cascade Process the

molecular-weight distribution can be custom-designed," explained Helmut Gersema, LyondellBasell's Application Development Manager for blow molding. "That allows us to achieve an ESCR performance which is much better than that of a uni-modal standard grade of the same density."

The new grade – *Hostalen ACP 5231D* – also offers excellent processability, improved wall-thickness distribution and a wide processing window. "Customers have already reported that they were able to convert the resin on their machines without any modification to the processing parameters," continued Gersema.

*Hostalen ACP 5231D* is also used by converters to produce a wide range of containers up to 5 liters in size, as well as for multilayer packaging and toys. The new resin is currently manufactured in Europe and is available for export.

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